Draft Agenda of the 1st ESSAC Meeting in Amsterdam, 14-15 November 2003

Location: *Faculty of Earth & Life Sciences, Vrije Universiteit, Amsterdam*

Date/Time: *Friday, November 14th, 10:30 to Saturday 15th, 13:00 (Encl.)*

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for Ocean Research Drilling

Enclosure 1

ESSAC Delegates**,** 1st **ESSAC M**eeting in **A**msterdam**,** 14-15 **N**ovember 2003
(updated 12 November)

Present:

Jeroen Kenter	Chairman	The Netherlands
Chris MacLeod	Vice-Chairman	United Kingdom
Gilbert Camoin		France
Benoit Ildefonse		France
Judith McKenzie		Switzerland
Menchu Comas		Spain
Angelo Camerlenghi		Italy
Dan Evans		UK - ESO
Eve Arnold		Sweden
Kathy Gillis		Canada
Kari Strand		Finland
Raymond Schorno	NWO	The Netherlands
Catherine Mevel		France - EMA
Fernando J.A.S. Barriga		Portugal
Antje Voelker		Portugal
Rolf Birger Pedersen		Norway
Susanne Egelund		Denmark
Harry Doust		Netherlands - ILP

Not present

Hans Christian Larsen		Denmark
Fatima Abrantes		Portugal
Peter Herzig		Germany

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Item 1 Opening remarks by Jeroen Kenter and Chris MacLeod

Item 2 Adoption of the Draft Agenda (Encl.)

Item 3 Minutes from previous ESSAC Meetings (Empty)

Item 4 Update on ECORD Council negotiations
- 4A Draft minutes of ECORD Council Meetings, The Hague (26-27 August 2003) and Paris (23-24 October 2003) (Encl.)
- 4B Draft memorandum of understanding between ECORD member countries (Encl.)
- 4C Draft memorandum of understanding between IODP lead agencies (Encl.)

Item 5 News on Science Planning Committee (SPC) Activities
- 5A Agenda books iPC and SPC and Executive summary SPC Sapporo (Encl.)
- 5B ECORD Report SPC Meeting Sapporo 03 meeting (Chris MacLeod, Encl.)

Item 6 ESSAC Terms of Reference
- 6A Implications for SAS panel and shipboard staffing procedures (Encl.)
- 6B ESSAC and ECORD Council delegates as of 13 November 2003 (Encl.)

Item 7 ESSAC Shipboard Staffing
- 7A Science Plan FY04 (Encl.)
- 7B ECORD Staffing balance IODP Phase I (Raymond Schorno, Encl.)
- 7C ESSAC/USSAC/J-DESC discussion proposal for centralized Call for participation (Encl.)
- 7D Centralized Call for the Lomonosov Ridge expedition (Encl.)
- 7E ECORD Nominations for FY04 shipboard and shorebased science parties (Empty)
- 7F ECORD Nominations for FY04 co-chiefs (Encl.)

Item 8 ECORD delegates and alternates on the SAS panels
- 8A Mandates of SAS Panels (Encl.)
- 8B Nominations for ILP, PPSP, SciMP, SPC (voting vs. non voting members), OPCOM, SSP, TAP (Empty)

Item 9 Update from JEODI TN Work Package Groups (Encl.)

Item 10 News on IODP Science Steering & Evaluation Panel Activities (Camoin)
- 10A Draft report SSEPs meeting. 22-25 May, 2003 ; Niigata Japan (Encl.)
- 10B ECORD scientists on active IODP proposals (Gilbert Camoin, Encl.)
- 10C New IODP proposal submission guidelines (http://www.isas-office.jp/)

Item 11 News on IODP Service Panels Activities
- 11A Draft report ILP meeting, 20-22 February 2003; Amsterdam, Netherlands (Encl.)
- 11B Draft report PPSP meeting, 16-17 June, 2003; Stavanger, Norway (Encl.)
- 11C Draft report SciMP meeting, 12-14 December 2002, Edmonton, Alberta (Encl.)

11D Draft report SSP meeting, 28-30 July, 2003; Palisades NY, USA (Encl.)

11E Draft report TAP meeting, 21-22 February 2003; Amsterdam, Netherlands (Encl.)

Item 12 News on IODP Scoping Activities (Dan Evans)

12A Report of Arctic Scoping Group (ASG) (Encl.)

12B SPC voting on Arctic Lomonosov Ridge inclusion in the FY2004 IODP Program Plan

Item 13 News on IMI Inc. Activities and ECORD member memberships

13A Science Policy Planning and Oversight Committee (SPPOC; the former EXCOM) Mandate (Encl.)

13B Science Policy Planning and Oversight Committee (SPPOC) revised agenda meeting 5-6 December (Encl.)

13C ESSAC Nominations for the upcoming SPPOC meeting 5-6 December, San Francisco, USA. (Empty)

13D Joint Oceanographic Institutions Board of Governors (BOG) (http://www.joiscience.org/bog/home.html) (Encl.)

Item 14 ESSAC support for the IODP Conference in Greece (scheduled for March 2004)

14A Sakellariou request support (Encl.)

14B ECORD support letter (Encl.)

Item 15 ESSAC support for the European Ocean-Drilling Community Meeting, 17-19 March 2004, Bremen University, Germany (Hermann Kudrass, Encl.)

Item 16 ESSAC Business various (Encl.)

16A Chair and Vice-Chair rotational schedule (see Encl. 6A)

16B Compensation for Chair (ToRs ESSAC and USSAC) (see Encl. 6A)

16C Liaisons to USSAC and J-DESC, ECORD Council (Empty)

16D Letters of support by ESSAC and J-DESC to JOI application managing USSSP-IODP (Encl.)

16E ESSAC input requested on the issue of publications – letter by the Chair of the Publications Subcommittee Of the Science Planning Committee (SPC) of IODP, Ken Miller (Encl.)

16F Minutes of the U.S. Science Advisory Committee Meeting (USSAC), Hamilton, Bermuda, July 9-11, 2003 (Encl.)

16G Minutes of J-DESC - http://www.aesto.or.jp/j-desc/index.html (Empty)

16H ECORD (EMA or ERA Network) support for ESSAC (one per year?) and SAS panel meetings in ECORD countries (Empty)

16I ESSAC input requested to JOI/USSAC "U.S. IODP Education Workshop" and student trainee program (www.joiscience.org/USSSP/Ed_Wksp/Ed_Wksp.html) (Encl.)

16J ESSAC/ECORD speaker requested at the IODP Town meeting at the Fall AGU meeting in San Francisco, December 8 (Encl.)

Item 17 ESSAC Communication and PR

17A ESSAC and ECORD websites (Empty)

17B ESSAC Newsletter (Empty)

17C ESSAC Distinguished Lecturer Series (like USSAC) (Empty)

Also (Check http://oceandrilling.coe.tamu.edu/curriculum_modules/)!!!!

17D PECVI, SciMP (geochemistry) questionnaires (Encl.)

17E Activities related to the celebration of the start of ECORD/IODP

17F ESSAC Office science community data base of addresses (Empty)

Item 18 ESSAC support to ESO Lomonosov Ridge (proposal #533, forwarded and South Pacific Sea Level (IODP proposal #519, ranked #1) planning (Andy Kingdon, Empty)

Item 19 ODP Legacy documents: Achievements and Opportunities of Scientific Ocean Drilling (http://joides.rsmas.miami.edu/legacy/) and ODP Highlights (http://joides.rsmas.miami.edu/files/ODP_Highlights.pdf) (Empty)

Item 21 Upcoming Meetings

List of relevant upcoming meetings (Encl.)

Item 22 Miscellaneous (Empty)

Item 23 Date and Place of the Next Meeting (Empty)

General information ESSAC meeting
14 – 15 November

Accommodation:

There are several options for accommodation which are specified below:

- **AMS hotel Beethoven (***)**
  Beethovenstraat 43, 1077 HN Amsterdam
  Tel: +31 (0)20 6644816 Fax: +31 (0)20 6621240
  Prices: Single/Double Room 112/125 euro, incl. breakfast
  URL: http://www.amsterdamhotelspecials.com/hotels/en/ams-beethoven-hotel-amsterdam.html
- **Novotel Amsterdam (****)**
  Europaboulev 10, 1083AD Amsterdam
  Tel: +31 (0)20 5411123 Fax: +31 (0)20 6462823
  Prices: Single 99 euro, incl. Breakfast
  URL: http://www.amsterdamhotelspecials.com/hotels/en/novotel-amsterdam-hotel.html
- **Hotel van de Kasteelen (***)**
  Frans van Mierisstr 34, 1071RT Amsterdam
  Tel: +31 (0)20 6798995 Fax: +31 (0)20 6706604
  Prices: Single/Double Room 85/120, incl. breakfast
  URL: http://www.hotelvandekasteelen.com/index.htm
- **AMS Hotel Concert Inn (***)**
  De Lairessestr 11, 1071NR Amsterdam
  Tel: +31 (0)20 3057272 Fax: +31 (0)20 3057271
  Prices: Single/Double 59/69 euro, excl. breakfast
  URL: http://www.channels.nl/cgi-bin/pagatoz.cgi?framed=http://www.bookings.nl/hotels/concertinn?id=200006

Detail information on location of the hotels can be found at http://www.amsterdam.nl/

Airport:

Amsterdam airport (Schiphol) is approximately 20 km south of the city center. There are several options of transportation from the airport to one of the above hotels.

Taxis are available outside the arrival hall of the airport, a trip to the city center should cost about 30 EUR. Another option is the train station, which is situated inside Schiphol airport. The train from station Schiphol to station Zuid WTC should be taken for all the hotels except for the Novotel Amsterdam. From station Zuid WTC the tramline 5 towards the city center should be taken to reach one of the hotels. For the Novotel Amsterdam the train to station RAI should be taken from station Schiphol, the hotel is within walking distance of the station.

Vrije Universiteit Amsterdam:

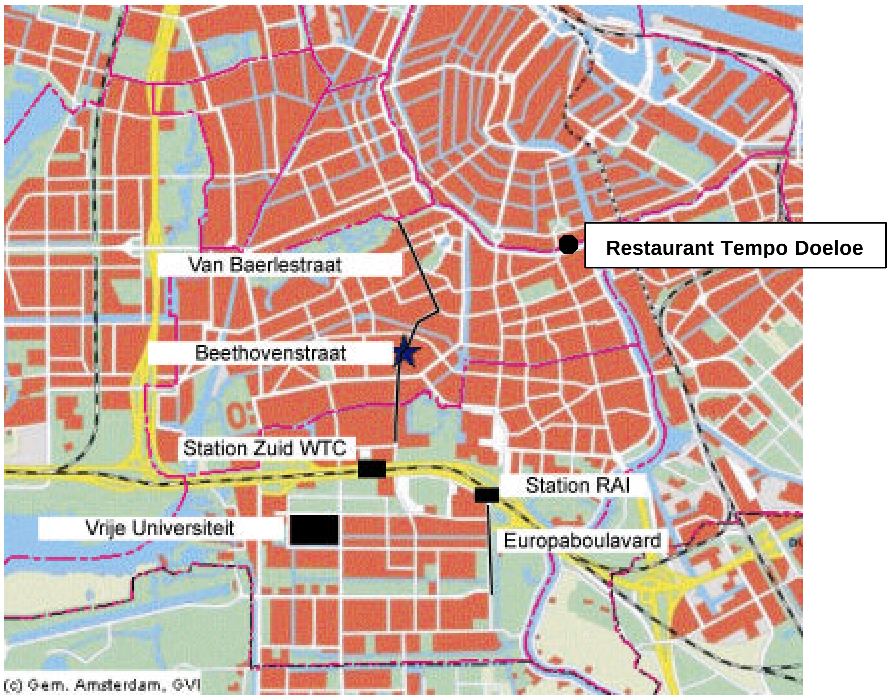
The Vrije Universiteit Amsterdam is located in the south part of the city and can be reached by public transportation from the hotels. All hotels (except the Novotel) are situated near the “Van Baerlestraat” or “Beethovenstraat” where tramline 5 can be taken to the Vrije Universiteit Amsterdam (stop “De Boelelaan/VU”). The Novotel is within walking distance of the Vrije Universiteit Amsterdam or can be reached by fast tramline 51 from station RAI to stop “De Boelelaan/VU”.
The ESSAC meeting will be held in the faculty of Earth and Life Sciences (W&N building of the Vrije Universiteit Amsterdam) in room C161 (see maps).

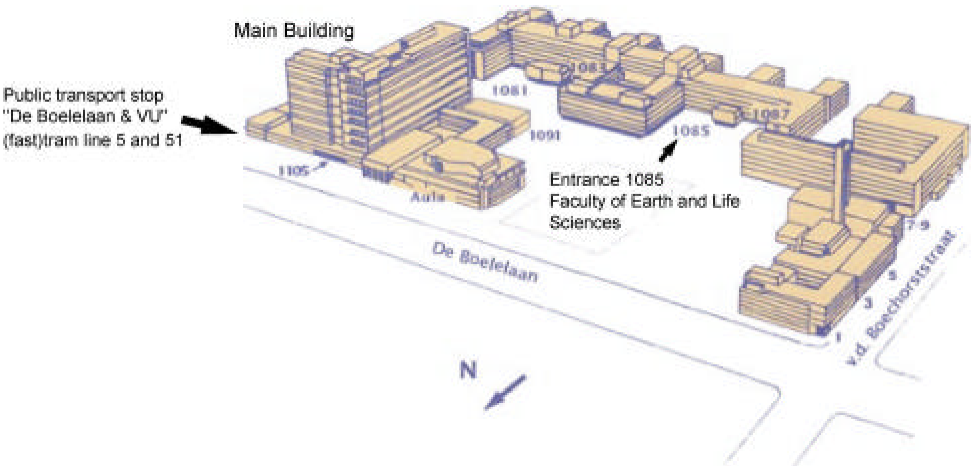
Faculty of Earth and Life Science
De Boelelaan 1085
1081 HV Amsterdam

ESSAC Friday Dinner:

The dinner after the Friday meeting will take place at:

Restaurant Tempo Doeloe
Utrechtsestraat 75
Amsterdam





DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 4A1

11th Meeting of the ECORD interim Council
The Hague, 26.08.-27.08.2003

Draft
Summary of Motions

Encl4A1

ECORD interim Council Motion 03-05-01: ECORD interim Council approves the Capri Minutes.

C. Franklin moved, J. Ludden seconded, 9 in favour, no one against, 1 abstention (R. Schorno).

ECORD interim Council motion 03-05-02: ECORD interim Council endorses the following guidelines for EMA in preparation of a memorandum with NSF and MEXT for the ECORD consortium as part of IODP:

1. ESO IO for all MSPs *–Montana letter*
   Manage
   But not necessarily fund
2. Parity with NSF/MEXT –significant partner *(ECORD MoU)*
3. Say in Lead Agency MSP decisions *–Montana letter*
4. Can EMA sign before ECORD MoU signed? *-No*
5. SOCs will be available for MSPs year-by-year (annually)
6. Shore-based facility parity to ships for legs *-ESO to draft text for IODP Member Memorandum*
7. Subsequent SAS rankings not able to displace an MSP project *-IODP operational commitment*
8. Annex committing to Arctic
9. POCs equivalent to SOCs for leg participants

IODP Member Memorandum *(Change IODP Member Memorandum)*

1. *P2/9 – MSPs Arctic and shallow water only*
2. P3 –SAS Exec Autohority (IMI Inc)
3. *P3 –SAS panels: 1 SOCs unit, 1 member*
4. P3 –SAS Chairs: US/Japan (NB J-DESC)
5. P4 –NSF/MEXT approve annual plan)
6. *P4 –Council needs IODP Council extra reps*
7. P5 -1 SOCs unit, 2 leg participants
8. *P9 -2006 $ and Agencies set unit costs*
9. *P9 Needs POCs*
10. P10 –patents
11. P11- 5 year review (no longer relevant)

ECORD Council further endorses the following mandate for the Director of the EMA as the negotiating position for ECORD:

1. Start from position of 4 PU

A significant partner with say in MSP decisions and acting as the manager (IO) for all MSP operations within IODP (to avoid duplication and extra bureaucracy)

2. Minimum acceptable position

8 science party participants (no less than ODP) each platform, each operation,
4 panel members (2 voting and 2 non-voting) thus ensuring international scientific expertise

3. To check
Implications of Agency Chairs in SAS,
Reasons for Japanese 5:5:2 suggestion – must have sufficient international experience available to panels, perhaps 6:6:4

4. Authority to walk away from negotiation meeting (last resort) if minimum position not achieved

Von Knorring moved, seconded J. Hertogen, all in favour.

ECORD interim Council Motion 03-05-03: ECORD interim Council received a report from ESO and recognises and underlines/endorses the unique opportunity to achieve Arctic drilling as part of IODP in 2004.

J. Ludden moved, R. Schorno seconded, all in favour.

ECORD interim Council Motion 03-05-04:
-ECORD interim Council approves the nomination of J. Kenter (Free University Amsterdam) as Chair and C. MacLeod (Cardiff University) as Vice-Chair of the interim ESSAC, and agrees that they continue into the IODP period as Chair and Vice-Chair respectively of the full ESSAC, but only after further nomination by the new ESSAC delegates and ECORD Council approval.
-For the IODP 2003/2004 year, the ESSAC office will be established at the Free University in Amsterdam.
-Once the ECORD MoU is signed, Council members will reconsider their nominations for ESSAC members.

R. Schorno moved, M. Comas seconded, all in favour.

ECORD interim Council Motion 03-05-05: EiC approves J. Ludden as Vice-Chair from the first of October.

C. Franklin moved, M. von Knorring seconded, all in favour, J. Ludden agreed.

ECORD interim Council Motion 03-05-06: EiC approves S. Egelund as part of the Council Executive.

M. von Knorring moved, C. Franklin seconded, all in favour, S. Egelund agreed.

ECORD interim Council Motion 03-05-07: EiC approves S. Dürr as part of the Council Executive.

R. Schorno moved, M. von Knorring seconded, all in favour (S. Dürr absent).

ECORD interim Council Motion 03-05-08: EiC approves A. Volbers as ECORD Council Minute taker for the first year of the new Programme.

J. Ludden moved, C. Franklin seconded, all in favour, A. Volbers agreed after H. Kudraß agreed in principle. H. Kudraß pointed out that S. Dürr would also need to agree to this extra task since DFG would finance A. Volbers' position at BGR.

ECORD interim Council Motion 03-05-09:
-ECORD interim Council proposes that it dissolves and reforms as ECORD Council from 1 October 2003.
-EiC Chair to write to members asking for formal nominations to ECORD Council.
-ECORD Council Chair and Vice-chairs to be nominated at first ECORD Council meeting.

C. Franklin moved, J. Ludden seconded, all in favour.

11th Meeting of the ECORD interim Council
The Hague, 26.08.-27.08.2003

Draft Minutes
Closed Meeting

Participants

Jonas Björck (VR, Sweden)
Are Birger Carlson (RNF, Norway)
Menchu Comas (MICYT, Spain)
Susanne Egelund (SNF, Denmark)
David Falvey (BGS, United Kingdom)
Chris Franklin (NERC, United Kingdom)
Jan Hertogen (K.U.LEUVEN, Belgium)
Martina Hildebrandt (ESF)
Deepak Inamdar (GSI, Ireland)
Andy Kingdon (BGS/ESO, United Kingdom)
Hermann Kudraß (BGR, Germany)
Marcel Kullin (SNF, Switzerland)
Hans Christian Larsen (DLC/SNF, Denmark)
John Ludden (CNRS, France)
Esteban Manrique (MCYT, Spain)
Judith McKenzie (ETH-Zurich, Switzerland)
Catherine Mével (CNRS, France)
José Monteiro (GRICES, Portugal)
Maria-Luigia Ruscitto (CNR/OGS, Italy)
Raymond Schorno (NWO, Netherlands)
Kari Strand (TI/OULU, Finland)
Montserrat Torne (CSIC, Spain)
Andrea Volbers (BGR, Germany, Minutes)
Mary von Knorring (VR, Sweden)

Agenda

1) Welcome/Introduction
2) Discussion of Agenda
3) EiC meeting minutes (Paris/Dublin/Capri)
4) Capri IWG report
5) MSP (Arctic) drilling in 2004
6) ECORD MoU
7) IODP member memorandum/Montana letter
8) IMI membership
9) EMA report
10) ESO report
11) ESSAC nominations and office
12) ERA-net
13) New Vice-Chair and Executive
14) AOB
15) Next meeting

1) Welcome/Introduction
J. Monteiro welcomed the participants and pointed out that either members or invited guests would be allowed to participate in The Hague closed meeting. EiC participants introduced themselves.

2) Discussion of Agenda
J. Monteiro presented the agenda and separated between agenda items for information and issues that would need decision and EiC approval (items 6, 7, 11, 13). C. Franklin presented the updated agenda (see above) that was adopted by the Council.

3) EiC meeting minutes (Paris/Dublin/Capri)

J. Monteiro summarized that the minutes of the last three meetings need to be approved. C. Mével mentioned that one figure in the Capri Minutes would include a wrong EMA budget. A. Kingdom apologized for the wrong numbers and suggested to delete this column.

C. Franklin summarized that the Council would have already agreed to Council voting and the Terms of Reference of the Council and ESSAC at the Capri meeting. He would like to point out this fact for the record. The ECORD MoU that was agreed by the Council did not include a paragraph on IODP Council representation. This item should be revisited during the The Hague meeting.

Referring to an email of M. Ruscitto to EiC members, the sentence "Italy could pay 10% perhaps in the future 20%" was deleted from the Capri minutes. J. Monteiro suggested writing "M. Ruscitto mentioned that Italy will participate on a 10% level".

ECORD interim Council Motion 03-05-01: ECORD interim Council approves the Capri Minutes.

C. Franklin moved, J. Ludden seconded, 9 in favour, no one against, 1 abstention (R. Schorno).

R. Schorno explained his abstention as he did not attend the Capri meeting.

J. Monteiro asked EiC members for approval of the Dublin open and closed Minutes. M. von Knorring pointed out that her actual proposal was to elect a chair for the remaining time of the ECORD interim Council. H. Monteiro would be Chair until the last of September. C. Franklin agreed to change the Minutes accordingly and the Minutes were approved.

J. Monteiro handed out the Paris draft Minutes since they were not distributed electronically. The Paris Minutes were approved by the end of the meeting.

4) Capri IWG report

C. Franklin gave the IWG meeting report (handout 12-4). He summarized that ECORD will provide 2 PU to IODP as SOCs and explained that at the Capri meeting it was reemphasized that further 2 PU will be provided as POCs, resulting in 4 PU altogether. In addition, the Arctic drilling in 2004 and the status of ECORD as the MSP implementing organisation of the Program were discussed at the IWG meeting. IWG replied that it could not approve EiC for that but, however, "if an MSP proposal has been approved by the IODP Science Advisory Structure for 2004 drilling and the organisation providing the platform has sufficient resources to undertake the program, then the Lead Agencies will work to ensure that such a program has every chance of success". C. Franklin added that EiC agreed to that position and put a mechanism in place whereby ECORD could get program approval (to be discussed under agenda item 5).

C. Franklin emphasized that POCs will count to membership to IODP but will not necessarily be regarded as full PU the same way SOCs would be. He summarized that the Lead Agencies started negotiating the definitions of membership and EiC should decide how to address this issue.

5) MSP (Arctic) drilling in 2004

C. Franklin reported on MSP drilling in 2004. He summarized that a timeline for drilling the Lomonosov Ridge was worked out (see Capri Minutes) and that the tender process of Arctic drilling was set within the European framework. ESO was asked to prepare an interim Agreement because the full ECORD MoU was not yet agreed. Members were therefore asked to sign the interim Agreement and the UK, Germany (DFG), France, The Netherlands, Sweden, Norway, Finland, and Italy (OGS) responded to the call. Therefore around 8 Million USD were made available for the Arctic operation.

J. Monteiro asked EiC members for an update. According to him, Portugal tried to be in time signing the interim Agreement but quarrelled with the problem who should sign the document. Portugal would not be sure whether the funding agency should sign or the financing body of the ministry. M. Comas summarized that all information were sent to Madrid but that there was no official reply. E. Manrique added that the Spanish viewpoint was not discussed but might be a topic after the holidays. C. Franklin asked for the timing and E. Manrique replied that it might be discussed during the next month. J. McKenzie summarized that Switzerland did not sign the interim Agreement but put the proposal forward and accepted the Swiss budget for membership in IODP. After that, Switzerland could sign the interim Agreement. She added that the position of the Swiss' science foundation might depend on the proposal ranking of the SAS structure and that Switzerland is committed to IODP membership. J. Ludden explained that Arctic drilling would be part of IODP. J. McKenzie insisted that the legal documents commit to IODP and that in case the Arctic cannot be drilled as planned problems might arise. R. Schorno added that the Arctic will solely be drilled as part of IODP. J. Hertogen questioned whether the Americans and Japanese do agree with this point of view. The way the documents are presented, the Arctic drilling would seem to be the most important project but others might not agree with this viewpoint. C. Franklin clarified that in case the SAS would not rank the Lomonosov Ridge proposal within the most important MSP projects, NERC would not continue with the Arctic. The Lomonossov Ridge could only be drilled in agreement with the SAS. S. Egelund mentioned that she agreed with J. McKenzie and referred to the email that she sent to C. Franklin why Denmark did not sign the interim Agreement. C. Strand stated that Finland had a hard time to get the Agreement in summer. According to M. Ruscuitto CNR will send a letter of intent with the 5% promised by the end of October due to the very serious and difficult situation passing. The other 5% will come from OGS - Trieste. This is referring to the fiscal year 2003-2004. D. Inamdar reported on the complex Irish position. He explained that the interim Agreement would pass between the legal people and the ministry that would have to arrange the funding. He suggested talking to both bodies individually to speed up the process and to come to a decision within a few weeks. Referring to J. McKenzie he added that it would also be necessary to accentuate Ireland's contribution to IODP. Going directly via the Arctic drilling might cause problems because it would not be easy to explain Ireland's benefits. However, after IODP approval there would not be any problem with Ireland supporting the Arctic drilling.

6) ECORD MoU

C. Franklin presented the ECORD Memorandum of Understanding that was updated several times. He reported that a number of actions were outstanding on him (see handout 12-6), and that many changes had already been agreed to and had been distributed by email. He worked through the document to ask EiC members for approval:

Page 2: The term „super member“ was changed to „become a significant partner“

J. Ludden suggested writing: “become the third operational component for IODP”

C. Franklin dunned EiC members to show the MoU to their legal departments since the wording would be almost ready and only minor changes are expected after this meeting. He prompted EiC members to look through the text to check the wording.

Page 3: “Participation Rights and Responsibilities (including Intellectual Property Rights), Duration and Review, defined in Annex B. C. Franklin pointed out that EiC members decided that IPR will be governed by European Commission IPR agreements (page 28).

“Heads of Agreement” were changed to “MoU”.

Annex A, A “Management Principles”
C. Franklin summarized that he was asked to add a history where all the principles came from (page 4) before the Management Principles.
Page 5: “IODP” was inserted in clause 7.
Page 5: “In consultation with the IODP Central Management Office (CMO), EMA will provide funds directly to ESO…”
Page 5: A. Kingdon suggested changing “alternate platforms” in „MSPs” in clause 6
Page 5: H. Kudraß questioned the wording of clause 9. According to him, EMA does not need to consult the CMO, instead “in agreement with CMO EMA will provide funds”.

C. Franklin asked writing “in agreement with ESO and EMA”? A. Kingdom replied that there would not be any problem from the ESO side and C. Mével added to negotiate the amount of money and to transfer it to ESO. The decision of the amount would be made by CMO. D. Falvey pointed out that there could be two currency exchanges.

B „Membership principles“
It was argued that clause 4 was “natural”.

D. Inamdar questioned the exact wording of the Memorandum since it would be used differently in different sections of the document and J. Ludden asked for clarification whether Council members would sign a “Memorandum” or a “MoU” since a Memorandum would be regarded as a “softer” document compared to a MoU. C. Franklin promised to take care on the wording regarding the ECORD MoU. The IODP Memorandum would be a “Memorandum”.

EiC members discussed whether NSF and MEXT should have access to the ECORD MoU or whether it should be treated as internal document. It was stated that the PacRim MOU was completely open and D. Falvey suggested handling the ECORD MoU the same way. M. Comas added that the same was true for ECOD.

C “Programme principles”
Page 5, clause 1: “The IODP Science Plan will be the driving force behind ECORD participation in the programme“

C. Franklin explained that he added the meeting structure on page 7-9 as part of the history. EiC members decided to have a slim MoU and excluded the meeting structure from the MoU.

Page 6, clause 4: J. Ludden asked about the “trial of procedure” because there would not be a trial anymore and clause 4 was erased.

Page 6, (old) clause 5 (new clause 4): J. Ludden suggested writing “provided by IODP SAS”.

Annex B „Membership (ECORD Council) and Participation Duration
Page 10, bullet point 4: M. von Knorring asked whether ”countries hosting the EMA and ESO will have Council members who are independent of the EMA and ESO” would mean that e.g. J. Ludden was not allowed to be the French representative because he was not independent of EMA. C. Mével mentioned that JAMSTEC would have the same problem but would not mind. The sentence was changed to “deemed by ECORD Council not to be conflicted with EMA and ESO”.

Council Chair, bullet point 5: C. Mével suggested writing “between the member countries” instead “European countries”.

It was stated to delete the rest of the sentence of “Vice chairs will rotate at each election between member countries”.

Eic members agreed to “Council voting procedures”.

M. von Knorring referred to the last bullet points of “Council Chairs”. EiC members discussed who should convey ECORD’s position at the IODP Council. J. Ludden suggested the EMA director and D. Falvey added that EMA would be the equivalent to NSF and MEXT. The bullet points where changed accordingly: “The EMA director will be responsible for conveying..... along with the ECORD Council Chair(s)” and “The EMA Director will lead negotiations, along with the EOCRD Chair(s) for ECORD...”. C. Franklin asked for approval whether EMA should lead negotiations with the Council’s Chair. M. von Knorring summarized the decision taken in a former meeting and stated that also she would not fully agree since she would like to have more structure at the IODP Council, it was a good compromise.

M. von Knorring pointed the Council’s attention to “Council observers”, the second last bullet point, regarding the participation of China in Council meetings. It was decided that this was covered by the bullet point above. It was suggested to change the “Council meetings” to:
“Closed council meetings will only be organised at the direction of the ECORD Council Chair(s)”, the rest of the sentence was deleted. J. Hertogen suggested excluding the word „European“ in “Council observers” since e.g. Turkey would not be officially regarded as European country. In addition, the word “ECORD” was excluded the bullet point 3 “Representatives of non-European countries which have expressed an interest in joining IODP”. A. Kingdon mentioned that even if e.g. Canada could not become an associate member of IODP it could join IODP via ECORD.

“Council tasks”, bullet point 4: “Taking measures to secure sufficient funding for IODP and specifically MSP initiatives”.

M. von Knorring mentioned that proxy voting was not covered under “Council voting procedures”. The paragraph that was written under “ESSAC” was added to bullet point 1. “There is no power of attorney for absent members”.

C. Franklin pointed out for the record, that voting procedures are closed.

“Duration of Membership”: C. Franklin explained that J. McKenzie and himself composed a paragraph and asked for comments since this would be an important item that should not be discussed in the meeting. J. Ludden disagreed because he believed that this item was not too sensitive. J. McKenzie talked about a review after three years. According to J. Ludden, individual countries could review whenever they want and withdraw at any time. However, the duration of MoU should be in principle 10 years but could be determined every year at one year’s notice. In addition, the ERA-NET would review the whole ECORD system. EiC members discussed whether 5 or 10 years should be written in the MoU and referred to different review levels (national level, ECORD membership etc). EiC members discussed the sentence: “Participants signing this ECORD Memorandum, in principle, sign up for 5 years with an anticipated renewal for a further 5 years, depending upon review”.

A. Larsen pointed out that it would be difficult to have a review process after only three years. J. McKenzie argued that the first years need to be very successful and that not all European countries could secure funding for five years. R. Schorno summarized that three years were set because the contribution was expect to increase and J. Hertogen added that it should be possible to have reviews at year 3 because the national funding agencies need to review the success of the programme. He added that it would not be necessary to specify the review process in detail. The Council agreed that in any case a review of performance need to be done. D. Falvey added that MSP operations need to be evaluated for sure.

C. Franklin suggested writing “ECORD acknowledges that IODP is in principles a 10 year program. However this ECORD memorandum anticipates that a 5 year review of the effectiveness of the ECORD membership will be implemented.” The rest was deleted and replaced by “It is recognised that individual members of ECORD will require information to feed into national evaluations. A full specification for the review will be developed by the EMA and agreed by ECORD Council”.

Annex C “ECORD structure”
It was agreed to keep the diagram on page 15 and to delete the rest.

Annex D “ECORD Science Support and Advisory Committee (ESSAC) Terms of Reference”
C. Franklin summarized that the ToR for ESSAC would have been more or less agreed during the other meetings and presented the changes to the original text.

Annex E “ECORD Managing Agency Proposal” and Annex F “ECORD Science Operator Proposal” have not been circulated. The templates to EMA and ESO should be based on the ToR for ESSAC, they should match the text that was deleted in Annex C. EiC members discussed a deadline for the annexes and it was suggested to send them after the ESO meeting (9-10.09.2003) to the Chair and Vice Chair as suggested by A. Kingdon.

Annex G „ECORD Financial Structure“

C. Franklin pointed out that a new paragraph was added „However, at the final IWG meeting, Capri, Italy…Platform Operations Costs (POCs) would not be acknowledged as equivalent to cash contributions for participation units”. J. Ludden suggested replacing the word “would” by “might”. C. Franklin asked EiC members whether this paragraph should be added to the text. D. Falvey and C. Mével disagreed and EiC members decided to delete the new paragraph from the MoU.

"ECORD financing"
J. Ludden referred to the sentence "To be accepted as a full member of ECORD, all European members that contributed to OPD will contribute a minimum starting cash contribution at least equal to their ODP contribution." And suggested writing "aim to contribute…" He explained that the French contribution would depend on IMAGES' integration in IODP. The French contribution might not be 3,5 Million but 2 to 2,5 Million USD. EiC members discussed whether a table of national contributions to the programme should be added to the document as shown on page 27 since this was regarded as basis to do the Arctic drilling. J. Ludden stated that this table was used as a guideline, useful for negotiations with other countries but with the numbers on it, France would not sign the document. He suggested writing "aim to contribute". J. McKenzie suggested adding a more realistic table and H. Kudraß requested a firm commitment of the member countries. He added that in particular France was regarded as a strong and reliable partner and the whole project might weaken by vague partners. J. Ludden replied that he had always pointed out that if IMAGES was a part of IODP France could contribute 3,5 Million USD, of which 1,5 would be in-kind contributions (Marion Dufresne). Without the Marion Dufresne France could contribute only 2 Million USD over a 5 year period to the programme. M. Comas pointed out that it was decided in Frankfurt that an in-kind contribution would not count to the membership fees and that the contributions were always treated as cash money. C. Mével insisted that she would definitely need a table for EMA even if EiC members would decide not to add a table to the document. J. McKenzie stated that every country would need to sign the document and should make a commitment. M. Ruscitto pointed out that Italy could not maintain its former contribution and asked whether it could not participate anymore. It was suggested writing "… aim to contribute". C. Franklin added that "National funding agency contributions to ECORD will aim to be a minimum as shown in table 1. Secured contributions for the first year and projections for the first 5 years of IODP are detailed in Annex H". The column "other countries" was deleted and another column was added for the ERA-NET. H. Kudraß added that the table should be part of the document to have an option target to present to the funding agencies. J. Ludden proposed to use the table as a target to funding and to include all countries and their contributions for a 1-year-period. D. Falvey disagreed because individual targets would disrupt the figure. EiC should present a collective table.

C. Mével stated that table 1 and 2 in Appendix 2 would not be correct anymore. It was decided to look for an update on IODP Participation Unit costs and IODP Program costs and to revisit this topic the next day.

„Rights and responsibilities", bullet point 3: C. Mével asked how to deal with non-European countries, such as Canada. It was stated that even Canada could receive funding from the EC.

"Intellectual property rights": Already discussed.
Appendix 3: "European Commission (EC) Intellectual property Rights Agreement" was blank in the circulated version.

Annex H "Membership and financial contributions": The third paragraph was changed into: "The member endorses cooperation in the IODP, with…1 October 2003 to 30 September 2013". The rest was deleted because EiC members agreed to continue for 10 years (in membership and financial contributions).

7) IODP member memorandum/Montana letter

J. Ludden provided an update to IWG Co-Chairs confirming that ECORD would be ready to start negotiations on signing a member memorandum with NSF and MEXT after this meeting. He wrote to M. Leinen and D. Yoshida that all European funds will be pooled and managed by EMA (CNRS-INSU) and C. Mével, as EMA director, would lead ECORD negotiations with NSF and MEXT. EiC members were informed about the meeting between the implementing organisations held in Montana convened by the IODP Interim Director to discuss the roles of Implementing Organisations in IODP with respect to cross-platform integration (compare document 12-7). It was reported that EiC Chair and Co-Chairs responded to this meeting since the wording that was provided with the draft agenda of the Montana meeting neglected the role and position ECORD had expressed towards its involvement in IODP. The letter summarized ECORD's commitments in principle of SOCs at the level of two PU and its commitment in MSP operations. It was also stated that ECORD aims to provide MSP funds (POCs) equivalent to two PU for the first 4 years of IODP. In order to enter into negotiations for an MoU between ECORD and the Lead Agencies two non-negotiable requirements were addressed:

1. Acknowledgement of ESO as the Implementing Organisations for MSP operations within the scope of IODP
2. ECORD to be involved in all Lead Agency decisions related to MSP operations

C. Franklin presented IODP Membership issues that were introduced and discussed during the first and second day of The Hague meeting:

- ESO IO for all MSPs *–Montana letter*
  Manage
  But not necessarily fund
- Parity with NSF/MEXT –significant partner *(ECORD MoU)*
- Say in Lead Agency MSP decisions *–Montana letter*
- Can EMA sign before ECORD MoU signed? *-No*
- SOCs will be available for MSPs year-by-year (annually)
- Shore-based facility parity to ships for legs *-ESO to draft text for IODP Member Memorandum*
- Subsequent SAS rankings not able to displace an MSP project *-IODP operational commitment*
- Annex committing to Arctic
- POCs equivalent to SOCs for leg participants

IODP Member Memorandum *(Change IODP Member Memorandum)*

- *P2/9 – MSPs Arctic and shallow water only*
- P3 –SAS Exec Autohority (IMI Inc)
- *P3 –SAS panels: 1 SOCs unit, 1 member*
- P3 –SAS Chairs: US/Japan (NB J-DESC)
- P4 –NSF/MEXT approve annual plan)
- *P4 –Council needs IODP Council extra reps*
- P5 -1 SOCs unit, 2 leg participants
- *P9 -2006 $ and Agencies set unit costs*
- *P9 Needs POCs*
- P10 –patents
- P11- 5 year review (no longer relevant)

EiC members discussed possible SAS panel representation, e.g. 5 US-5 Japan-2 others and how to comment on it. It was decided not to accept the combination 5-5-2. J. McKenzie stated that Europe should not get less than in ODP, instead Europe would pay for 4 PU and should have 4 leg participants and 4 panel members as in ODP SAS. H. Kudraß mentioned that the Japanese would like to have more external reviews instead of intensive panel work. He stated that SAS positions would not be attractive anymore and the new procedure would devaluate the ODP SAS work. H. Larsen drew EiC's attention to IPSC with a 6-6-4 representation. ECORD should negotiate the number of voting rights. J. Ludden suggested not to fall below 4 panel members but to have a minimum number of 2 votes. J. Hertogen suggested not to fight for numbers but to reconstruct the Japanese position. He stated that Japan might feel inferior in the panels since the Americans would be native speakers (language advantage). Although Japan would account for huge expenditures and for the riser vessel, the Japanese scientists and staff might fear not to be taken seriously. R. Schorno suggested that European scientists could fill this gap since they are used to speak English in an international context. C. Franklin summarized that it would be crucial to find out the exact reasons. D. Falvey pointed out that Europe would be on the side line and would not be really engaged into three lateral discussions. According to him, the European funding agencies should be accountable, and Europe's accountability was missed so far. EiC members discussed what kind of representation they are willing to accept and the discussion was postponed until the next day.

The meeting was continued on August, 27th:

To 6: ECORD MoU

C. Franklin asked EiC members whether the table of the MoU (page 27) should be added to the membership memorandum or whether a new table with ECORD's aim to provide 4 PU should be added instead.

D. Inamdar favoured the second choice and D. Falvey suggested adding the ERA-NET as part of the total sum. C. Mével stated that the ECORD consortium would not need to detail its budget. R. Schorno suggested asking the EC whether the ERA-NET should be added or not. It should be stated that ECORD aims to provide 4 PU. H. Kudraß agreed that this would be satisfactory outside ECORD but still requested a firm financial commitment from all EiC members, otherwise the budget might differ from year to year. C. Mével announced that she prepared a table and asked EiC members to fill in national contribution levels to the programme. C. Franklin suggested leaving Annex H blank since EMA would hold all information. J. Ludden suggested writing "Funding contributions to ECORD for the first year and projections for the first 5 years of IODP are detailed in Annex H". S. Egelund pointed out that it would not be clear what to get for the money, in particular since it would not be clear if there are 4 PUs. The sum of the allocated money would certainly rely on the number of PUs. M. Torne stated that according to her experiences it would be necessary to list the numbers of all participants since it would be hardly possible to convince the national authorities unless they could see the contributions of the other countries. D. Falvey agreed since the contributions would be necessary to negotiate the number of leg participants. J. McKenzie pointed out that the money would be committed to IODP and not to Arctic drilling. She suggested filling out the table for at least one year. J. Ludden stated that Annex H should be signed by everyone. C. Franklin summarized that ECORD would try to fund the top ranked proposal in ODP and IODP next year otherwise it might not be drilled at all. In case it would not be the Lomonosov Ridge, another proposal would be drilled as part of the IODP. In order to be able to do so, NERC would need a signature of all member countries to the interim Agreement.

C. Franklin suggested updating national contributions in Catherine's table. H. Larsen agreed and added that countries that did not know their contributions for sure should find out and could compare it with the other countries' contributions. J. McKenzie summarized that the contributions for the first year would be essential for negotiations whereas the other years could be renegotiated. C. Franklin summarized that he will add one line with the totals and that a table will be prepared by EMA and added to the Annex H. He declared the finance section closed until the next meeting. He summarized that two annexes would have to be finalized including the statements of EMA and ESO. C. Mével promised to work out the documents and to circulate them via email as soon as possible. C. Franklin suggested circulating the latest version of the MoU without the missing documents to give the national lawyers the opportunity to look at the changes.

R. Schorno suggested referring to the EMA and ESO costs in the annexes in case that they would not be covered by the ERA-NET. C. Mével responded that these costs would not be covered by the ERA-NET and need to be paid from commingled funds. She explained that it would not be possible to work out a detailed budget at the moment. D. Falvey added that ESO might be financed by returned money from CMO and suggested that C. Mével should discuss this topic with the Lead Agencies. C. Franklin summarized that EMA and ESO should refer to this discussion in their annexes.

To 7: IODP member memorandum/Montana letter

C. Franklin summarized the Montana letter. It was stated that ESO should be the implementing organisation for MSP as written in the Montana letter and ESO would manage but not necessarily fund MSP operations. Other members could also provide MSPs (in-kind contributions possible) and a second implementing organisation would be possible as well.

It was decided that EMA could not sign before ECORD MoU was signed and that SOCs will be available for MSPs annually. C. Mével explained that the program plan will be made annually and that SOCs for highly ranked projects should be available to ECORD. C. Franklin added that 7 MSP proposals were ranked and a continuing commitment by the SAS would be needed to secure MSP projects. C. Mével argued that the other partners might think that MSP projects could be too costly and would like to spend the SOCs differently. Since there would not be any European Lead Agency ECORD would not be involved in these discussions. D. Falvey amplified that ECORD should have a say in these discussions otherwise the money for SOCs might be spent on other investigations. H. Larsen agreed and pointed out that bullet point 3 "Say in Lead Agency MSP decisions" would be essential otherwise NSF and MEXT could overrule everything. C. Mével referred to the science plan and stated that MSPs would be part of it.

ESO should draft a text regarding shore-based facilities parity to ships for legs. A lot of work would need to be done onshore but would be equivalent to the work on the other two ships (funding has to come from SOCs). This should also be covered by the Member Memorandum. D. Falvey explained that some shipboard measurements would need to be made onshore, since not enough space was available on e.g. Jack ups in Australia. A. Kingdon added that it should be planned writing Initial Reports and Scientific Results compared to the ODP. J. Hertogen suggested avoiding the old terms, such as "shipboard scientists" and "shore-based scientists" and using the term "science party" instead. A. Kingdon assured that the term "science party participant" will be used.

It was stated that there is an annex committing to the Arctic in the context of IODP. D. Falvey explained that the Lomonosov Ridge was a top-ranked proposal ranked on iPC two years ago. J. McKenzie added that there would be no European representation at the committee to rank the proposal. J. Ludden suggested being present even without having the right to vote.

POCs would be equivalent to SOCs for leg participants.

EiC members summarized the mandate for the EMA director:

- Start form position of 4 PU
  A significant partner with say in MSP decisions and acting as the manager (IO) for all MSP operations within IODP 8to avoid duplication and extra bureaucracy)

- Minimum acceptable position
  8 science party participants (no less than ODP) each platform, each operation,
  4 panel members (2 voting and 2 non-voting) thus ensuring international scientific expertise

- To check
  Implications of Agency Chairs in SAS,
  Reasons for Japanese 5:5:2 suggestion – must have sufficient international experience available to panels, perhaps 6:6:4

- Authority to walk away from negotiation meeting (last resort) if minimum position not achieved

J. McKenzi suggested a 8:8:8 representation for each leg on each vessel and C. Mével explained that for 2 PU 4 leg participants could go on each platform and for the same amount of SOCs this number could be doubled. J. McKenzie suggested to go for a higher number first and to use the above as fall-back position with 2 voting panel members. J. Ludden suggested defining a motion.

ECORD interim Council motion 03-05-02: ECORD interim Council endorses the following guidelines for EMA in preparation of a memorandum with NSF and MEXT for the ECORD consortium as part of IODP:
1. ESO IO for all MSPs *–Montana letter*
   Manage
   But not necessarily fund
2. Parity with NSF/MEXT –significant partner *(ECORD MoU)*
3. Say in Lead Agency MSP decisions *–Montana letter*
4. Can EMA sign before ECORD MoU signed? *-No*
5. SOCs will be available for MSPs year-by-year (annually)
6. Shore-based facility parity to ships for legs *-ESO to draft text for IODP Member Memorandum*
7. Subsequent SAS rankings not able to displace an MSP project *-IODP operational commitment*
8. Annex committing to Arctic
9. POCs equivalent to SOCs for leg participants

IODP Member Memorandum *(Change IODP Member Memorandum)*

1. P2/9 – MSPs Arctic and shallow water only
2. P3 –SAS Exec Autohority (IMI Inc)
3. P3 –SAS panels: 1 SOCs unit, 1 member
4. P3 –SAS Chairs: US/Japan (NB J-DESC)
5. P4 –NSF/MEXT approve annual plan)
6. P4 –Council needs IODP Council extra reps
7. P5 -1 SOCs unit, 2 leg participants
8. P9 -2006 $ and Agencies set unit costs

9. P9 Needs POCs
10. P10 –patents
11. P11- 5 year review (no longer relevant)

ECORD Council further endorses the following mandate for the Director of the EMA as the negotiating position for ECORD:

1. Start from position of 4 PU
A significant partner with say in MSP decisions and acting as the manager (IO) for all MSP operations within IODP 8to avoid duplication and extra bureaucracy)

2. Minimum acceptable position
8 science party participants (no less than ODP) each platform, each operation,
4 panel members (2 voting and 2 non-voting) thus ensuring international scientific expertise

3. To check
Implications of Agency Chairs in SAS,
Reasons for Japanese 5:5:2 suggestion – must have sufficient international experience available to panels, perhaps 6:6:4

4. Authority to walk away from negotiation meeting (last resort) if minimum position not achieved

M. von Knorring moved, J. Hertogen seconded, all in favour.

It was decided that C. Mével may act on behalf of a full ECORD Council. C. Mével thanked EiC for its support on preparing the negotiations with NSF and MEXT. C. Franklin suggested setting up a negotiating team consisting of C. Mével, C. Franklin, S. Dürr, J. Ludden, J. Monteiro, and R. Schorno (Vice-Chair) that should discuss all items in advance. J. McKenzie questioned who should accompany C. Mével to the meeting and J. Ludden suggested D. Falvey since he would not be a Council representative nor in the ESO line management. H. Kudraß suggested J. Thiede. J. Ludden suggested inviting E. Banda as a special advisor. M. Hildebrandt pointed out that ESF would not be involved and that E. Banda's term would end at the end of the year. It was decided that E. Banda should be contacted by the EMA director (official letter).

C. Franklin suggested changing EiC to ECORD Council since there would not be an iESO and iEMA and C. Mével could present the ECORD Council to NSF and MEXT. M. von Knorring stated that her country and all other countries would have to nominate an official ECORD Council member. It was decided to have a motion for a full ECORD Council at the next meeting. The positions of the Chair and Vice Chairs should be transferred. This item should be covered under AOB.

C. Mével distributed the table on individual country contributions to the programme:

ECORD budget -The Hague 26/08/03

	2003/04	Arctic	2004/05	2005/6	2006/07	2007/8	FY starts
UK	1,5	1	2,5	3,5	3,5	5,6	1. Apr
Germany	1,75		1,75	1,75	1,75	2,8	1/7 or 1/1
France	2		2	2	2		1. Jan
Sweden	0,33	0,9	0,33	0,33	0,33		1. Jan
Norway	0,3	0,7	0	0,7	0,7		1. Oct

Finland	0,06		0,06	0,06	0,06	0,21	1. Jan
Netherlands	0,21	0,27	0	0,21	0,21		1. Jan
Italy	0,15		0,15	0,35	0,35		1. Oct
Denmark	0,5		0,5	0,5	0,5		
Belgium	0,05		0,05	0,05	0,05		1. Jan
Portugal	0,09		0,09	0,09	0,09		1. Jan
Ireland	0,03						
Switzerland	0,15		0,35	0,35	0,35		1. Oct
Spain	0,15		0,35	0,35	0,35		
Iceland	0,03						
ERA-NET	0,6		0,6	0,6	0,6		
Total	**7,9**	**2,87**	**8,73**	**10,84**	**10,84**	**8,61**	

0.06 Dutch contribution to support ESAAC office in 2004
contribution in kind for the Arctic/ODEN
Germany should double its contribution from 2004/5 but money not yet secured from the Ministry **minimum figures**

EiC members were requested to find out the exact sum they will contribute.

8) IMI membership

It was summarized that interested European institutes should join IMI Inc. but that formal membership would depend on the IODP membership memorandum between ECORD and the Lead Agencies. Since IMI Inc. was regarded as a crucial element in IODP management it was suggested to establish ECORD involvement. C. Franklin suggested continuing with the process, to remind European institutes to join IMI INC., and to recommend national representatives for the Board of Governors. As long as ECORD would spend 5 million USD there would be one representative but 10 Million USD would allow two European representatives at the BoG. It was summarized that national organisations of the ECORD countries would need to be interested in ocean drilling and would need to pay 5000 USD to participate. H. Larsen reported that there would be 15 to 16 US institutes participating plus some Japanese institutes and suggested having 8 to 10 European institutes participating, e.g. the BGS (United Kingdom) and the IGM (Portugal). C. Franklin suggested to have at least 2 institutes per country participating. It was stated that at least one institute per country would be sufficient. EiC members discussed possible ESF membership to increase ESF involvement. It was stated that ESF might not be a full member but an associate member of IMI INC. M. von Knorring cited the bylaws regarding membership and associate membership and stated that missing IODP membership would not anticipate IMI Inc. membership.

C. Larsen suggested to EiC chair writing to ECORD countries to encourage their participation. C. Franklin pointed out that this was done by email and M. von Knorring suggested providing IMI Inc with a list of European institution that should be contacted by them. She mentioned that 10 to 15 names would have been already forwarded to IMI Inc. and referred to IMI INC's homepage to promote it within ECORD countries.

9) EMA report

C. Mével gave the EMA report. She stated that there will be an EMA booth at the next OMARC meeting in Paris (15.09.-17.09.2003) and that she will give a talk to introduce EMA to international scientists and the EC. P. Maruéjol prepared information material that will be presented and distributed at the meeting. She summarized that the “Montana meeting” was held in Bozeman (19-20.08.2003) for the Implementing Organizations and that EMA and ESO participated. She reported that she will attend the ESO meeting in Edinburgh (9-10.09.2003) to discuss the budget with ESO and the European Petroleum Consortium and the Bremen core repository. C. Mével pointed out that EMA would be ready to start negotiations with the Lead Agencies. She mentioned that she would be invited to Japan to celebrate the start of the new programme and to visit the new research vessel (6-7.10.2003). Since Europe is part of the international programme she suggested participating in this event and giving a presentation of the European structure and the European science. R. Schorno promised to ask J. Kenter whether he was invited to participate as well. C. Mével suggested discussing ESF involvement with M. Hildebrandt after the EiC meeting.

10) ESO report

A. Kingdon gave the ESO report including ESO’s history.

ESO Arctic planning actions:
ESO initiates tender process to clarify actual costs
-European funding agreement finalised
-Arctic platform contracting process
-Call for tenders issued 4. June, closed 18 July, review meeting 21-22 July, 14 August.
-detailed ESO budget compiled
 for Arctic operation from POCs and SOCs
 ESO running costs (POCs) from ECORD

He reported that the Canadian vessel that was offered would not be in mechanically sound conditions. The supporting ice breaker ODEN would meet the technical and financial commitments, other vessel names could not be spoken out. The proposed drilling vessels would have been too expensive, would not have been a good deal, and could not be accepted. He pointed out that the Swedish Polar Secretariat looked for another ice breaker and that there is good news that there might be other platforms available that did not apply to the tender. Having this information in mind he mentioned to be optimistic achieving the Lomonosov Ridge when joining IODP compared to the situation several weeks ago. However, there would not be any commitment yet.

A. Kingdon mentioned that an impact report on the ecology of the Arctic would be prepared by the University of Rhode Island. H. Kudraß questioned whether national agreements would be necessary in case drilling would be outside international waters and J. McKenzie asked whether IODP approval was necessary. It was stated that the proposal passed PPSP but might be re-evaluated in order to involve the new panel.

Upcoming ESO actions:
Closure of tenders, review and issue of contracts
-revision of budget plan in consultation with EMA for ECORD approval
 for recommendation to IODP
-further detailed arctic planning
-further development of the proposals
-attendance of ESO observers at relevant iSAS panels

He summarized that SPC and OPCOM could make the Arctic drilling part of IODP and that OPCOM would meet in late September before tenders expire. An ad-hoc group proposed to review the Arctic operation.

Arctic actions
-assess tenders and issue contracts
-public announcement
 name Co-chiefs and ESO team
-science party nominations
 staffing with ESSAC, USSAC, Japan etc
-operations plan and SOCs approval with IMI INC.
-equipment and consumable procurement
-detailed logistics planning
-integration of drilling, science and login plan
-report to EiC and IODP
-mobilisation

D. Falvey pointed out that the planning costs would have been already in the order of 1 Million €. H. Kudraß summarized that icebreakers would be POCs and H. Larsen stated for the Minutes that the Arctic Ocean will be drilled next year.

Arcic timeline update:
-Review tenders
-ECORD MoU negotiations
-science plan and staffing
-prepare operations
-Arctic drilling in Q3/04

C. Mével pointed out that this would be a "risky operation" since the contracts would need to be signed before IODP sent the money and that approval would be essential. NERC must be asked to take the risk but support from EiC would be indispensable. J. Ludden added that the risk factor would be the 3 million return of SOCs that should be secured before the contracts are signed. He expected a positive answer prior to the 15th of October. A. Kingdon replied that SAS approval would be essential and that the next OPCOM meeting was scheduled September, 18, as part of the SPC meeting.

EiC members discussed whether a motion regarding the Arctic operation in 2004 would be reasonable to give A. Kingdon explicit support.

ECORD interim Council Motion 03-05-03: ECORD interim Council received a report from ESO and recognises and underlines/endorses the unique opportunity to achieve Arctic drilling as part of IODP in 2004.

J. Ludden moved, R. Schorno seconded, all in favour.

A. Kingdon thanked EiC members for their explicit support.

11) ESSAC nominations and office

J. Monteiro summarized that the ToR included in the revised MoU were formally accepted in the Capri meeting. He reported that current iPC members have acted as iESSAC and have circulated to ESCO a proposal for membership and chair and the Netherlands offered to host the ESSAC office at no costs for the first year. J. Monteiro distributed the correspondence from iESSAC members to R. Schorno and J. Monteiro (12-11). ESCO delegates had been asked to re-nominate iESSAC's Chair and Vice-Chair and C. MacLeod received several positives replies.

R. Schorno reported on ESSAC issues.

ESSAC issues
-core group IPC representatives (Salamanca)
-core group can co-opt
-core group proposes to EiC
Chairs
Jeroen Kenter, Chair 2003-2005
Chris MacLeod, Vice-Chair 2003-2005
Existing ESCO delegates until 1.October 2003 or until re-nomination by members
-NERC formally nominates C. MacLeod as ESSAC member
-NWO formally nominates J. Kenter as ESSAC member
-ESSAC office supported by NWO
-response to J-DESC (SSEP 5:5:2)
-instructions for SAS meeting in Sapporo
-EC infrastructure bid

R. Schorno stated he talked to the Vrije Universiteit Amsterdam to host the ESSAC office and suggested consultations with EMA since EMA has to manage ESSAC support. NWO has secured 60.000 € to support the ESSAC office for the first year.

EiC members discussed iESSAC and ESSAC nominations. M. von Knorring proposed that EMA should write to the member states and ask for formal nominations for the Council and the scientific representatives. She suggested a formal request to nominate representatives. C. Franklin stated that iESSAC nominated J. Kenter and C. MacLeod and believed that they might only accept the nomination when it is regarded as long-term commitment. J. Ludden explained that USSAC had an open call and a free and open procedure and that the same should be tried in Europe. J. Kenter should act as interim ESSAC Chair and EMA could organise a call of applicants by country. J. McKenzie believed that the Chair should be delegated out of the community and explained that a Swiss subgroup will choose a Swiss candidate. J. Ludden stated that ESSAC would decide on leg participation and quested how a representative ESSAC formation could be ensured, e.g. to avoid having 15 petrologists in the committee. According to H. Kudraß diversity would be essential. He explained that he will ask for nominations in Germany and will present them to different German committees for approval. J. Hertogen suggested proposing the Chair for 1 year and appointing him/her during the meeting. J. Kenter could continue until the end of 2004 and C. McLeod should commit for 1 year. After that period of time the procedure could be restarted and ESSAC would have the opportunity to reconsider the decision. M. von Knorring agreed to change the Chairman ship to 1 year since J. Kenter would have already served for 3 years and would otherwise continue for 5 years. J. Ludden pointed out that he pleaded for a faster cycle from the beginning and that Council members would question their former statements. J. McKenzie stated that 1 year would be the minimum planning period and that 2 years could be regarded as a reasonable time. J. Ludden questioned whether ESSAC might overestimate its role. H. Larsen argued that a yearly rotation of the ESSAC Chair(s) might result in loosing impact in the science committees because they could only attend 2 meetings during their chairmanship. According to him, a two year period would be necessary to fit in efficiently. M. Hildebrandt objected that the programme will run for 10 years with 15 countries participating. If the Chair was appointed for 2 years, only 5 different scientists (and countries) could do it. J. McKenzie replied that it would not be a great job and ESSAC's tasks would be to nominate leg participants and to be in interaction with the community. R. Schorno reminded the Council that the nomination of the Chair should coincide with the location of the ESSAC-office and that as of 1 October a minimum commitment of 1 year is required.

ECORD interim Council Motion 03-05-04:
-ECORD interim Council approves the nomination of J. Kenter (Free University Amsterdam) as Chair and C. MacLeod (Cardiff University) as Vice-Chair of the interim ESSAC, and agrees that they continue into the IODP period as Chair and Vice-Chair respectively of the full ESSAC, but only after further nomination by the new ESSAC delegates and ECORD Council approval.
-For the IODP 2003/2004 year, the ESSAC office will be established at the Free University in Amsterdam.
-Once the ECORD MoU is signed, Council members will reconsider their nominations for ESSAC members.

R. Schorno moved, M. Comas seconded, all in favour.

C. Mével promised to ask the funding organisations for the nomination a member and an alternate from the first of October and to asked for a formal text to address to the countries for ESSAC nominees. J. Ludden summarized that the budget for ESSAC had to come from EMA. He questioned whether ESSAC would need a full time secretary. It was stated that ESSAC would be a very active scientific committee busy with the balancing act been the member countries. In contrast, EMA was also expected to do the balancing act between the member countries. M. Comas mentioned that since some countries, e.g. the Nordic countries, would have special preferences to certain legs, ESSAC should at least send preferences to EMA. C. Franklin referred to the ECORD MoU saying that EMA will advise ESSAC on reasonable funding and that EMA had the full control.

Sapporo Mandate for ESSAC
-to be present and contribute to all SAS meetings, not necessarily with a vote
-to promote the ECORD position in terms of science planning

12) ERA net

J. Ludden circulated a handout relating to the ERA-NET. He pointed out that he included only the member countries that had officially signed on IODP and that he had to remove Ireland and Italy for eligibility reasons (funding agencies requested). He summarized that the proposal scored 28 out of 30 with a recommended funding of 2 325 000 € over a period of 4 years. However, the travel budget was considered to be overestimated and there were comments on environmental aspects which were not fully understood. A table with the amounts that will be received per month was distributed to the participating countries. The Council discussed the possibility to open ECORD to other country via M. von Knorring's work package, to enlarge the ERA-NET to full ECORD, and to resubmit the proposal after the half-time. Italy might participate via M. von Knorring's work package (travel support). 80% of the money will be for EMA, ESO, and ESSAC. The largest work package will be run by Portugal to build up a knowledge data base that should also include all publications. It should function as a Eurocentric data base to build a Research Area for marine science (to prepare for the 7th Framework Programme). J. Ludden offered further information by request since M. von Knorring requested help in filling out the forms relating to the ERA-NET. EiC members discussed when the ERA-NET money might be available and it was stated that this could be a few days after the signatures, probably at the end of October. H. Kudraß thanked J. Ludden for his efforts approaching the EC again for glue money.

J. Ludden referred to the Russian's position on possible ECORD participation since he went to Moscow recently. He talked to the Vice president and members of the Russian Academy of Sciences about ECORD and IODP. He pointed that science would sometimes be founded by the Ministry or the Academy of Sciences and that Russia would be interested in the deep offshore and in resources etc. The Academy of Sciences would be very interested to be invited to ECORD and to build an involvement in IODP. According to him, Russia could begin with 1 Million USD and increase its contribution till the end. J. Ludden suggested inviting Russia to ECORD via M. von Knorring's work package. He added that N. Bogdanov wrote a letter to V. Putin regarding possible funding. C. Franklin questioned whether the ERA-NET money could be used to invite countries from outside Europe since e.g. Brazil might be interested, too. J. McKenzie agreed that she was contacted by Brazil and C. Mével added that they would stay in contact with the US as well. J. Ludden did not know whether EU money could be used but suggested to EMA inviting these countries. He was asked to draft a letter to be signed by J. Monteiro to officially invite these countries to Council and ESSAC meetings as observers. It was discussed that Canada would be very interested in the Arctic drilling and to become part of ECORD and would work on a proposal for funding its participation.

13) New Vice-Chair and Excecutive

J. Monteiro will step down as Chair of the first of October and a new Vice-Chair needed to be elected. C. Franklin proposed J. Ludden to be the next Vice-Chair. J. Ludden questioned whether he might be conflicted and asked EiC members to decide on this issue. D. Falvey summarized that according to him he would be conflicted if his institute would receive direct funding via a decision and suggested that in case the Council thinks of a conflict of interest the decision will be passed on to the Vice-Chair. M. von Knorring added that she would like to support his nomination because she did not notice a conflict of interest but suggested not sending 2 French representatives to meetings (since C. Mével would act for EMA). In this case, she suggested sending somebody else.

ECORD interim Council Motion 03-05-05: EiC approves J. Ludden as Vice-Chair from the first of October.

C. Franklin moved, M. von Knorring seconded, all in favour, J. Ludden agreed.

M. von Knorring pointed out that the two additional members of the Council Executive would need to be nominated and nominated S. Egelund for election, seconded by C. Franklin.

ECORD interim Council Motion 03-05-06: EiC approves S. Egelund as part of the Council Executive.

M. von Knorring moved, C. Franklin seconded, all in favour, S. Egelund agreed.

R. Schorno noted that S. Dürr was nominated for the negotiation team and that prior to the meeting he had responded positively on the request if he would be available for the executive.

ECORD interim Council Motion 03-05-07: EiC approves S. Dürr as part of the Council Executive.

R. Schorno moved, M. von Knorring seconded, all in favour (S. Dürr absent).

M. von Knorring added that the term of office for additional members would be one year. The Council Executive would consist of 1 Chair, 2 Vice-Chairs, and 2 nominated people from the first of October.

EiC members discussed the ECORD Council secretariat. J. Ludden pointed out that A. Volbers' travel expenses for this meeting could be paid by JEODI and the travel expenses for the following year could be financed by EMA or from ERA-NET money.

ECORD interim Council Motion 03-05-08: EiC approves A. Volbers as ECORD Council Minute taker for the first year of the new Programme.

J. Ludden moved, C. Franklin seconded, all in favour, A. Volbers agreed after H. Kudraß agreed in principle. H. Kudraß pointed out that S. Dürr would also need to agree to this extra task since DFG would finance A. Volbers' position at BGR.

R. Schorno referred to the Montana letter and proposed that in order to structure Council communication the Chair will prepare meeting agendas but that all mailings will be done via EMA. J. Monteiro promised to send all correspondence via EMA.

14) AOB

Definition of science party:
Science party participation include, without distinction, all scientists who's work contributes to the IODP equivalent of the IR volume (the minimum acceptable scientific measurements suite made as part of an operation), either on the drilling platform, in proximity to the drilling platform, or by the shore-based science party immediately following the drilling operation.

SOCs for MSPs:
H. Larsen suggested "Lead agencies' commitment to allocate SOCs for MSP operations commensurate with proposal ranking and availability of MSPs".

Panel members:
To start with 4 panel members, 2 voting, 2 was regarded to be the minimum (depending on C. Mével's negotiation).

EiC to ECORD Council:

ECORD interim Council Motion 03-05-09:
-ECORD interim Council proposes that it dissolves and reforms as ECORD Council from 1 October 2003.
-EiC Chair to write to members asking for formal nominations to ECORD Council.
-ECORD Council Chair and Vice-chairs to be nominated at first ECORD Council meeting.

C. Franklin moved, J. Ludden seconded, all in favour.

ODP/Euro-colloquium at the University of Bremen (16.03-19.03.2004):
H. Kudraß reported that he sent an email to the scientific community and EiC representatives regarding the next ODP/IODP colloquium. He suggested presenting the success of ECORD and all the panels. He requested scientific input on the set up and key presentations of the meeting. He pointed out that it would be ESSAC's term to initiate and to promote workshops on the 16th of March 2004. He offered EiC members to meet in Bremen in March and asked C. Mével to forward the information.

C. Mével informed EiC members that she would send a formal request who to talk to regarding the ECORD MoU.

15) Next Meeting

EiC members discussed time and place of the first ECORD Council meeting. It was decided that it would be too early to have a meeting at the end of September and C. Mével suggested meeting after the NSF/MEXT meeting. She will inform ECORD Council members via email on date and place.

J. Monteiro closed the meeting and thanked R. Schorno and NWO for hosting the EiC meeting at The Hague and sponsoring an EiC dinner.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 4A2

Encl4A2

ECORD Council Motion 03-10-A: EC approves to keep the current members or their nominated alternates on SSEP, PPSP and SciMP (meeting respectively in November 18-24, December 15-17 and December 03) to include these meetings in their tenure as SAS panel representative.
-During the 14-15 November meeting ESSAC will revisit nominations for all panels and submit proposals for the forthcoming period to the SAS Panel Chairs and SPC before the years end.

ECORD Council Motion 03-10-C: EC mandates Council and ESSAC Chair together with the EMA Directors to select a Science Coordinator for the ESSAC Office in Amsterdam.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 4B

final DRAFT Version, 11/11/2003

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the Integrated Ocean Drilling Program (IODP)

Ocean Drilling has now reached a critical phase where requirements for achieving many scientific goals aiming at a more comprehensive understanding of the Earth system are becoming increasingly complex. The single ship used for the Ocean Drilling Program (ODP) is unable to cope with these requirements. Therefore a substantial part of the world-wide Earth science community has planned a new programme of a much wider scientific scope, the Integrated Ocean Drilling Program (IODP). Beginning October 2003, IODP will tackle outstanding problems and proposes drilling far beyond the technical capabilities of the drillship used for ODP. It will liberate the science from being tied to a single tool by adding additional drilling capabilities. This will enable the scientists to expand ocean floor exploration and process-oriented studies into realms barely touched before, such as the deeper parts of the Earth below the deep ocean as well as the sub-seafloor beneath very shallow waters and in hostile environments like ice-covered parts of the ocean.

The IODP scientific programme is identified in the Initial Science Plan for the IODP, ***Earth, Oceans and Life***, and includes emphasis on the following research themes:

The Deep Biosphere and the Sub-seafloor Ocean: Drilling will concentrate on defining the architecture and dynamics of the vast sub-seafloor plumbing system, where flowing water alters rock, modifies the long-term chemistry of the oceans, lubricates seismically active faults, concentrates economic mineral deposits, and controls the distribution of the deep biosphere.

The Processes and Effects of Environmental Change: Using a global array of sites, ocean sediment cores will be used to construct a detailed record of the causes, rates and severity of changes in the Earth's climate system and their relation to major pulses in biologic evolution.

Solid Earth Cycles and Geodynamics: Drilling will concentrate on sampling and monitoring regions of the seafloor that currently have the highest rates of energy and mass transfer, and comparing these results to older geologic settings. A crucial initial program of deep drilling will be to study the seismogenic zone responsible for large destructive earthquakes along active plate boundaries.

This ECORD **MEMORANDUM OF UNDERSTANDING** defines how Europe will be a significant partner, with the USA and Japan, in the construction and operation of this global initiative opening a new era of ocean floor exploration. The proposed research concerns a wide range of fundamental and applied issues for society, such as global climate change, bio-diversity, origin of life, natural hazards involving the study of earthquake processes, mineral and energy resources along continental margins, as well as the internal structure and dynamics of our planet.

Japan will provide a drillship (the "Chikyu" launched in January 2002) with a marine riser for safe and controlled drilling in pressurised zones, whilst the US will provide a drillship of the type used in ODP, but with enhanced technical capabilities. However, there remain environments where these two vessels cannot operate and vessels with other capabilities are needed to achieve the scientific objectives of the Initial Science Plan (ISP). To address this, a European research agenda is agreed through this Memorandum of Understanding which proposes to provide Mission Specific Platforms (MSPs) to become the Third Operational Component for IODP.

This needs a concerted action by the European scientific community (including industry) together with funding organisations which have intensively participated in the planning of IODP (e.g. in planning conferences, in the IODP Planning Sub-Committee, International Working Group for IODP (IWG), and the Interim Science Advisory Structure for IODP). This common approach was initiated by European Funding Agencies forming the **European Consortium for Ocean Research Drilling (ECORD)**.

ACCORDINGLY European and Other Funding Organisations join forces under this ECORD **MEMORANDUM OF UNDERSTANDING** (hereinafter the ECORD MoU) to become a Significant Partner of IODP. A Council for ECORD is hereby formed with membership from European and Other Funding Organisations interested in contributing jointly to IODP. ECORD will manage its contribution to IODP through an ECORD Managing Agency (EMA). As the legal entity representing ECORD, the EMA will sign a single IODP Member Memorandum (hereinafter the IODP Memorandum) for membership of IODP with the National Science Foundation (NSF) of the USA and the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan.

Under the ECORD MoU the Council has created the ECORD Science Support and Advisory Committee (ESSAC) responsible for scientific planning and co-ordination. ESSAC will maximise the scientific and technological contribution of ECORD to IODP, as well as promoting appropriate representation of the European scientific community in the IODP Scientific Advisory Structure and other IODP-related entities. ESSAC will also advise on requests to the European Commission (EC) and other funding entities to provide funds in support of IODP science and other European IODP-related activities.

Operating mission-specific platforms will be the responsibility of the ECORD Science Operator (ESO), contracted through the EMA. ESO will be the Mission-Specific Platform (MSP) Implementing Organisation for IODP. ESSAC, through the EMA, will advise the ESO on its actions.

The ECORD Council will co-ordinate a common European approach to IODP policy. The Principles by which ECORD Council will operate its contribution to IODP – the

IODP ECORD Principles – are set out in Annex A. These principles complement the principles agreed internationally for IODP – the IODP Principles. This common approach through the establishment of ECORD will secure an appropriate European role in IODP, and is anticipated to contribute significantly to the establishment of a European Research Area.

The Operation of the ECORD MoU will be achieved through Annexes detailing:

- ECORD IODP Principles, defined in Annex A
- ECORD Structure, Annex B
- Membership (ECORD Council), Participation Rights and Responsibilities (including Intellectual Property Rights), Duration and Review, defined in Annex C
- ECORD Science Support and Advisory Committee Terms of Reference, Annex D
- ECORD Managing Agency Terms of Reference, Annex E
- ECORD Science Operator Terms of Reference, Annex F
- Financial Contributions and Principles of Funding defined in Annex G
- Signatories to the ECORD MoU and Rights of Withdrawal from ECORD, Annex H

Parties to this **ECORD Memorandum of Understanding** are given at Annex H. This Memorandum of Understanding comes into effect when enough members have signed, in addition to the EMA, to achieve the equivalent of 2 M.U. of IODP.

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING
of
European and Other Funding Organisations
on
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in the
Integrated Ocean Drilling Program (IODP)

ANNEX A

ECORD IODP Principles

In 2001the European funding agencies which supported planning for and launching of the Integrated Ocean Drilling Program (IODP) through their participation in the IODP International Working Group (IWG) agreed to work together to form a single membership. This was based on a set of European principles put together by their European Ocean Drilling Program (ODP) Executive Committee and Scientific Committee representatives.

On 6 January 2002 in Barcelona, Spain the European ODP members (France, Germany, United Kingdom and ECOD) formed the European Consortium for Ocean Research Drilling (ECORD) by agreeing an interim Council. The ECORD interim Council (EiC) adopted the European principles to define the structure of ECORD. These principles, referred to hereinafter as the ECORD IODP Principles, were subsequently formalised in London, UK on 18 April 2002 by EiC members agreeing to sign a Heads of Agreement on co-operation.

The principles have been amended in subsequent EiC meetings to reflect progress in setting up the structure of ECORD.

A Management Principles

1. The European Consortium for Ocean Research Drilling (ECORD) was formed through a concerted action of the European scientific community together with funding agencies to provide a single European-based entity in IODP.

2. European Funding Agencies joined forces under a Heads of Agreement to form an ECORD interim Council for achieving the status of a Lead Agency in IODP comparable to MEXT and NSF. The interim Council is the governing body for ECORD until this ECORD Memorandum of Understanding comes into effect.

3. Under IODP an ECORD Council will provide oversight for all ECORD activity.

4. ECORD is advised on scientific and operational planning and coordination by an ECORD Science Support and Advisory Committee (ESSAC). ESSAC will be

supported by a Science Office. The Science Office will be a component part of ECORD.

5. The Council designates an ECORD Managing Agency (EMA) to act as a single European-led voice in IODP. EMA is a component part of ECORD.

6. The Council appoints an ECORD Science Operator (ESO) for contracting Mission-Specific Platforms and related scientific support within IODP. ESO is a component part of ECORD. The ESO will be contracted by EMA.

7. ESO will be the MSP Implementing Organisation for IODP. The ESO will have a formal arrangement with EMA for this activity and will operate in the best interest of IODP and all IODP member organisations, without preference.

8. Through appropriate formal arrangements EMA will make financial contributions to IODP commingled funds and receive funds for MSP science operation costs.

9. In agreement with the IODP Central Management Office (CMO), EMA will provide funds directly to ESO for MSP science and platform operations costs.

B Membership Principles

1. Membership in ECORD is available to European (EU and non-EU) governmental and / or national agencies (or their representatives). Organisations from non-European countries may be invited to join the Consortium upon request.

2. Membership is defined by a Memorandum of Understanding between each member and the ECORD Managing Agency.

3. ECORD member countries are represented with one delegate each in the ECORD Council.

4. European IODP communities will co-operate with all non-European partners.

5. ECORD will join IODP as a single entity, and, as such, will through the EMA sign one IODP Member Memorandum with the NSF and MEXT for participation in IODP.

6. All organisations will be invited to contribute according to their scientific interests and funding commitments.

C Programme Principles

1. The IODP Science Plan will be the driving force behind ECORD participation in the programme.

2. ECORD will seek the role of a "Lead Agency" in IODP. It will contribute both to Platform Operation Costs and Science Operation Costs of IODP at a level in accordance with its role in the programme.

3. In accordance with the importance of MSP operations as outlined in the IODP initial science plan, ECORD will endeavour to ensure that an appropriate percentage of the 10 year IODP budget will be committed to Mission Specific Platform needs.

D Platform Principles

1. The requirement for mission-specific platforms will be defined by the IODP advisory structure.

2. Mission specific platforms provided by ECORD will be considered a "Core Capability" of IODP.

3. ECORD will operate mission-specific platforms as part of IODP. Such platforms might include: Specifically outfitted polar vessels; jack-up rigs; geo-technical vessels; vessel operating remotely operated coring tools (high-resolution, piston cores); anchored barges; and others, as determined by IODP scientific priority and operational efficiency.

E Implementation Principles

1. ECORD will provide the Mission Specific Platforms operations structure of IODP.

2. ECORD will be represented appropriately in all relevant IODP bodies.

3. ECORD will work closely with the Central Management Office and other support offices of IODP, and will implement a liaison process.

4. ECORD will manage and operate MSP drilling operations based on a portfolio of scientifically sound proposals provided by the IODP SAS.

European Consortium for Ocean Research Drilling (ECORD)

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ANNEX B

ECORD Structure

The structure of ECORD is shown below and the component parts defined in Annexes C to F.

ECORD Council	**Representatives of European and Other funding organisations supporting national IODP-related programmes**
ECORD Science Support and Advisory Committee (ESSAC)	**The ECORD IODP Science Advisory Structure representatives and EMA/ESO science support advisors (membership nominated by funding organisations); plus a Science Office in a European Institution**
ECORD Managing Agency (EMA)	**An Executive Managing Agency for European participation in IODP; set up under the authority of the ECORD Council; fund holder for the consortium in IODP**
ECORD Science Operator (ESO)	**The operational arm of the ECORD Managing Agency; contractor for Mission-Specific Platform operations**

European Consortium for Ocean Research Drilling (ECORD)

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ANNEX C

.

Membership (ECORD Council) and Participation Duration

Background

ECORD was formally constituted in January 2002 in Barcelona by the formation of an ECORD interim Council (EiC). At the third EiC meeting, held in London in April 2002, the Council agreed to prepare a formal structure for operation and membership of the Council. EiC was originally formed by the European Funding Agency representatives on the International Working Group (IWG) of the Integrated Ocean Drilling Program (IODP). At the fourth EiC meeting in Stockholm in June 2002 the framework of the consortium was agreed.

Membership of ECORD is defined in terms of signatories to the ECORD MoU and the criteria for membership of the ECORD Council set out in this annex.

Membership of ECORD Council

- Council membership is restricted to one funding organisation representative for each of the countries that has signed the ECORD MoU. Where a country has more than one funding organization contributing to ECORD, the country will choose a single ECORD Council member to represent those organizations on ECORD Council. The funding organisations other than that with the chosen Council member may, by right, send an observer to both open and closed Council meetings.
- Each member will have a single vote on ECORD Council, qualified by the voting procedure detailed under the section on Council voting.
- A core group consisting of the Chair, Vice-Chairs and 2 designated members will act as an Executive between Council meetings.
- The EMA and ESO will be represented by their respective Directors (or nominees) at both open and closed Council meetings. These representatives are invited in an Ex-Officio capacity and will have no voting or other rights. Countries hosting the EMA and ESO will have Council members who are deemed by ECORD Council not to be conflicted with EMA and ESO.

Council Aims

1. To provide an equitable mechanism for the election, term of office and responsibilities of the Chair and Vice-Chair(s).
2. To set equitable criteria for membership, voting rights and participation.
3. To redefine the role of ECORD Council and ECORD components (EMA, ESO and ESSAC) as necessary.

Council Chairs

The following defines the Terms of Reference for the Council Chairs:

- The Chair and Vice-Chair positions will be held for a period of 6 months.
- A new Vice-Chair will be elected by voting members of Council every 6 months.
- The Vice-Chair will automatically become Chair at the 6 month rotation. Thus the full term of election is for 12 months, as shown in Figure 1.
- The Chair may, at the discretion of Council, become a Vice Chair for a further 6 months at the rotation. Thus the term of office may be extended to 18 months.
- Vice-Chairs will rotate at each election between member countries.
- The Chair will have a casting vote in situations where voting members are equally divided, unless in conflict when the Vice-Chair (Chair elect) will assume the casting vote.
- The EMA Director will be responsible for conveying the ECORD position at IODP Executive Authority meetings along with the ECORD Council Chair(s).
- The EMA Director will lead negotiations, along with the ECORD Chair(s), for ECORD to become the IODP Lead Agency for Mission Specific Platforms (MSPs).

Council Meetings

- Depending upon demand, ECORD Council will normally meet 2 to 4 times annually.
- ECORD Council meetings may have both open and closed sessions. Observers are welcome at open sessions, but may only attend closed sessions by invitation.
- Closed Council meetings will be organised at the discretion of the ECORD Council Chair(s).

Council Observers

Observers may be invited to closed Council meetings. Such observers may be:

- Representatives of countries expressing an interest to join ECORD.
- European funding or research organisations, such as ESF or the European Commission (EC).
- Representatives from non-European countries which are members of IODP.
- Representatives of countries which have expressed an interest in joining IODP.
- Other observers who may contribute to the planning and implementation of IODP.

Council Tasks

These tasks are not prescriptive and will be augmented as the structure of the consortium matures. The main tasks of ECORD Council are:

- Implementation of ECORD as an integrative part of IODP.
- Structuring of ECORD - definition of the tasks and responsibilities of its entities.
- Selection and oversight of the ECORD Managing Agency (EMA) and European Science Operator (ESO).
- Taking measures to secure sufficient funding for IODP and specifically MSP initiatives.
- Negotiation with IODP Lead Agencies.
- Provision of governmental oversight for all ECORD activity; assuring effective planning, management and operation of ECORD.

Council Voting Procedures

(1) Decisions are normally taken by consensus.

(2) If initially no consensus can be attained, reasonable effort will be made to modify the proposed motion so as to attain a formal consensus.

(3) If a consensus cannot be reached in spite of reconsideration, motions are nonetheless adopted without formal weighted voting by the council if approved by all the 'major contributors' (see definition below) and if not opposed by three or more council members present.

(4) If a motion fails to be approved, the council chair can decide either to defer further action, or to call for a formal weighted voting procedure.

(5) The council has the right to determine which matters have to be decided by weighted voting under all circumstances (e.g., budgetary matters).

(6) The number of votes per council member are tied to the financial contributions, and are scaled according to equivalent percentage of a 'Participation Unit' of IODP as follows:

100-80 % : 6
<80-60 : 5
<60-40 : 4
<40-20 : 3
<20-10: 2
<10-1 : 1

ECORD members with 6 votes are the 'major contributors' referred to above. Members holding more than one Participation Unit will have votes according to the above scale for each unit held.

(7) Quorum requirements for weighted voting are : (a) Representatives of all ‘major contributors’ must participate in the voting. (b) The votes to be cast at the meeting must total 75 % of the theoretical maximum number of votes.

(8) No abstentions (or blank votes) are allowed during weighted voting. There is no power of attorney for absent members.

(9) A motion is accepted if approved by 75 % of the votes cast at the meeting.

(10) Voting is normally done by ‘show of hands’. The council chair has the right to defer weighted voting to ‘closed sessions’ of council meetings. Deferment of voting to a closed session of the meeting can also be requested by a council member seconded by one other member.

(11) ‘Secret ballots’ should be exceptional and restricted to decisions that deal with sensitive ‘personal matters’.

(12) When no consensus can be reached with respect to the appointment of an individual person to an IODP committee or panel, the council will have to decide by weighted voting on the election of proposed candidates. A particular candidate is elected if he/she receives ‘50 % plus one’ of the total theoretical number of votes. It is left to the good judgement of the council chair to decide on voting procedures to be adopted in case more than two candidates are in the running in the first round of voting.

Duration of Membership

The start of IODP is on 1 October 2003, although entities such as ECORD have been constituted before the start of IODP to enable continuity of research drilling.

- ECORD acknowledges that IODP is, in principle, a 10 year programme. However, this ECORD MoU anticipates that a 5 year review of the effectiveness of the ECORD membership will be implemented

It is recognised that individual members of ECORD will require information to feed into national evaluations. A full specification for the review will be developed by the EMA and agreed by ECORD Council.

Amendments

Amendments to the ECORD MoU or any of its Annexes may be proposed to the ECORD Council by any Member Organisation by giving the Council Chair written notice, and providing a copy to the EMA Director. The proposed Amendment needs to be seconded by another ECORD Member (from a different Country). The EMA shall inform all Council Members of any Amendment so notified at least three months before it is discussed in the Council.

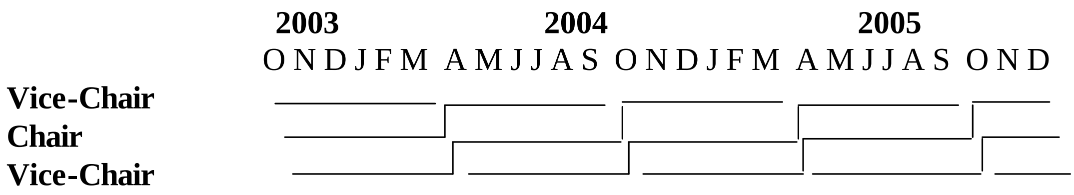
In case an Amendment cannot be adopted with the agreement of all Council Members present at the Council meeting, a majority of 75% of the votes cast shall be required for the adoption of an Amendment to the ECORD MoU or its Annexes. The EMA Director shall inform Member Organizations of Amendments and of the date of entry into force.

Representation at IODP Council

Each country in ECORD is entitled to be represented at IODP Council.

For practical purposes, the ECORD Council will be represented at IODP Council by the ECORD Council Chair, Vice-Chair(s) and EMA Director.

Figure 1 – Rotation of ECORD Council Chair



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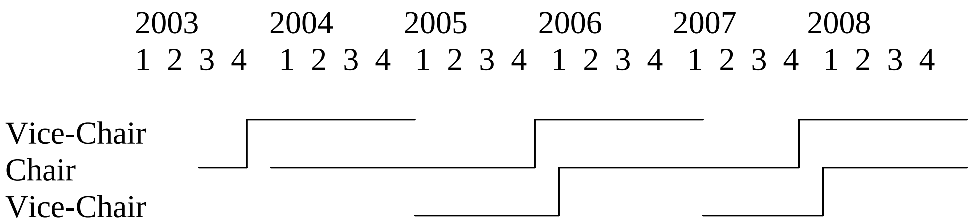
ANNEX D

ECORD Science Support and Advisory Committee (ESSAC) Terms of Reference

A. Representation

1. The ECORD Science Support and Advisory Committee (ESSAC) consists of a national delegate and an alternate from each participating country in the European Consortium for Ocean Research Drilling (ECORD) appointed by the respective Member Organization(s). Alternates can attend, when in addition to delegates, as non-voting members. Additional non-voting representation may be invited on an ad hoc basis. Terms of office of Committee members will be reviewed every three years. It is advised that there is rotation where possible and that no more than one-third of the membership is replaced each year. The first rotation will be in 2005 after an appointment of 2 years. Terms of office will normally begin in October.

2. A Chair and Vice-Chair shall be elected from among ESSAC members and approved by the ECORD Council. The incoming Chair serves one year as Vice-Chair followed by two years as Chair and rotates off as Vice-Chair during the fourth year (see diagram below). They may not self-succeed. The Chair shall be responsible for reporting to the ECORD Council and liaising with the European Managing Agency (EMA) and European Science Operator (ESO).



3. ESSAC's representation in the Science Planning Committee (SPC) should as a minimum comprise the Chair or the Vice-Chair.

B. Division of membership benefits

1. The IODP assigned quota of Leg participants granted to ECORD shall reflect the financial contributions of each member country and specific interests of each participating country over a rolling three-year period.. ESSAC, in consultation with EMA, shall annually review the division effective as of 1 October 2004 and make recommendations in view of the above target ratio and of specific drilling interests.

2. The delegates and alternates on IODP Science Advisory Structure (SAS) panels shall be designated by ESSAC based on national nominations, authorised by ECORD Council and reflect the financial contribution of each participating country: for the first four years the contribution specified in the MOU and thereafter the contribution over a rolling three year period. Normally all ECORD representatives on SAS bodies shall serve for a three-year period and may not be re-appointed for a second consecutive term.

C. Obligations of ESSAC delegates

3. To ensure that all IODP and ECORD meetings are attended by the delegates or by their alternates. If neither can participate the relevant committee shall be informed and, if possible, a substitute nominated.

4. To ensure that the scientific interests of ECORD as a whole are presented by whoever attends SAS meetings on behalf of ECORD.

5. To ensure that minutes of meetings are distributed to their alternate and to the ECORD bodies.

6. To submit a short written report to ESSAC within two weeks of the meeting.

5\. To be prepared to attend ECORD workshops and report to ESSAC when requested.

D. Voting

A quorum is required before decisions can be taken. There is no power of attorney for absent members. A quorum requires the presence of a majority of the members. Where possible ESSAC shall proceed by consensus; if this is impossible there shall be a majority vote. Each delegate present has one vote and the Chair has a casting vote. If no decision is reached, the issue will be passed to ECORD Council.

E. Secretariat

The Secretariat shall be determined by the ECORD Council and located with the ESSAC Chair. It will be funded from the budget of the EMA. It shall rotate, on a two-yearly basis, with the Chair of ESSAC. The budget shall be sufficient to provide for a science coordinator with a scientific background, the full cost of maintaining an office and resources to compensate the Chair.

F. Tasks

ESSAC is responsible for the scientific planning and coordination of Europe's contribution to and participation in IODP. The main purpose of ESSAC is to maximize ECORD's scientific and technological contribution.

ESSAC is responsible for:

- Advising ECORD funding organisations on IODP issues.
- Responding to the ECORD Council on requests for evaluation of its activities and initiation of evaluations of the European scientific input to IODP.
- Interacting with the appropriate IODP bodies, in particular the IODP scientific bodies.
- Reporting to the ECORD Council.
- Liaising with the EMA and ESO.
- Nominating representatives (delegates and alternates) on SAS panels.
- Co-ordinating applications, nominating shipboard participants and reviewing the division of the quota of shipboard scientists between participating countries.
- ESSAC shall assist the ESO in preparing a Science Operations Plan for MSP Operations.
- Assist and advise EMA on the formulation of proposals for funding European related infrastructure.
- Initiating and monitoring Workshops and syntheses of European IODP programs.
- Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP Initial Science Plan and encouragement of IODP-related activities among participating countries.
- Encourage (a) innovative science and technology development, and (b) the formulation of long-term integrated IODP studies.
- Assist and advise the EMA and ESO on the public outreach.
- Assist and advise the EMA on extending the scientific base of the consortium to non-member countries.

G. Proceedings

1. ESSAC shall meet a minimum of two times each year. Meetings are called at the request of ECORD Council, at the initiative of the Chairman, or at the request of one-fourth of the members. The ordinary agenda shall include:
    - Reports from recent SAS meetings;
    - Staffing nominations, progress and evaluation;
    - Planning of ECORD initiatives for forthcoming SAS meetings;
    - Reports from completed legs;
    - Any other task as set down above.

2. ESSAC can implement working groups and define their terms of reference.

European Consortium for Ocean Research Drilling (ECORD)

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ANNEX E

ECORD Managing Agency (EMA) Terms of Reference

Description of organisation

The ECORD Managing Agency manages the participation of ECORD members in IODP. The Director of the EMA is the official contact point for ECORD in all relationships with the Central Management Office (CMO), IODP Management International Incorporated (IMI Inc) and the Lead Agencies (NSF and MEXT).

The EMA is administered by CNRS-INSU, Paris, France. INSU is a national Institute that has as its central role the co-ordination of national and international programmes and large infrastructure projects in the natural sciences and, in particular, in solid earth, ocean, atmosphere and astronomical observations. INSU is part of the CNRS and it's director is also director of the CNRS Department of Earth and Space Sciences (SDU). The deputy director for the INSU Solid Earth Sciences will have the specific role of supervising ECORD activities within his/her division and will oversee the EMA and will facilitate access to the INSU contractual and budgetary offices. A schematic of the EMA structure is shown in Figure 1.

The EMA has a central office located in the Marine Geoscience department of the Institut de Physique du Globe de Paris IPGP. The office is staffed with a Director, assisted by an Executive Secretary and Scientific Officer. The staffing may evolve with time.

Interaction with components of ECORD

EMA, via CNRS-INSU, pools the funds from all the European participants and may accept funds from non-European members of ECORD. EMA prepares and signs the Memorandum of Understanding with ECORD members and issues requests for a timely contribution of annual funds. The CNRS (via CNRS-INSU) is the banker for ECORD and has the financial responsibility for the EMA.

EMA administers the financial contributions from ECORD members and the other funding sources, made in support of IODP:

- on advice of the CMO, EMA, via CNRS-INSU, negotiates an annual contract with and transfers funds to the ECORD Science Operator (ESO). ESO has the role of planning and executing the Mission-Specific Platform (MSP) contribution to the IODP science plan and must ensure the appropriate liabilities.
- on advice from ECORD Council and in negotiation with the ECORD Science Support and Advisory Committee (ESSAC), EMA, via CNRS-INSU, provides funds to support the ESSAC Chair.

EMA will seek to extend the scientific base of the consortium to non-member countries and aims to increase European funding to support ECORD membership in IODP.

EMA reports regularly to the ECORD Council on its actions and other issues as required.

In coordination with ESSAC, EMA is responsible for maintaining the scientific and administrative memory of ECORD's role in IODP.

Interaction with IODP Structure

On behalf of ECORD members, EMA signs contracts and the Member Memorandum with MEXT, NSF and other IODP funding agencies, on implementation of IODP.

EMA, via CNRS-INSU, provides a single ECORD contribution to IODP comingled funds, to cover Science Operation Costs (SOCs) of IODP.

EMA represents ECORD in all the relevant IODP panels and committees.

On the basis of an operational plan from the CMO for MSP operation, the EMA negotiates a budget for MSP operations in a given year. EMA ensures that SOCs are provided from IODP co-mingled funds to the ESO for MSP operations.

EMA provides the IODP CMO with a mission specific drilling activity report.

EMA ensures that the public and private liabilities associated with the ECORD contribution in IODP are all understood and that all ECORD substructures have the appropriate liability insurances in place.

Communication

EMA coordinates, in consultation with ESSAC and ESO, the communication (education and outreach) activity of IODP in Europe, specifically:

- in association with ESSAC, the EMA Paris office is responsible for organizing ECORD workshops and conferences ;

- in association with the ESO and ESSAC, EMA is responsible for informing the public and the scientific community of the scientific and technological advances in IODP. This activity will be coordinated with the CMO, and focus on the specific role of European scientists in the programme. It will include coordination of press-releases in the

European press on MSP operations and on the participation of ECORD scientists in IODP.

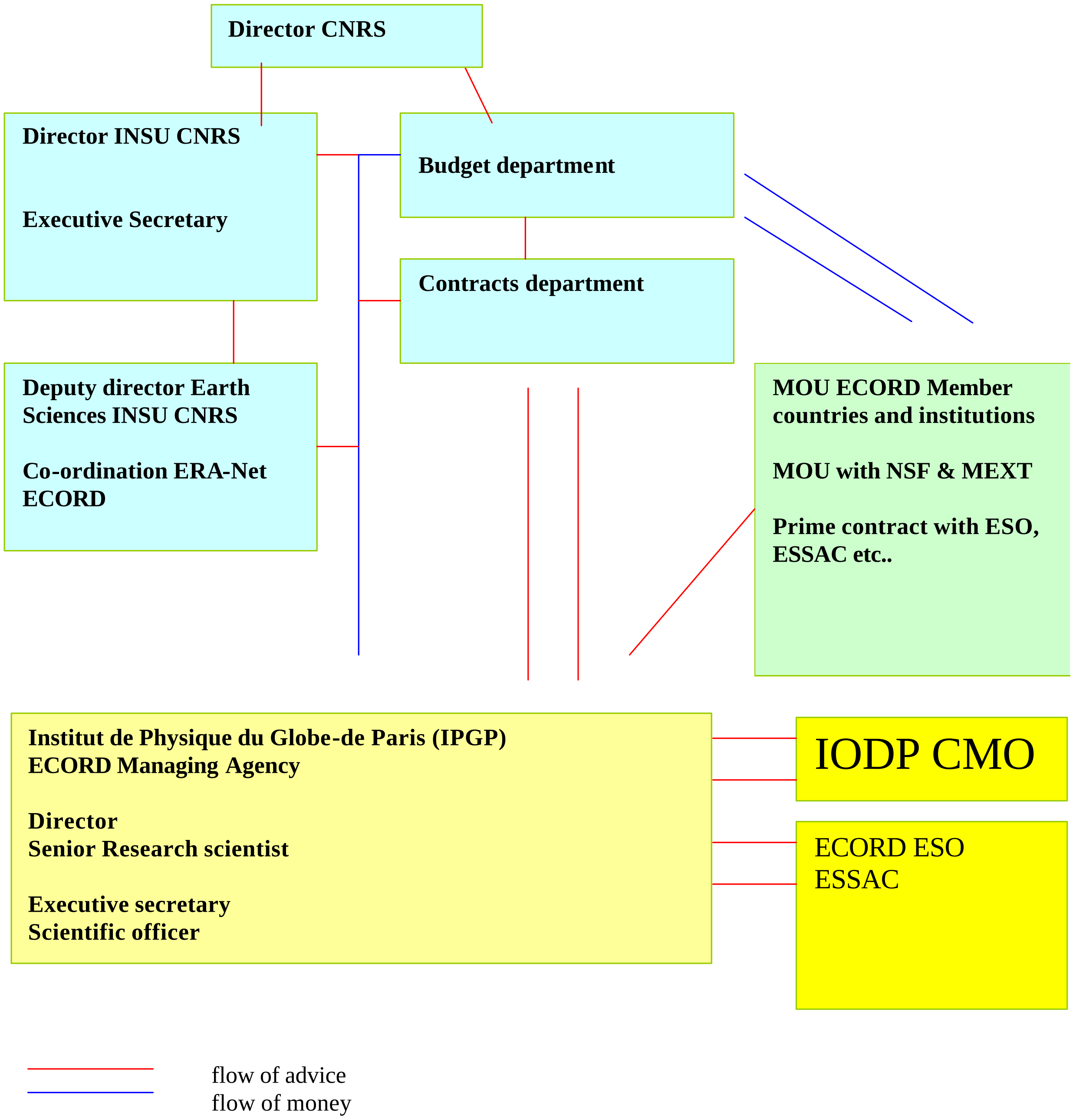
Establishing the Annual Workplan

EMA provides the ECORD Council with an ECORD program plan for approval and a budget for each upcoming fiscal year, consistent with the IODP program plan and budget. It includes :

- the support for the EMA, ESO and ESSAC offices
- the SOCs provided by ECORD to IODP
- the POCs provided by ECORD to operate MSPs activities
- the SOCs provided by IODP to support MSPs activities
- the ECORD member cash and in-kind contributions
- the support from European central funds (eg European Commission contracts)

EMA provides the ECORD Council and funding sources, when appropriate, with an annual audited financial report.

Figure 1 : The ECORD Management Office within CNRS-INSU



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ANNEX F

ECORD Science Operator (ESO)

Terms of Reference

1. Description of Organisation

1. ESO is a consortium of European scientific institutions formed to undertake Mission Specific Platform (MSP) operations for ECORD on behalf of the Integrated Ocean Drilling Program (IODP). The ESO Implementing organisation (IO) comprises:
    a. British Geological Survey (BGS)
    b. University of Bremen
    c. European Petrophysical Consortium (EPC)
2. BGS will act as Consortium Co-ordinator responsible for overall ESO management under a contract from the ECORD Managing Agency (EMA) as designated by ECORD Council. BGS will carry out best practice in project management, including bugetary control and financial probity. The Science Manager of ESO will act as the main contact with both the EMA and ECORD Council.
3. BGS personnel will act as the Operations Manager and Science Manager of ESO (see organogram); the ESO will operate from BGS's Lands & Resources Directorate (Continental Shelf and Margins Programme); the Programmes Director is responsible to the BGS Executive Committee and Board of Management, and ultimately to the Chief Executive of the Natural Environment Research Council (NERC).
4. The University of Bremen will be contracted by BGS to carry out curation and data management tasks (see organogram).
5. The European Petrophysical Consortium will be contracted by BGS to carry out logging and petrophysical activities (see organogram).
6. BGS will contract other organisations on behalf of the ESO as required by the IODP annual science and operations plan.

2. Interaction with components of ECORD

1. ESO will report to EMA on an as-needed basis, but as a minimum every six-months. Communication between ESO and EMA will be very frequent. As will be defined in the contract between EMA and ESO, EMA, on behalf of the ECORD Council, is the only body authorised to direct the ESO.
2. ESO will submit to the EMA an annual workplan, including an estimated budget, for the consideration of the ECORD Council. This workplan will be prepared in consultation with all relevant IODP bodies, the ECORD Science Support and Advisory Committee (ESSAC) and the EMA. Once agreed, the annual workplan is the definitive statement of work, and can only be changed through a written contract variation which will be communicated to Council via the EMA.
3. BGS will, on behalf of ESO, receive monies from the EMA and subsequently disburse these as appropriate both within ESO and to contractors in accordance with approved public financial management practice.
4. ESO will report directly to ECORD Council when requested by the ECORD Council Chair or Vice-Chairs, but the normal channel of communication will be through the EMA.
5. ESO will be an observer at all ESSAC meetings, and will advise ESSAC on ESO actions and plans.
6. ESO undertake to provide guidance to all IODP prospective drilling proponents who require MSPs to carry out their proposals.

3. Interaction with IODP structure

1. ESO will undertake to implement MSP operations as prioritised by the IODP Science Advisory Structure (SAS) and the IODP Operations Committee (OPCOM), and carry out all logistics as required by the IODP ECORD Member Memorandum and IODP Principles.
2. ESO will report to the Executive Authority of IODP, the Central Management Office (CMO) on at least an annual basis and more frequently if requested.
3. ESO will contribute to the IODP Annual Program Plan as required.
4. ESO will communicate regularly with other IODP Implementing Organisations (IO), and attend IO meetings.
5. ESO will act as an observer on relevant SAS advisory panels and committees, and will report to such panels and committees as requested.

4. Communication

1. ESO will communicate regularly and as required with the European IODP science community, partly through ESSAC and ECORD Council sponsored events.
2. ESO recognise the importance of education and outreach in the IODP programme, and all its component organisations will take responsibility in their area of specialisation. ESO will co-operate with other ECORD, ESSAC, EMA and IODP bodies in education and outreach programmes as they affect MSPs.

5. MSP Operations

1. ESO will undertake all aspects of MSP operations for IODP in accordance with agreed procedures. ESO and/or EMA shall be a party to the formulation of the procedures.
2. Such activities will be: operational and scientific planning, platform and equipment procurement, contracting, essential training of personnel, safety surveys, data management, curation, shore sampling parties, publication and other related pre-, intra- and post-operational activities.
3. ESO will undertake the staffing of MSP scientific parties in consultation with the CMO, USSAC, J-DESC and ESSAC.
4. ESO will, where required, align its procedures with those of IODP, notably in data management, minimum acceptable measurements and publication.
5. ESO will, in common with other IOs, observe best practice in Health, Safety and Environmental issues.
6. ESO will obey appropriate international standards and undertake all operation according to programme management procedures.
7. ESO will ensure compliance with international and national regulations and obligations.

6. Logging and Petrophysics

1. The European Petrophysics Consortium (EPC) comprises a consortium of:
   a. University of Leicester (Co-ordinator)
   b. Université de Montpellier
   c. RWTH Aachen University
   d. Vreije University of Amsterdam
2. On behalf of the ESO, and as directed under the contract, EPC will provide appropriate staff and facilities to enable and integrate all aspects of the acquisition, management and distribution of petrophysical measurements on core and downhole petrophysical measurements resulting from IODP MSP operations.
3. EPC will be responsible for maintaining and developing petrophysical shore-based support facilities and training as required by the scientific community and as mandated by the IODP ECORD Member memorandum and IODP Principles.
4. EPC will sub-contract services as required.

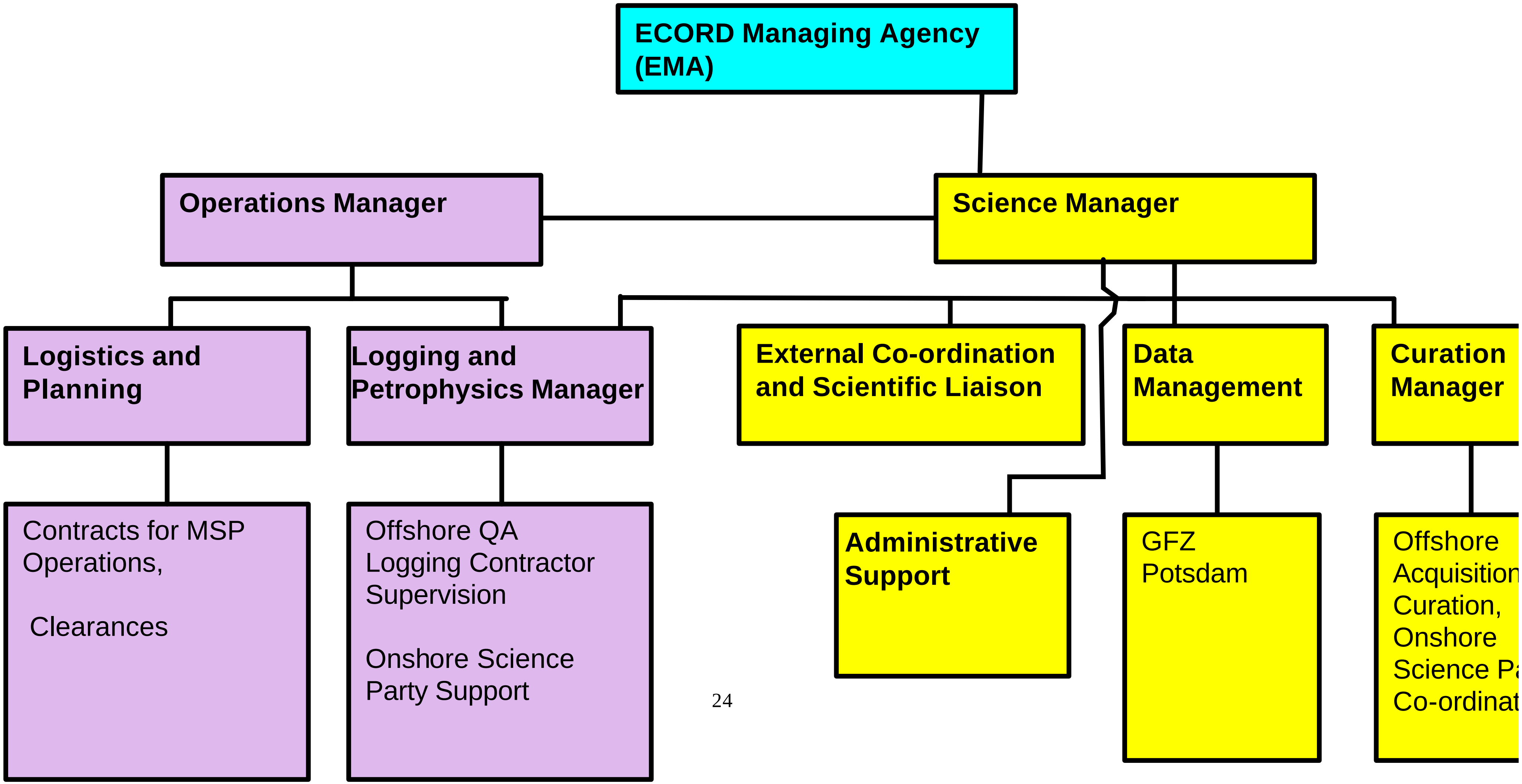
7. Curation

1. University of Bremen undertake, as directed under the contract, to provide ESO with curatorial services and appropriately staffed ship- and shore-based laboratory facilities as required by each MSP operation.
2. The University of Bremen manage a core repository for geographically selected IODP cores, and provide appropriate facilities under IODP principles.
3. University of Bremen will also contribute data management services using the World Data Center for Marine Environmental Sciences (WDC-MARE) Pangaea Network to the ESO.
4. University of Bremen will sub-contract services as required.

8. Annual Workplan

1. The ESO will provide facilities and staff to ensure the maintenance of capability in science operations for ECORD on an year-by-year basis, irrespective of carrying out any MSP operations. This capability will include:
    a. Consultation with the IODP SAS and ESSAC
    b. Co-operation with other IOs
    c. Preparation of annual plans for CMO and ECORD
    d. Communication with EMA and demonstrating accountability to ECORD Council
    e. Advising on engineering developments
2. As required by the IODP SAS, ESO will, subject to IODP funding from POCs and SOCs, carry out MSP operations in accordance with the terms outlined in Section 5.

ESO Management Structure



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ANNEX G

ECORD Financial Structure

Background

At the fourth ECORD interim Council (EiC) meeting held in Stockholm, Sweden in June 2002, the Council agreed a formal structure for its operation and membership. EiC recognised at this meeting that preparation for the Integrated Ocean Drilling Program (IODP) needed European funding organisations to make a commitment **<u>within Europe</u>** before the formal start of IODP in October 2003.

A finance paper was presented and discussed at the fifth EiC meeting in Salamanca, Spain, September 2002. The principles of the paper were subsequently agreed as an Annex to the Heads of Agreement between participating organisations at the next EiC meeting in Copenhagen, November 2002. An additional clause on In-Kind contributions was discussed at the EiC meeting in Frankfurt, February 2003, and ratified at the Dublin EiC meeting, April 2003. The financial principles have also been modified to reflect the level of contribution likely from funding organisations and the European Commission.

This Annex presents the financial principles for ECORD membership as agreed by the Council.

ECORD financial principles aim:

1. To provide an equitable mechanism for financing ECORD.
2. To set funding levels for membership of ECORD.
3. To define the financial contribution of ECORD in IODP.

IODP Financial Principles

Financial arrangements for IODP must set the background to ECORD financing. An extract of financial principles contained within the IODP Principles and agreed by the International Working Group (IWG) is provided in Appendix 1 to this Annex.

In IODP funding is divided into participation units which set the minimum cost of membership for IODP. Each participation unit provides the member with rights (and responsibilities) in the programme, such as participants on cruise legs, access to data and cores, etc. It also defines the membership of science advisory panels and membership of governing bodies (see Appendix 1).

By definition, an IODP Member (which could be a consortium) must purchase one participation unit with a cash contribution. In order for the programme to be viable Members and Lead Agencies must purchase sufficient participation units to provide Science Operations Costs (SOCs) for annual programme plans. Platform Operations Costs (POCs) must also be covered by the country (consortium) providing the platform. It is the intention of ECORD to be the Mission Specific Platform (MSP) provider and operator of IODP.

The IODP Principles were agreed by IWG before Europe formed a consortium and offered MSPs to the programme. Subsequently, and partly due to the changing financial climate in Japan and the US, the Lead Agencies made concessions on the Principles. Of most note for financing of ECORD is the ramping up of programme costs during the first few years of the programme (see Table 1 of Appendix 2 to this Annex). This is because the US and Japanese ships will not be in full international operation until at the earliest, 2005 and 2007 respectively. The total anticipated costs of the programme to 2008 are shown in Table 2 of Appendix 2 to this Annex.

ECORD Financing

The Financial Principles agreed for ECORD are based on individual funding organisations (and therefore individual countries) contributing the finances necessary to acquire at least two IODP Participation Units with cash contributions. These principles are detailed in the following sections. Further sections describe the mechanism for monetary flow within Europe and to IODP commingled funds.

The financial base of ECORD must of necessity be more complex than for simply IODP membership. This is because ECORD must obtain funds from sources additional to national organisations in order to operate Mission-Specific Platforms in IODP. This Annex presents options to be pursued for funding MSPs and co-ordinating a European infrastructure.

ECORD Financial Principles

As agreed by ECORD interim Council:

- ECORD will aim to provide, on average over the ten year program, three cash Participation Units for IODP.
- ECORD will aim to provide, on average over the ten year program, an additional Participation Units per annum either as Platform Operations Costs (POCs) for Mission Specific Platforms or as cash contributions towards Science Operations Costs (SOCs).
- ECORD funding agencies will aim to increase their financial contributions in line with the ramping of IODP Participation Unit costs.
- To be accepted as a full member of ECORD, all European members that contributed to ODP will contribute a minimum starting cash contribution at least equal to their ODP contribution.

- France, UK and Germany will each aim to contribute at a level equivalent to one full IODP participation unit each, as a minimum.
- Countries which start as former members of the ODP ESF consortium (ECOD) will aim to contribute funds at least to the former minimum ODP level for the first four years.
- Other members of ECORD will negotiate a minimum cash contribution with the ECORD Managing Agency (EMA).
- Funding contributions to ECORD for the first year and projections for the first 5 years of IODP are detailed in Annex H.

Principle on In-Kind Contributions

To be a member of ECORD and have voting rights on ECORD Council a member has first to make a financial contribution at a level agreed with the ECORD Managing Agency (EMA). This contribution has to be a cash contribution. When a full cash contribution has been made a member may offer additional in-kind contributions to fulfil a requested requirement of highly ranked MSP proposals which have been agreed in the IODP annual plan. Such an offer might, for example, be the provision of a ship to support an MSP operation. The ECORD Council, in consultation with the ESO, will decide on the suitability of the in-kind offer and the level of financial contribution represented by the offer.

Rights and Responsibilities

Rights and responsibilities are here defined for each member of ECORD, as agreed by ECORD interim Council in Salamanca, September 2002:

- Members will receive benefits in direct proportion to their financial contributions.
- Benefits will be allocated to give the best return for ECORD as a whole and as such individual member benefits may not be directly proportional to contributions for an individual year.
- Scientific benefits accruing to members from any European Commission contributions will be in proportion to national contributions.

Benefits are defined as entitling members to representatives on ECORD and IODP panels and participants on cruise legs. More than nominally allocated participants on a cruise leg may be acceptable as offset by reduced participation in other legs. ECORD Council will determine the ratio of participants dependent upon the number of IODP Participation Units (PUs) acquired in the overall programme. The EMA will inform the ECORD Council of any anomalies in member benefits for each year and appropriate adjustments will be made as set by ECORD Council policy.

Members will have the right to: (1) participate in all drilling cruises, (2) be represented on all planning and advisory panels, (3) be represented on IODP Council, (4) have access to data, samples, scientific and technical results. (5) submit proposals to the advisory structure for drilling or engineering developments in support of IODP science, (6) etc. as defined in the IODP Principles. These rights are qualified as set out in the ESSAC terms of reference.

Members will have the responsibility to: (1) actively participate in all aspects of the IODP, (2) ensure publication and sharing of scientific results, (3) participate in providing data and proposals for planning of drilling programs, (4) etc. as defined in the IODP Principles.

The exact nature of participation of scientists in cruise legs for the different drilling platforms in IODP will be defined by the Implementing Organisations of IODP. It is envisaged that the JR replacement will operate much in the same way as the current ODP programme. Ship legs on the Japanese Chikyu will likely be defined by length of time on board. It is likely that MSP legs will involve limited participants aboard the drill ship and that shore-based parties will be assembled. The operation of MSP legs will be defined by ECORD Council in conjunction with the ECORD Science Operator (ESO).

Intellectual Property Rights

The Intellectual Property Rights (IPR) associated with participation in ECORD will be governed by European Commission (EC) IPR arrangements.

Financing of the ECORD Managing Agency, ECORD Science Support and Advisory Committee, and ECORD Science Operator

ECORD Council has agreed to funding of the EMA, ESSAC and ESO from ECORD co-mingled funds, based on an agreed workplan, provided by the EMA, which will include the workplan of the ESO and ESSAC, including annually agreed budgets.

1. ECORD Managing Agency (EMA)

Costs for the ECORD Managing Agency (EMA) are defined by the proposal at Annex E and will be reviewed annually by ECORD Council. ECORD Council will decide on reasonable funding levels. The EMA will act as the banker for ECORD, receiving funds from ECORD members and other funding organisations and distributing funds to the IODP commingled funds held by NSF and to the ECORD Science Operator (ESO).

ECORD funding organisations will fund the activities of the EMA from pooled funds before making contributions to the IODP co-mingled funds.

The EMA will manage cash flow as detailed in tasks under Annexes C and E of this ECORD MoU.

2. ECORD Science Support and Advisory Committee (ESSAC)

The EMA will advise ECORD Council on reasonable funding levels for support of the European Science Support and Advisory Committee (ESSAC), including a Science Office to support ESSAC. Indicative costs are given in Annex E. ECORD Council will agree these funding levels on the basis of annual plans submitted by the EMA in accordance with the IODP annual plan.

3. ECORD Science Operator (ESO)

Costs for the ECORD Science Operator are defined in Annex F. The EMA will advise ECORD Council on reasonable funding levels. ECORD Council will agree these funding levels on the basis of annual plans submitted by the EMA in accordance with the IODP annual plan.

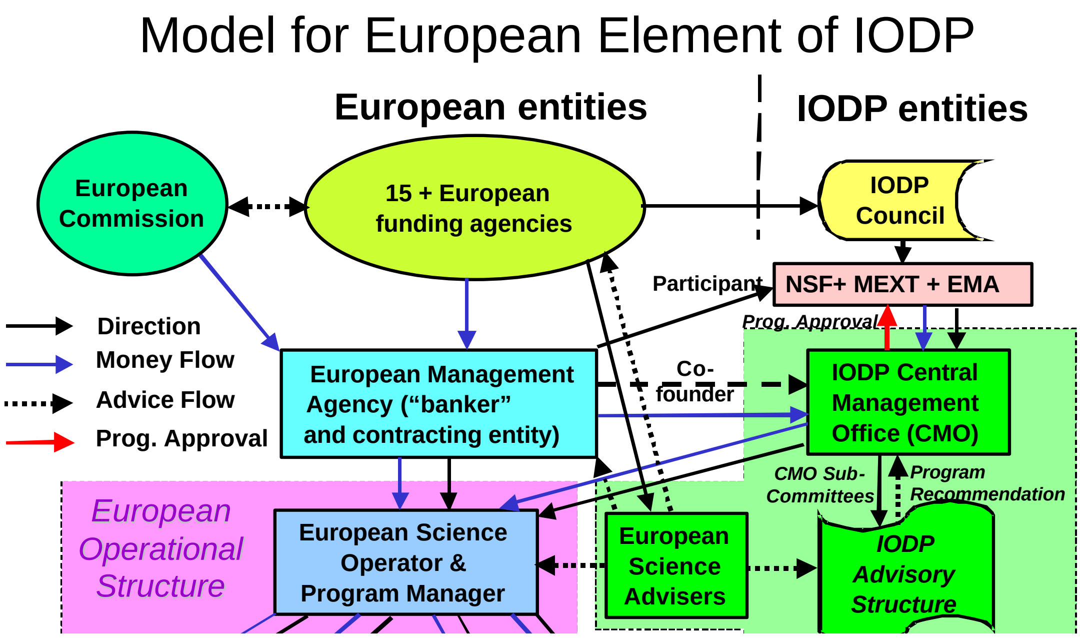
ECORD funding organisations will fund the activities of the ESO from pooled funds before making contributions to the IODP co-mingled funds.

European Commission Funding

Funding will be sought from the Commission through applications to the 6th Framework Programme (FP6). There is a possibility of seeking regional development funds. This will be the responsibility of those members that qualify for such funding.

Money Flow

The EMA will be the organisation responsible for managing all money flows. A schematic representation of IODP money flow is shown at Figures 1 and 2.



APPENDIX 1

Financial Principles extracted from IODP Principles

The following financial principles have been agreed by the International Working Group (IWG) of IODP:

- Lead agencies will contribute equally to total Program costs (*Membership Principles 3*).
- Based on present projection of total annual Program costs ($130-140M) for a two drilling vessel program, the financial contribution for membership in the IODP will be $5 million/year. Financial contributions from international partners will be commingled to support science operations costs. This contribution will entitle a member to one participation unit, with one participation unit equivalent to one member per panel and two scientific participants per "cruise leg," or equivalent. More than two participants on a cruise leg may be acceptable as offset by reduced participation in other legs. A member may acquire additional participation units through a corresponding increase in financial contribution, and/or long-term provision of mission specific platforms. It is understood that the Lead Agencies will contribute equally to total Program cost and acquire additional participation units necessary to fully support the program. When the Program is established, Associate Membership status will be considered (*Membership Principles 7*).
- The IODP is based on international cooperation and sharing of financial and intellectual resources (*Program Principles 2*). Program costs will be determined by the IODP Lead Agencies (presently NSF and MEXT). The Lead Agencies will contribute equally to Program costs. [Program costs are composed of platform operations costs and science operations costs. Platform Operations Costs will support the basic operation of the vessel as a drillship, and will include, for example: (1) costs of the drilling and ship's crew, (2) catering services, (3) fuel, vessel supplies and other related consumables, (4) berthage and port call costs, (5) disposal of wastes, (6) crew travel, (7) inspections and insurance, (8) drilling equipment, supplies, and related consumables, (9) administration and management costs of the platform operators. Science Operation Costs will provide for those activities onboard program platforms necessary to the proper conduct of the scientific research program and those shore-based activities required to properly maintain and distribute samples and data, support seagoing activities, and administer and manage the program. These costs will include, for example: (1) technical services, (2) computer capability, (3) data storage and distribution, (4) description, archiving, and distribution of data and samples, (5) deployment of a standard suite of logging tools, (6) development of new drilling tools and techniques required by IODP research, (7) program publications, (8) costs of consumables (exclusive of those identified under platform operations costs), (9) costs required for administration and management, including the Central Management Office, (10) engineering or geophysical surveys required for hole design or evaluation of drilling safety during final site selection.] Platform operations costs of the two primary vessels are to be the responsibility of MEXT and NSF. Mission specific platform operation costs will be the responsibility of the member(s) providing the platform. Members in the IODP

(including MEXT and NSF) will contribute financially to support of the science operations costs (*Program Principles 7*).

- Support of scientific research and development costs for shore-based analysis and research on IODP samples and data, and for non-routine downhole measurements, are the responsibility of member countries/agencies. Support of geophysical and geological research to prepare drilling proposals or identify drilling targets are also the responsibility of member countries/agencies (*Program Principles 8*).
- Legal and financial responsibility including mobilization and platform operation costs for the riser capable vessel will reside with Japan and for the non-riser vessel with the United States (*Platform Principles 2*).
- Access to mission specific platforms (beyond the two primary vessels) will be required to meet specific objectives identified by the science advisory structure, but resources to support these activities have not been identified at this time (*Platform Principles 3*).
- Legal and financial responsibility, including mobilization and platform operation costs of mission specific platforms, is to reside with the organization(s) or country (ies) which make the decision to offer this additional capability to the Program. Provision of such a capability will not be considered a contribution in lieu of annual IODP membership contribution (*Platform Principles 4*).
- IODP commingled program funds will be used to support costs of science operations on IODP drilling platforms (*Platform Principles 5*).
- The CMO will negotiate with the implementing organizations and the Science Advisory Structure to produce an annual IODP plan, which is consistent with budget guidance from the Lead Agencies (*Management Principles 2*).
- Those organizations supported by science operations costs will be selected by processes agreed to by the IWG or its successor, and the CMO as required (*Management Principles 3*).
- The annual IODP plan will include presentation of science operations costs and platform operations costs (*Management Principles 4*).
- NSF will provide commingled funds to the CMO, which in turn will provide funds to implementing organizations for science operation costs through appropriate formal arrangements (*Management Principles 7*).

Membership rights are defined by:

- Members will have the right to: (1) participate in all drilling cruises, (2) be represented on all planning and advisory panels, (3) be represented on IWG or its successor, (4) have access to data, samples, scientific and technical results. (5) Submit proposals to the advisory structure for drilling or engineering developments in support of IODP science, (6) etc. (*Membership Principles 5*).
- Members will have the responsibility to: (1) actively participate in all aspects of the IODP, (2) ensure publication and sharing of scientific results, (3) participate in providing data and proposals for planning of drilling programs, (4) etc. (*Membership Principles 6*).

APPENDIX 2

Table 1 IODP Participation Unit Costs (in US$m) and IODP total cost.

US fiscal year	IODP P.U.	IODP total cost	platforms in use
2004	1.5	47	MSP, NR
2005	3.5	76	MSP, NR
2006	3.5	76	MSP, NR
2007	5.6	161	MSP, NR, R
2008	5.6	161	MSP, NR, R

MEMORANDUM OF UNDERSTANDING of European and Other Funding Organisations on Membership and Operation of ECORD in the Integrated Ocean Drilling Program (IODP)

ANNEX H – PART 1

Membership and Financial Contributions

The member elects to be an ordinary member with rights, privileges, and financial commitments as defined in this ECORD MoU. All cooperative activities under this ECORD MoU, including exchange of technical information, equipment and data, shall be conducted in accordance with international law, as well as the international obligations, national laws and regulations of each party and within the limits of available funds.

The ECORD MoU is not legally binding and will have no effect as a legal or political precedent.

The member endorses cooperation in the Integrated Ocean Drilling Program, with commitment, in principal, as an ordinary member to support of the IODP science program in the period 1 October 2003 to 30 September 2013.

The member will have rights as defined in this ECORD MoU on a pro-rata and equitable basis dependent upon the IODP Memorandum signed by the EMA, on behalf of ECORD members, with the Lead Agencies.

Obligations arising from the ECORD MoU may be terminated by any of the ECORD members giving all other members written notice at least one year in advance.

The members are listed in table H1 and the agreed financial contributions of each member in table H2.

Each member will sign the ECORD MoU to agree the contributions listed in table H2, as detailed in Part 2 of this Annex, with the EMA.

This ECORD Memorandum of Understanding can be altered **by written agreement** of all ECORD members.

Table H1 Needs updating and specifying full addresses

Organisation	**Signed by**	**Position**	**Country_**
NERC		Chief Executive	UK
DFG		President	Germany
Ministry		Director	Germany*
VR		Director General	Sweden
SNF		Head of SNF	Denmark
GSI		Director	Ireland
RI		Director CEO	Iceland
NWO		NWO Governing Board	Netherlands
MENRT		Director of Research	France
GRICES		President	Portugal
NCNR			Finland
MCYT			Spain
CNR			Italy*
OGS			Italy
NFR			Norway
FWO			Belgium*
NSERC			Canada*

* still pending

countries that have expressed interest

Research Ministry			Austria
NCNR		Director	Greece
IGME		Director General	Greece
Academy of Sciences			Russia

Table H2 -: in principle, agreed financial contributions

ECORD contributions	2003/2004 $m	2004/2005 $m	2005/2006 $m	2006/2007 $m
Belgium*	xxxx	xxxx	xxxx	xxxx
Canada*	0.3	0.3	0.3	xxxx
Denmark	0.5	0.5	0.5	0.5
Finland	0.06	0.06	0.06	0.06
France	1.5	3.5	3.5	3.5
Germany	1.5	3.5	3.5	3.5
Iceland	0.03	0.03	0.03	0.03
Ireland	0.03	0.03	0.03	0.03
Italy	0.075	0.15	0.35	0.35
Netherlands	0.21**	0.21	0.21	0.21
Norway	0.3	0.7	0.7	0.7
Portugal	0.09	0.09	0.09	0.09
Spain	0.15	0.35	0.35	0.35
Sweden	0.33 #	0.33	0.33	0.33
Switzerland	0.15	0.35	0.35	0.35
UK	1.5	3.5	3.5	3.5
ERAnet (EC)	0.6	0.6	0.6	0.6
Total	7.325	14.2	14.4	14.1

* still pending
** +0.06 ESSAC secretariat support
# + 0.9 in kind

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING
of
European and Other Funding Organisations
on
Membership and Operation of ECORD
in the
Integrated Ocean Drilling Program (IODP)

ANNEX H – PART 2

Membership and Financial Contributions

The party signing this ECORD Memorandum of Understanding will support, subject to its budget process, ECORD in the Integrated Ocean Drilling Program (IODP) with a total contribution of xxx United States dollars (U.S. $xx,000,000) in cash for the period 1 October 20xx to 30 September 20xx. Payment shall be made to the ECORD Managing Agency in one instalment, made payable to CNRS, France, on or about 1 April 2004. Should the IODP be terminated before 30 September 2004, the party will be reimbursed on the basis of one-twelfth of its contribution for each month of curtailment, after due commitments made by ECORD have been settled.

Should the party withdraw from ECORD, and therefore IODP, no refund of contributions will be made.

FOR AND ON BEHALF OF THE NATURAL ENVIRONMENT RESEARCH COUNCIL (NERC)

Signature------------------------------------ Date -----------------------------

Block Capitals------------------------------ Position -------------------------

FOR AND ON BEHALF OF THE ECORD MANAGING AGENCY (EMA)

Signature------------------------------------ Date -----------------------------

Block Capitals------------------------------ Position -------------------------

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 4C

[DRAFT]
Memorandum

among the

NATIONAL SCIENCE FOUNDATION
(NSF)
of the United States of America

THE
MINISTRY OF EDUCATION, CULTURE, SPORTS, SCIENCE AND TECHNOLOGY
(MEXT)
of Japan,

and

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE –
INSTITUT NATIONAL DES SCIENCES DE L'UNIVERS
(CNRS/INSU)
of France
as the
ECORD Management Agency (EMA)

concerning
PARTICIPATION of
EUROPEAN CONSORTIUM FOR OCEAN RESEARCH DRILLING
(ECORD)

In the
INTEGRATED OCEAN DRILLING PROGRAM
As a
Contributing IODP Member

The Integrated Ocean Drilling Program (IODP) is a multinational program of scientific research in the oceans which uses drilling and logging to undertake research on Earth system processes ranging from changes in the Earth's climate to the rifting and drifting of continents. The IODP builds on the scientific results of the Deep-Sea Drilling Project (DSDP) initiated in 1968 and the Ocean Drilling Program(ODP), which succeeded the DSDP in 1985, and the encouragement that the United National Convention on the Law of the Sea has provided to international cooperation in marine scientific research. The IODP seeks to expand the international sharing of intellectual and financial resources, which have been critical to the success of scientific ocean drilling. The IODP scientific program is identified in the Initial Science Plan for the IODP, ***Earth, Oceans and Life,*** and includes emphasis on the following research themes:

The Deep Biosphere and the Sub-seafloor Ocean: Drilling will concentrate on defining the architecture and dynamics of the vast sub seafloor plumbing system, where flowing water alters rock, modifies the long-term chemistry of the oceans, lubricates seismically active faults, concentrates economic mineral deposits, and controls the distribution of the deep biosphere.

The Processes and Effects of Environmental Change: Using a global array of sites, ocean sediment cores will be used to construct a detailed record of the causes, rates and severity of changes in the Earth's climate system and their relation to major pulses in biologic evolution.

Solid Earth Cycles and Geodynamics: Drilling will concentrate on sampling and monitoring regions of the seafloor that currently have the highest rates of energy and mass transfer, and comparing these results to older geologic settings. A crucial initial program of deep drilling will be to study the seismogenic zone responsible for large destructive earthquakes along active plate boundaries.

The primary operations of the IODP are conducted by contractors (Implementing Organizations) responsible to the National Science Foundation of the United States of America (NSF) and the Ministry of Education, Culture, Sports, Science, and Technology (MEXT), hereafter referred to as the Agencies. The IODP drilling operations focus on a core capability provided by two scientific ocean drilling platforms. One is a riser-capable vessel provided by the MEXT and owned and operated by the Japan Marine Science and Technology Center (JAMSTEC), and the other is a non-riser vessel provided by the NSF and operated by the Joint Oceanographic Institutions, Inc. (JOI). Both vessels are available for scheduling and operations on a global basis, based on recommendations from the IODP Science Advisory Structure (SAS). Access to mission specific platforms (MSPs) (in addition to the two primary vessels) is required to meet specific objectives of the science plan for shallow water and Arctic drilling that cannot be effectively done through use of the riser or non-riser vessels. Financial support for the operation of these additional platforms comes from IODP member(s), who make the decision to offer this additional capability to the Program. The British Geological Survey (representing the ECORD Science Operator) is the primary MSP implementing organization for IODP as identified in Annex C. The IODP seeks cooperation with other Earth and ocean science programs and initiatives. The scientific and technical results of the IODP are openly available.

The NSF, the MEXT, and the ECORD Managing Agency (EMA), hereafter referred to as the Participants, intend to cooperate in IODP activities during the period 1 October 2003 to 30 September 2013, as described in the following sections:

1 - STATUS OF THIS DOCUMENT

The Participants intend that this document and any annexes hereto not constitute a binding international agreement or otherwise to give rise to obligations or commitments under international law.

2 - MEMBERSHIP IN THE IODP

The EMA has elected to be a contributing IODP member and intends to cooperate and participate in the IODP in support of the IODP science program in the period 1 October 2003 to 30 September 2013.

All cooperative activities described in this Memorandum, including funding arrangements and exchanges of technical information, equipment, and data, are conducted within the limits of available funds and in accordance with the national laws and regulations of each Participant, as well as with international agreements to which the Participants are party, particularly any intended to prevent, reduce, and control pollution of the marine environment.

3 - DURATION OF IMPLEMENTATION

The IODP implementation period extends from 1 October 2003 until 30 September 2006. During this period, drilling is to be accomplished from the non-riser platform, and from MSPs (if recommended by the SAS and if funding and/or other resources is provided by IODP members). Preparation for riser drilling (including detailed scientific planning, engineering planning, and engineering and safety surveys, etc.) is also to be undertaken in this period. Full implementation of the IODP, including drilling programs on the riser vessel, the non-riser vessel, and from MSP's (if recommended by SAS and funding and/or other resources is provided by IODP members), is expected to occur beginning 1 October 2006.

4 - SCIENTIFIC PLANNING

Scientific planning and direction of the IODP is a function of the SAS. The SAS is composed of scientists and engineers representing the Participants and other IODP members. It provides long-term guidance on the scientific planning of the IODP, and recommends annual science and engineering plans based on proposals from the international science community.

The SAS Executive Authority and Science planning committee are composed of representatives from scientific institutions or organizations in the IODP member countries/consortia that have a major interest in the study of the seafloor. The Executive Authority formulates scientific and policy recommendations with respect to IODP planning and operations. The SAS science planning committee undertakes detailed planning and may establish panels, working groups and committees as required.

EMA may elect to be represented on the SAS as identified in Annex B.

The Chairmanship of the SAS rotates initially between institutions in Japan and the United States, with a term of 2 years. The SAS may establish panels and/or committees as needed to address its responsibilities, including panels on platforms and on science operations.

5 - OPERATIONS PLANNING AND MANAGEMENT

The Central Management Office (CMO) develops and manages operations and implementation plans for the IODP program. The CMO receives advice and recommendations on scientific priorities and plans from the SAS, requests plans that are responsive to this advice from Implementing Organizations, and negotiates with Implementing Organizations and the SAS to produce an integrated annual IODP Program Plan. The annual IODP Program Plan contains a presentation of total program costs, which include both science operations costs and platform operations costs (see section 10). The CMO manages science operations funds that are provided under contract with the NSF.

The SAS Executive Authority reviews and approves the annual IODP Program Plan and budget prior to its consideration by the Agencies. The NSF has responsibility for contractual approval of the annual IODP Program Plan, in consultation with the MEXT (and EMA for MSP funding and management). After approval by the Agencies, significant changes in the annual IODP Program Plan are to be considered and approved by the CMO and the Agencies prior to implementation, in consultation with the Executive Authority of the SAS and the Implementing Organizations, as appropriate.

6 – IODP COUNCIL

The EMA may elect to be represented on the IODP Council. The members of the Council are representatives of each country or entity contributing to the support of the IODP, regardless of whether it participates as an individual IODP member or as a member of a consortium. Each Participant designates its own representatives to the Council. There should ordinarily be one representative of each participating country, except that additional representation from Japan and the United States may be appropriate.

The Council serves as a consultative body reviewing financial, managerial, and other matters involving the overall support of the IODP. The Council provides a forum for exchange of views among the contributing countries. No formal voting procedures are to be established.

The MEXT and the NSF designate Principal Officials who have responsibility for Agency oversight of IODP implementation, operations, management, and funding issues. The Principal Officials serve as the chairs of the IODP Council, alternating on an annual basis. A formal agenda is prepared for each meeting and written records of each meeting are kept.

The chair provides secretariat services to the Council. The Council normally meets once each year. The annual meeting includes a financial report and discussion, an audit report, a review of scientific and technical achievements for the past year, presentation of draft program plans and budgets for the coming year, and other topics of mutual interest. Liaison representatives of prime contractors, Implementing Organizations and important scientific planning entities are available to the Council.

7 – PROJECT PROPOSALS AND DATA SHARING

Scientists of the ECORD:

a) may make proposals to the SAS for scientific projects or technical objectives of interest to the scientific communities of the ECORD member countries;

b) may have access to all data from geophysical and other site surveys performed in support of the program which are used for drilling planning; and;

c) may have access to engineering plans, data or other information developed under contracts supported as program costs.

Support for geophysical and geological surveys and research to prepare drilling proposals and identify drilling targets may be contributed by the ECORD as its scientific interests and available resources allow. Site survey requirements are identified by the SAS.

8 - PARTICIPATION ON BOARD IODP DRILLING PLATFORMS

The Implementing Organizations provide science operations and services on IODP drilling platforms, and, with the advice of the SAS, select the scientific teams for each cruise or drilling program, based on nominations and applications from IODP members. It is understood that the Agencies are to have equal participation of their country’s scientists in all IODP drilling programs, and together are to have no less than two-thirds of the available scientific positions.

ECORD scientists may participate in IODP drilling cruises and programs. It is understood that opportunities for such participation are intended to reflect the level of support provided by EMA and are identified in Annex B.

It is recognized that some cruises may be of special scientific interest to ECORD scientists and increased participation by scientists of the ECORD members on these cruises may be appropriate. It is understood that such increased participation would be expected to be offset by reduced participation in other cruises.

Co-chief scientists for IODP drilling programs are nominated by the SAS. It is expected that at least two-thirds of the scientists invited to serve as co-chief scientists will be representatives of Japan and the United States. It is expected that scientists representing ECORD would be invited to serve as co-chief scientist in proportion to EMA contribution. In nominating co-chief scientists, the SAS pays due consideration to those scientists responsible for proposing drilling proposals and plans.

9 – ACCESS TO SAMPLES, DATA AND REPORTS

Scientists from the ECORD have access to IODP data and core samples. The procedures and policies for obtaining IODP samples and data are recommended by the SAS. EMA indicates that it endeavors to ensure that ECORD scientists and institutions provide the scientific data resulting from site surveys and laboratory analyses in time for preparation of IODP publications, and for inclusion in IODP data bases. EMA is expected to provide the Agencies with copies of all publications from the ECORD scientists that are based on program material. EMA is to receive an appropriate number of copies of all IODP publications and reports.

10 - FINANCIAL SUPPORT

EMA intends to support the IODP with financial contributions as described in Annexes A and B. The financial contributions to the NSF of all members are commingled to support science operations costs of the IODP. Science operations costs are determined by the Agencies. Science operation costs provide for those activities onboard program platforms necessary to the proper conduct of the scientific research program and those shore-based activities required to properly maintain and distribute samples and data, support seagoing activities, and administer and manage the program. Such costs include, for example: (1) technical services, (2) computer capability, (3) data storage and distribution, (4) description, archiving, and distribution of data and samples, (5) deployment of a standard suite of logging tools, (6) development of new drilling tools and techniques required by IODP research, (7) program publications, (8) costs of consumables (exclusive of those identified under platform operations costs below), and, (9) costs required for administration and management, including the CMO.

Platform operation costs of the riser and non-riser vessels are supported by the MEXT and the NSF respectively, and for mission specific platforms by the member electing to provide such capability**.** Member financial contributions are not used to support platform operations costs. Platform operations costs for these vessels and for mission specific platforms support the basic operation of the vessel as a drillship, and include, for example: (1) costs of the drilling and ship's crew, (2) catering services, (3) fuel, vessel supplies and other related consumables, (4) berthage and port call costs, (5) disposal of wastes, (6) crew travel, (7) inspections and insurance, (8) drilling equipment, supplies, and related consumables, (9) engineering or geophysical surveys, and data acquisition and laboratory analyses required for the safety of platform and drilling operations, and, (10) administration and management costs of the platform operators.

Legal and financial responsibility, including mobilization and platform operation costs, for the riser capable vessel resides with the MEXT, and for the non-riser vessel with the NSF. Legal and financial responsibility, including mobilization and platform operation costs, for additional platforms is to reside with the organization(s) or country(ies) which provide such capability to the IODP. Provision of such capability is not considered a contribution in lieu of annual IODP membership contribution.

Support of scientific research and development costs for shore-based analysis and research on IODP samples and data and for non-routine downhole measurements are the responsibility of the participating countries, or IODP members, and are not supported as program costs.

Activities carried out by the Participants contractors in direct support of the Particpants individual scientific undertakings are not program costs and are not supported from commingled funds.

11 - SALARIES, TRAVEL AND EXPENSES

Salaries, travel and expenses for participants representing the ECORD are to be borne by the ECORD members. Costs of accommodations for ECORD scientists and members of technical parties aboard IODP drilling platforms are program costs and are the responsibility of the platform operator. The platform operators are to offer ECORD scientists assistance when going between the airport and drillship.

12 - CONSULTATION

Meetings of the Agency representatives and representatives of EMA may be held at any mutually acceptable time upon the request of any Participant to discuss this Memorandum and other matters of mutual interest, including those related to the funding and management of mission specific platforms within the annual plan

13 – CONCLUDING PROVISIONS

The Participants intend to cooperate under this Memorandum from 1 October 2003 until 30 September 2013.

This Memorandum may be modified by written consensus of the Participants.

Cooperation under this Memorandum may be discontinued at any time by any Participant. The other Participants should receive written notice at least one year in advance.

SIGNED at XXX, this XXst day of month, 2003, in the English language.

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FOR CNRS/INSU

____

FOR THE MINISTRY OF EDUCATION,
CULTURE, SPORTS, SCIENCE AND
TECHNOLOGY (MEXT)
of
JAPAN

____

Rita R. Colwell
Director
THE NATIONAL SCIENCE
FOUNDATION
of
THE UNITED STATES OF
AMERICA

ANNEX A

ANTICIPATED ANNUAL MEMBER CONTRIBUTIONS

A Participant's expected level of participation in the IODP is understood to be proportional to the number of "participation units" represented by that Participant's contribution to the IODP.

Based on 2002 projections of total annual Program costs for a fully operational IODP program (approximately $150 million), and considering IODP program activities and costs planned for the implementation period (1 October 2003 to 30 September 2006) identified in the Memorandum, the annual contribution for a participation unit is considered to be as follows:

1 October 2003 - 30 September 2004 (U.S. Fiscal Year 2004) = $1.5 million
1 October 2004 - 30 September 2005 (U.S. Fiscal Year 2005) = $3.5 million
1 October 2005 - 30 September 2006 (U.S. Fiscal Year 2006) = $3.5 million

Additional financial contributions as well as the long-term provision of mission specific platforms for shallow water and Arctic drilling count toward additional participation units.

The annual contribution for one IODP participation unit for the period 1 October 2006 to 30 September 2013 is estimated to be $5.6 million (U.S. dollars), but this figure is subject to increase or decrease based on operating experience and projected operating costs. Identification of the annual contribution level for this period will be done by the Agencies.

It is understood that an IODP member may elect to have a representative on each committee or panel of the SAS, and two scientific participants per "cruise leg", or equivalent, for each platform operation identified as an IODP cost, for each participation unit. Additional participants on a cruise leg may be acceptable, but it is expected that these would be offset by reduced participation in other legs.

IODP Associate Members are those that contribute at least 1/6 participation unit. Associate Members may elect to have scientific participation and representation on SAS committees, panels, or working groups in proportion to their contributions. However, it is not anticipated that an Associate Member would have representation on the Executive Authority or the committee for scientific planning.

ANNEX B

ANTICIPATED FINANCIAL CONTRIBUTION and PARTICIPATION FOR THE U.S. FISCAL YEARS 2004-2013

by the

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE – INSTITUT NATIONAL DES SCIENCES DE L'UNIVERS (CNRS/INSU)

of France

As the

European Management Agency (EMA)

It is understood that in the period October 1, 2003 to 30 September 2004 that EMA may support science operations costs and platform operations costs for mission specific platform drilling approved by the SAS in lieu of financial contribution to the NSF. During the period 1 October 2004 to 30 September 2006 the European Management Agency (EMA) intends, subject to its budget, to support the IODP with an annual financial contribution to the NSF of no less than seven million dollars (U.S. $7.0 million) per year. In the period 1 October 2006 to 30 September 2013 EMA intends, subject to its budget process, to support the IODP with an annual contribution of no less than sixteen million, eight hundred thousand dollars (U.S. $16,800,000) as identified in Annex A. If recommended by the SAS, the EMA further intends to support platform operation costs for MSPs at a level financially equivalent to 2 participation units per year in the period 1 October 2004 – 30 September 2006, and one participation unit per year in the period 1 October 2006 to 30 September 2013.

For IODP core drilling programs, it is understood that ECORD will have 4 participation units and may elect to send eight scientists per core drilling cruise or program. Participation on Mission Specific Platform (MSP) drilling programs will be dependent on MSP activity and corresponds to 4 participation units. It is understood that ECORD may send 3 voting and one non-voting member to each SAS panel or committee.

EMA intends to make arrangements to transfer its contribution funds to NSF, and anticipates doing so according to the following schedule:

1 October 2003 - 30 September 2004 (U.S. Fiscal Year 2004) = $0
1 October 2004 - 30 September 2005 (U.S. Fiscal Year 2005) = $7,000,000
1 October 2005 - 30 September 2006 (U.S. Fiscal Year 2006) = $7,000,000
1 October 2006 - 30 September 2007 (U.S. Fiscal Year 2007) = $16,800,000
1 October 2007 - 30 September 2013 (U.S. FY 2008-2013) = per Annex A

It is understood that, should the IODP be discontinued before September 30th of a fiscal year, NSF intends to reimburse EMA one-twelfth of its annual contribution for each month of curtailment in that fiscal year. Should MST withdraw from the Program prior to September 30th of a fiscal year, MST understands that NSF does not intend to refund its contributions.

ANNEX C

THE BRITISH GEOLOGIC SURVEY
AS THE PRIMARY IMPLEMENTING ORGANIZATION
FOR MISSION SPECIFIC PLATFORMS

It is the intent of the European Management Agency to support the British Geologic Survey (the ECORD Science Operator - ESO) as the primary Implementing Organization for the management of mission specific platform (MSP) drilling in the IODP. The ESO carries out functions for MSP drilling operations analogous to those of the riser and non-riser Implementing Organizations.

As the primary MSP Implementing Organization, the ESO is to:

Coordinate the available infrastructure for MSP operations for CMO planning.

Provide advice on MSP drilling technology and development of state of the art drilling tools and associated shipboard laboratories for IODP.

Undertake the operation of IODP MSP drilling except when a compelling case for a more effective operation is made by another provider, as determined by the CMO.

Present yearly drilling plans to the CMO in conjunction with secondary MSP providers.

ANNEX D

ECORD MEMBERSHIP

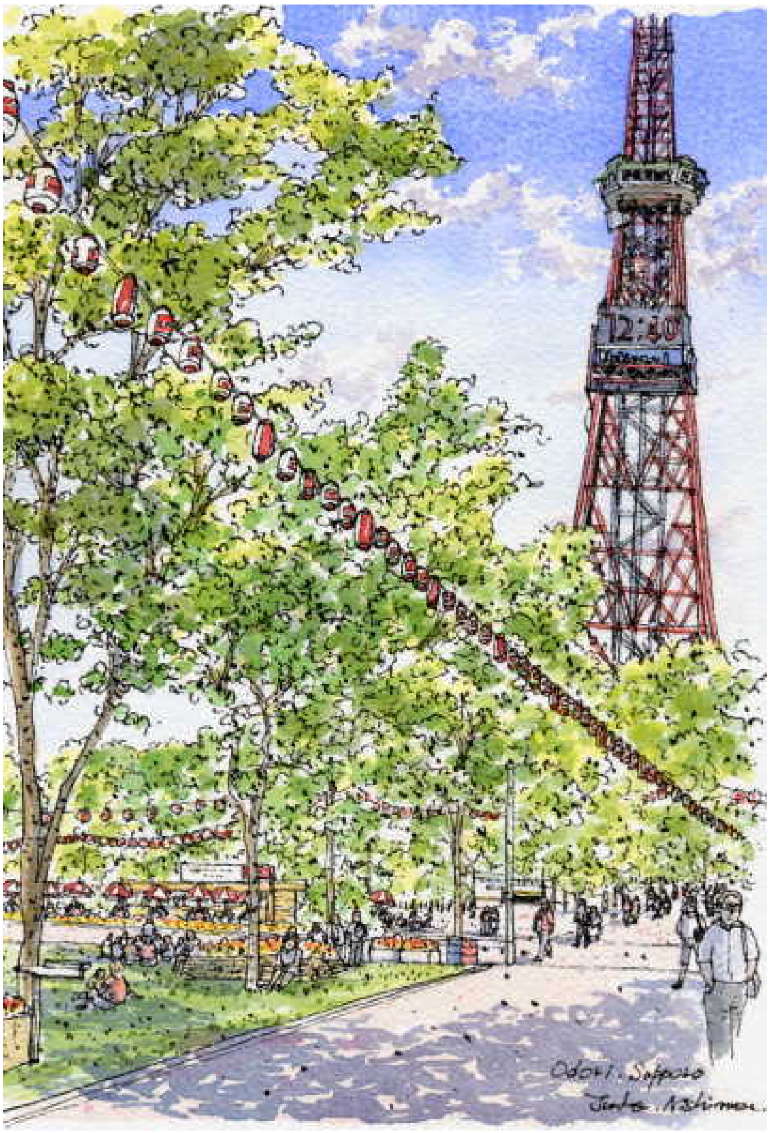
The following organizations/countries have elected to be members of the European Consortium for Ocean Research drilling:

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

European Consortium for Ocean Research Drilling

Enclosure 5A1

5th iSAS interim Planning Committee Meeting



by courtesy of Junko Nishimura

Hokkaido University
Sapporo Hokkaido, Japan
13-14 September 2003

Greetings and Hope

We the co-chairs of the interim Planning Committee (iPC) extend our warmest greetings to everyone participating in this joint meeting with the IODP Science Planning Committee (SPC) in Sapporo. In spite of the predictable difficulties and ambiguities we are all experiencing during this transitional phase leading up to the "real" IODP, it is our greatest pleasure as iPC co-chairs to host this meeting to usher in this ever challenging and ever innovative New Era of the Earth and Ocean Sciences.

Looking back to 1968 when our predecessors started the scientific ocean drilling program, we have enjoyed and experienced three phases of forward-leaping progress and continuous success. Basically we owe that success to the fearless, tireless, and forward-looking leadership of the United States in the long-lasting Deep Sea Drilling Project and Ocean Drilling Program for about 35 years and longer. But now, at the start of the 21st century, we have a perception that new technologies for drilling and sub-sea-bottom engineering and measurement must continue to be introduced along with new concepts and objectives in scientific exploration of the Earth. For this purpose, Japan started in 1990, in coordination with ODP groups, the conceptual design of a new drilling tool, a modern high-technology system that can be utilized in our future cutting-edge drilling program.

I would like to tell you a short history of the interim phase of IODP. In 1999, the Japanese government gave us the go-ahead to proceed with construction of a new scientific drilling vessel. This new drilling vessel, *Chikyu*, boasts a large number of innovative mechanisms for cruising, positioning, controlling, drilling, and scientific capabilities and facilities. Armed with this formidable vessel (67,500 tons water displacement), we have an opportunity to encourage a large number of government agencies to make a decision to continue support for enhanced deep Earth sampling projects beyond September 2003.

Since 1999, several groups of very dedicated people have worked to make our dream come true. The IODP Planning Sub Committee (IPSC) and the iPC are among those who have been working enthusiastically for the establishment of new science objectives, streamlined program management procedures, and new international agreements to support the future IODP. Various other interim service panels, working groups, symposium organizing groups, and data handling and site-survey groups have all been coordinating with each other to make our new IODP an organization well designed for meeting the challenges of the future.

The call for IODP proposals began in October 2001, and more than one hundred proposals have been submitted so far, many of them carried over from ODP. Projects for drilling in the seismogenic zone for hazard prevention and mitigation, in the sub-sea biotic realm to search for new organic matters and identify the origin and function of early life forms, on continental margins for studying rifting processes, sea-level history, hydrocarbon researches, and fault/slump identification, in the Arctic and on coral reefs for studying past global change, and through shallow gas and high-pressure zones for new engineering and technology development are all planned and are being programmed by virtue of large volume efforts of distinguished and splendid scholars, most of whom have been nurtured and educated during the predecessor drilling programs.

In June of this year, the International Working Group (IWG) for IODP met in Capri, Italy. At the meeting, European representatives presented a plan for providing mission-specific platform (MSP) capabilities to IODP beginning in 2004, and they expressed a strong intent that Europe would become one of the leading members of IODP. The basic program framework that had been commonly recognized between the U.S. and Japan was that the main activities during the interim phase of IODP should focus on the preparation of the program (such as site surveys and selection of drill sites) and the engineering development for deeper drilling. The scientific communities received the European proposal favorably because it is anticipated that MSPs may enhance IODP drilling capabilities in the wide range of area where U.S. or Japanese drilling vessels cannot operate. Those areas include the Arctic Ocean, shallow-sea coral reefs, and others that are scientifically attractive and fit to MSP operation. After all, the U.S. and Japan agreed with Europe that MSPs would play one of the key tripod roles in IODP.

We are particularly happy as the iPC co-chairs to be able to hand over the reins from iPC to SPC at this meeting. Many tasks remain to be tackled in this big project that will lead the Earth and Ocean Sciences in the 21st century in an innovative and challenging fashion. We would love to ask again each participating member of the IODP community to focus on what to do and what can be done to grasp the scientific fruits of our labors. Let's all get it done!!

iPC co-chairs
September 14, 2003, Sapporo

H. Kinoshita

Jim Kinoshita
Japan Marine Science and Technology Center

Ted Moore
University of Michigan, USA

Meeting Logistics

MEETING DATES & TIMES

September 13	PANCH	8:30~12:00
	iPC	1300~17:00
September 14	iPC	8:30~17:00
September 15	SPC	8:30~17:00
September 16	Excursion Discussion	10:00~16:00
September 17	SPC	8:30~17:00
September 18	SPC	8:30~12:00
	OPCOM	12:00~17:00
September 19	SPC	8:30~17:00

MEETING HOST

Dr. Noriyuki Suzuki
Professor, Faculty of Science, Hokkaido University
suzu@ep.hokudai.sc.jp

Dr. Toru Nishikawa
Advanced Earth Sciences & Technology Organization (AESTO)
nishikaw@hq.aesto.or.jp

GROUND TRANSPORTATION

From Shin-Chitose (Sapporo) Airport to Sapporo downtown:

TRAIN (36 minutes): JR (Japan Railway) train leaves every 15 minutes from Shin-Chitose Airport station, which is located in the underground level of the airport building, between 7:00 am and 10:00 pm. The fare is 1,040 yen for one way. Get off at Sapporo station.

BUS (70 minutes): Buses leave every 10 minutes from Shin-Chitose Airport. The fare is 820 yen for one way.

TAXI (60 minutes): The fare is about 15,000 yen.

LODGING ACCOMMODATIONS

A. Sapporo Aspen Hotel (Kita 8 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-700-2111
B. Sapporo Dai 1 Washington Hotel (Kita 4 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-251-3211
C. Sapporo Clark Hotel (Kita 13 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-716-7772
D. Hotel Dynasty (Kita 10 Jo Nishi 3, Kita-ku, Sapporo) Tel:011-756-7733

FIELD TRIP

Date & Time: September 16, 10:00 ~ 16:00
Cost: 6,000 YEN per person (will be collected at the iSAS/IODP meetings)
History of Sapporo Tour:
Hokkaido University - Sapporo City Archive Museum - Hokkaido Shrine - Sapporo Factory (Sapporo Kaitakushi Brewery & LUNCH) - Historical Museum of Hokkaido - Hokkaido University
*If you want to participate in this Excursion Tour, please choose "Yes" in online application form.

BANQUET

Date & Time: September 16, 18:00 ~ 20:00
Location: Restaurant "Elm" in the Faculty House Enreiso (located at 100 m north of the meeting room in Faculty of Science)
Cost: 6,000 YEN per person (will be collected at the iSAS/IODP meetings)
*If you want to participate in this Banquet, please choose "Yes" in online application form.

CTY INFORMATION DESK

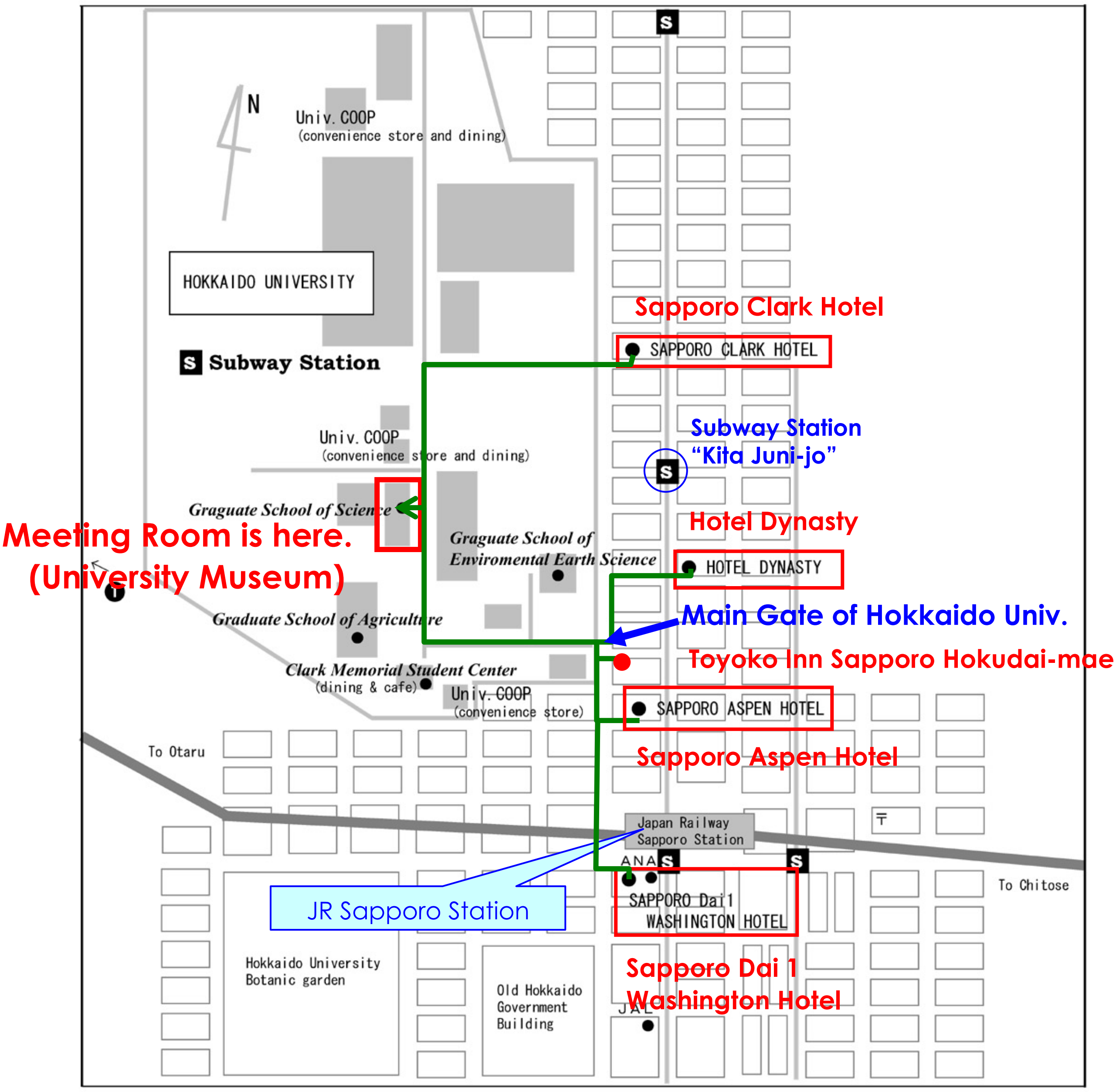
The Sapporo City Information Desk is located on the 1st floor of the JR Sapporo Station Complex, open from 9:00 to 17:30. If you have problems (getting lost at the airport, around town, etc.), please call 011-209-5030. The desk staff will be there to help you.

CLIMATE

The Sapporo's weather in September is generally cool and dry; the average temperature ranges between 17°C and 26°C, and average precipitation is 140 mm per month.

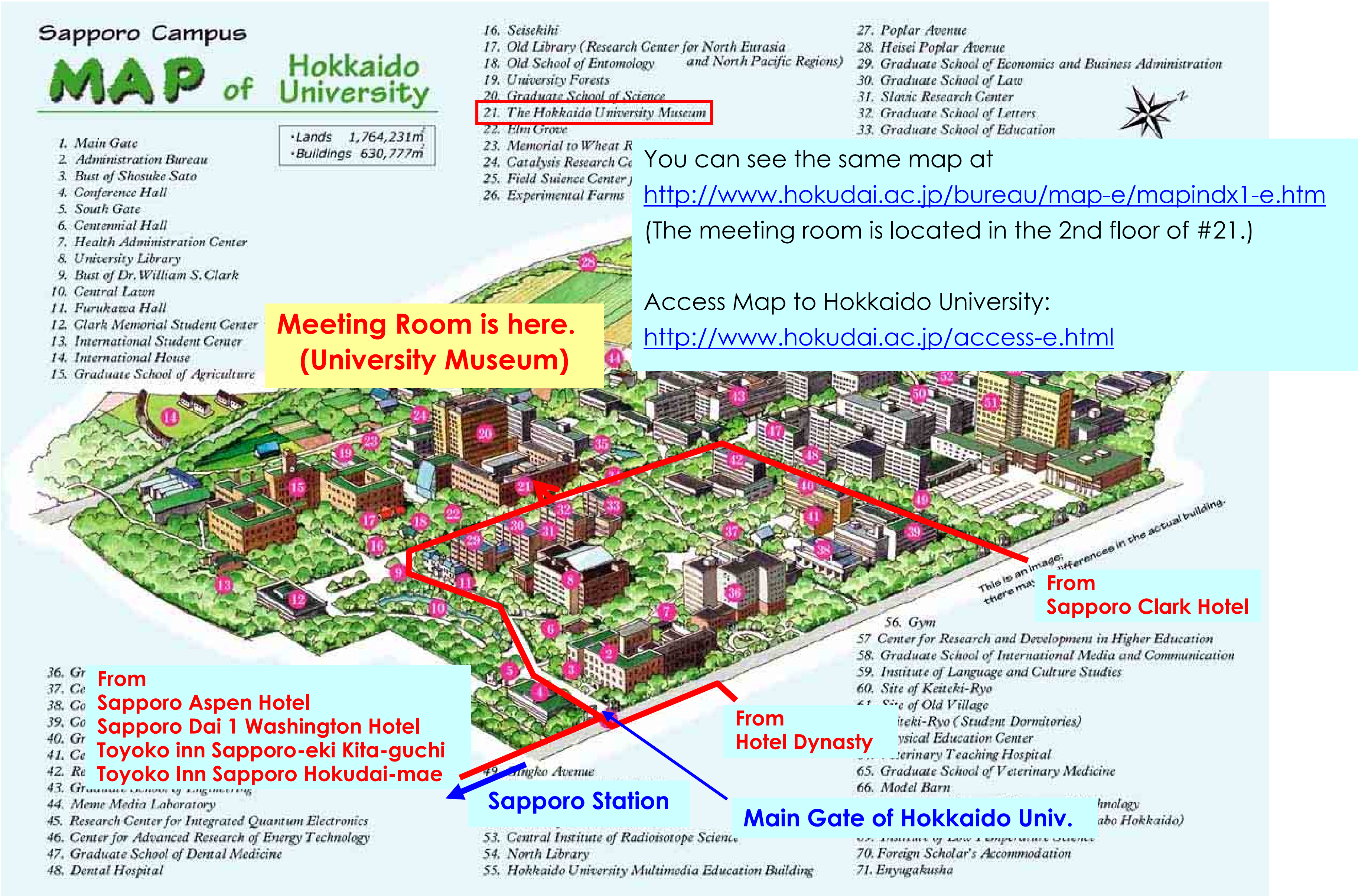
For general information of Sapporo, please visit http://www.global.city.sapporo.jp/index.html

From Hotels to Hokkaido University



For more information, please refer to
http://www4.city.sapporo.jp/cgi-bin/global/accom/accom.cgi

For other information (public transportation etc.) about Sapporo City,
Please refer to http://www.global.city.sapporo.jp/index.html



Sapporo Campus
MAP of Hokkaido University
·Lands 1,764,231m²
·Buildings 630,777m²
1. Main Gate
2. Administration Bureau
3. Bust of Shosuke Sato
4. Conference Hall
5. South Gate
6. Centennial Hall
7. Health Administration Center
8. University Library
9. Bust of Dr. William S. Clark
10. Central Lawn
11. Furukawa Hall
12. Clark Memorial Student Center
13. International Student Center
14. International House
15. Graduate School of Agriculture
16. Seisekihi
17. Old Library (Research Center for North Eurasia and North Pacific Regions)
18. Old School of Entomology
19. University Forests
20. Graduate School of Science
21. The Hokkaido University Museum
22. Elm Grove
25. Field Science Center
26. Experimental Farms
27. Poplar Avenue
28. Heisei Poplar Avenue
29. Graduate School of Economics and Business Administration
30. Graduate School of Law
31. Slavic Research Center
32. Graduate School of Letters
33. Graduate School of Education
44. Meme Media Laboratory
45. Research Center for Integrated Quantum Electronics
46. Center for Advanced Research of Energy Technology
47. Graduate School of Dental Medicine
48. Dental Hospital
53. Central Institute of Radioisotope Science
54. North Library
55. Hokkaido University Multimedia Education Building
56. Gym
57 Center for Research and Development in Higher Education
58. Graduate School of International Media and Communication
59. Institute of Language and Culture Studies
60. Site of Keiteki-Ryo
65. Graduate School of Veterinary Medicine
66. Model Barn
70. Foreign Scholar's Accommodation
71. Enyugakusha
You can see the same map at
http://www.hokudai.ac.jp/bureau/map-e/mapindx1-e.htm
(The meeting room is located in the 2nd floor of #21.)
Access Map to Hokkaido University:
http://www.hokudai.ac.jp/access-e.html
Meeting Room is here.
(University Museum)
From
Sapporo Clark Hotel
From
Sapporo Aspen Hotel
Sapporo Dai 1 Washington Hotel
Toyoko inn Sapporo-eki Kita-guchi
Toyoko Inn Sapporo Hokudai-mae
From
Hotel Dynasty
Sapporo Station
Main Gate of Hokkaido Univ.

iSAS interim Planning Committee

5th Meeting, 13-14 September 2003

Hokkaido University
Sapporo, Japan

interim Planning Committee - iPC

Jamie Austin**	Institute for Geophysics, University of Texas at Austin, USA
Keir Becker[a]	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Tim Byrne[b]	Department of Geology and Geophysics, University of Connecticut, USA
Andy Fisher	Department of Earth Sciences, University of California, Santa Cruz, USA
Kathy Gillis*	School of Earth and Ocean Sciences, University of Victoria, Canada
Peter Herzig	Institut für Mineralogie, Technische Universität Bergakademie, Freiberg, Germany
Benoît Ildefonse[c]	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Hisao Ito	Geological Survey of Japan
Kenji Kato	Institute of Geosciences, Shizuoka University, Japan
Jock Keene*	School of Geosciences, University of Sydney, Australia
Jeroen Kenter	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
Hajimu Kinoshita (co-chair)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Chris MacLeod	Department of Earth Sciences, Cardiff University, United Kingdom
Larry Mayer*	Center for Coastal and Ocean Mapping, University of New Hampshire, USA
Ken Miller[d]	Department of Geological Sciences, Rutgers University, USA
Ted Moore (co-chair)	Department of Geological Sciences, University of Michigan, USA
Delia Oppo*	Woods Hole Oceanographic Institution, USA
Philippe Pezard*	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Ryuji Tada	Department of Earth and Planetary Science, University of Tokyo, Japan
Yoshiyuki Tatsumi	Japan Marine Science and Technology Center (JAMSTEC), Japan
Zuyi Zhou	Department of Marine Geology and Geophysics, Tongji University, China

[a]Alternate for Larry Mayer.
[b]Alternate for Jamie Austin.
[c]Alternate for Philippe Pezard.
[d]Alternate for Delia Oppo.
**Attending as interim IMI director.
*Unable to attend.

Liaisons

Gilbert Camoin (iESSEP)	CEREGE-CNRS, France
Harry Doust (iILP)	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
André Droxler (iSSP)	Department of Earth Science, Rice University, USA
John Hogg (iILP)	EnCana Corporation, Canada
Barry Katz (iPPSP)	ChevronTexaco, Energy, Research and Technology Company, USA
Eiichi Kikawa (iSciMP)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Yoshihiro Masuda (iTAP)	Department of Geosystem Engineering, University of Tokyo, Japan
Hitoshi Mikada (iISSEP)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kate Moran (iTAP)	Graduate School of Oceanography, University of Rhode Island, USA
Kyoko Okino (iSSP)	Ocean Research Institute, University of Tokyo, Japan
Kozo Takahashi (iESSEP)	Department of Earth and Planetary Sciences, Kyushu University, Japan

Guests

Jamie Allan	National Science Foundation (NSF), USA
Jack Baldauf	JOI Alliance, Texas A&M University, USA
Rodey Batiza	National Science Foundation (NSF), USA
Steve Bohlen	Joint Oceanographic Institutions, Inc. (JOI), USA
Mike Coffin (SPC)	Ocean Research Institute, University of Tokyo, Japan
Rob Dunbar (IMAGES)	Department of Geological and Environmental Sciences, Stanford University, USA
John Farrell	Joint Oceanographic Institutions, Inc. (JOI), USA
Jeff Fox	JOI Alliance, Texas A&M University, USA

Ulrich Harms (ICDP)	GeoForschungsZentrum Potsdam, Germany
Hodaka Kawahata (SPC)	Geological Survey of Japan
Yoshihisa Kawamura (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Andrew Kingdon (ESO)	British Geological Survey, United Kingdom
Tadao Matsuzaki (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Osamu Miyaki	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
James Mori (SPC)	Disaster Prevention Research Institute, Kyoto University, Japan
Toru Nishikawa (Host)	Advanced Earth Science and Technology Organization (AESTO), Japan
Hisatake Okada (IMI)	Department of Earth Science, Hokkaido University, Japan
Kiyoshi Otsuka (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Warren Prell (SPC)	Department of Geological Sciences, Brown University, USA
Terry Quinn (SPC)	Department of Marine Science, University of South Florida, USA
Joanne Reuss	Department of Geological Sciences, University of Michigan, USA
Saneatsu Saito	Japan Marine Science and Technology Center (JAMSTEC), Japan
Izumi Sakamoto	International Working Group Support Office (IWGSO), USA
Michael Sarnthein (IMAGES)	Institut für Geowissenschaften, Universität zu Kiel, Germany
Takehiro Sasayama (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Wonn Soh (SPC)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kiyoshi Suyehiro (IMI)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Noriyuki Suzuki (Host)	Department of Earth Science, Hokkaido University, Japan
Uko Suzuki (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Asahiko Taira (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kensaku Tamaki (SPPOC)	Ocean Research Institute, University of Tokyo, Japan
Mariko Tanaka	Advanced Earth Science and Technology Organization (AESTO), Japan
Yasuhisa Tanaka	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Hidekazu Tokuyama (J-DESC)	Ocean Research Institute, University of Tokyo, Japan
Doug Wilson (ODP Leg 206)	Department of Geological Sciences, University of California, Santa Barbara, USA

iSAS Office

Nobuhisa Eguchi	Japan Marine Science and Technology Center (JAMSTEC), Japan
Yayoi Komamura	Japan Marine Science and Technology Center (JAMSTEC), Japan
Jeff Schuffert	Japan Marine Science and Technology Center (JAMSTEC), Japan
Minoru Yamakawa	Japan Marine Science and Technology Center (JAMSTEC), Japan

iSAS interim Planning Committee

5th Meeting, 13-14 September 2003

Hokkaido University
Sapporo, Japan

MEETING AGENDA

Saturday	**13 September 2003**	**13:00-17:00**

1. Introduction		TAB 1
a. Welcome and meeting logistics	(Suzuki)	
b. Approve meeting agenda	(Moore/Kinoshita)	
c. Approve minutes from previous meeting	(Moore/Kinoshita)	
d. Policy approved on interacting with ancillary programs	(Moore/Kinoshita)	
2. International Working Group (IWG) report	(Moore/Kinoshita)	TAB 2
3. Reports on IODP planning efforts		TAB 3
a. Japan	(MEXT/OD21)	
b. U.S.A.	(NSF/USSSP)	
c. Europe	(EMA/ECORD)	
d. Canada	(Gillis)	
e. China	(Zhou)	
e. Others		
4. iSAS panel reports		TAB 4
a. iSSEPs	(Byrne/Camoin/Mikada/Takahashi)	
b. iSSP	(Droxler/Okino)	
c. iPPSP	(Katz)	

Sunday	**14 September 2003**	**8:30-17:00**

4. iSAS panel reports (continued)		TAB 4
d. iSciMP	(Kikawa)	
e. iTAP	(Masuda/Moran)	
f. iILP	(Doust/Hogg)	
5. iSAS working group reports		TAB 5
a. Database	(Kikawa)	
b. Microbiology	(Kikawa)	
c. Matrix	(Droxler/Katz)	

d. Project management	(Doust)	
e. Project scoping	(Moran)	
6. Guide to IODP	(Austin/Suyehiro)	TAB 6
a. Scientific goals, organization, and structure		
b. Science Advisory Structure (SAS)		
c. Science planning process		
d. Proposal submission and evaluation		
e. Complex Drilling Projects (CDPs)		
7. Other Business		
8. Review of new iPC motions and consensus items	(Moore/Kinoshita)	
9. Review of matters to forward to SPC	(Moore/Kinoshita)	TAB 7
a. iSAS committee and panel recommendations		
b. iSAS working group reports		
c. iSAS drilling proposals		
10. Closing remarks from MEXT and NSF	(Tanaka/Allan)	

Action Items from Previous iPC meeting

iPC Consensus 4-3: The iPC gives its approval for the iSSEPs and their iSAS service panel liaisons to identify proposals that could benefit from advice by particular service panels. The iSSEPs co-chairs must request the iSAS Office to seek permission from the proponents to distribute such proposals to the appropriate service panel for comment.

iPC Consensus 4-4: The iSSEPs should decide when a proposal is ready to be forwarded to the iPC.

iPC Consensus 4-5: The iSSEPs may hold one additional meeting this year in early August. This meeting should be conducted electronically and focus on new external reviews and related response letters from proponents. The iSAS Office should confirm in advance the external reviewers for all proposals that could potentially be sent out for external review following the May 2003 iSSEPs meeting.

iPC Consensus 4-8: The iPC approves the request for a subset of the iSSP matrix working group to attend the June 2003 iPPSP meeting.

iPC Consensus 4-10: The iPC approves iSciMP Recommendation 02-2-2 to establish an *ad hoc* database working group.

iPC Motion 4-13: The iPC accepts iTAP Recommendation 03-1 on conducting a study of pipe diameter capabilities on the non-riser vessel.

iPC Motion 4-14: The iPC accepts iTAP Recommendation 03-2 on developing a holeproblem risk mitigation plan.

iPC Motion 4-15: The iPC accepts iTAP Recommendation 03-3 on asking ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation. The iTAP will define the scope of this evaluation and would like to review the results at its next meeting in July 2003.

iPC Motion 4-20: The iPC accepts iTAP Recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iSSEPs, iPC or SPC, the OPCOM working group, CDEX, and industry project managers. The system should be developed by June 2003.

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

iPC Motion 4-22: The iPC recommends that the Science Planning Committee should have a chair and vice-chair who serve a total term of four years, with the chair replaced by the vice-chair and a new vice-chair appointed every two years.

ACRONYM LIST

APLACON	Alternate Platform Conference
AESTO	Advanced Earth Science and Technology Organization
CDEX	Center for Deep Earth Exploration
CDP	Complex Drilling Project
CMO	Central Management Office
COMPLEX	Conference on Multiple Platform Exploration of the Ocean
CONCORD	Conference on Cooperative Ocean Riser Drilling
ECORD	European Consortium on Ocean Research Drilling
EMA	European Management Agency
ESCOD	European Steering Committee on Ocean Drilling
ESF	European Science Foundation
ESOC	European Science Operation Committee
ICDP	International Continental Scientific Drilling Program
iDPG	interim Detailed Planning Group
iESSEP	interim Science Steering and Evaluation Panel-Environment
iILP	interim Industry Liaison Panel
iISSEP	interim Science Steering and Evaluation Panel-Interior
ILWG	Industry Liaison Working Group
IMAGES	International Marine Past Global Changes Study
IMI	IODP Management International, Inc.
InterMARGINS	International Margins Program
InterRidge	An initiative for international cooperation in ridge-crest studies
IO	Implementing Organization
IODP	Integrated Ocean Drilling Program
iPC	interim Planning Committee
iPPG	interim Program Planning Group
iPPSP	interim Pollution Prevention and Safety Panel
IPSC	IODP Planning Sub-Committee
iSAS	interim Science Advisory Structure
iSciMP	interim Scientific Measurements Panel
ISP	Initial Science Plan for IODP
iSSEPs	interim Science Steering and Evaluation Panels
iSSP	interim Site Survey Panel
iTAP	interim Technology Advice Panel
IWG	International Working Group for IODP
IWGSO	International Working Group Support Office
JAMSTEC	Japan Marine Science and Technology Center
J-DESC	Japan Drilling Earth Science Consortium
JEODI	Joint European Ocean Drilling Initiative
JOI	Joint Oceanographic Institutions, Inc.
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
LDEO	Lamont-Doherty Earth Observatory
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MOU	Memorandum of Understanding
MSP	Mission-Specific Platform
NanTroSEIZE	Nankai Trough Seismogenic Zone Experiment
NSF	National Science Foundation
OD21	Ocean Drilling in the 21st Century
OD21SAC	Ocean Drilling in the 21st Century Science Advisory Committee Operations Committee
OPCOM	Operations Committee
POC	Platform Operation Cost
SAS	Science Advisory Structure (IODP)
SOC	Science Operation Cost
SPC	Science Planning Committee
SPPOC	Science Planning and Policy Oversight Committee
TAMU	Texas A&M University
TAWG	Technical Advice Working Group
USSAC	US Science Advisory Committee
USSSP	US Science Support Program

TAB Contents

Tab 1	Introduction	iPC mandate Last iPC meeting draft minutes Ancillary programs policy	
Tab 2	IWG report	not available	
Tab 3	Country report	Japan USA	
Tab 4	iSAS panel reports	PANCH meeting draft minutes	
		iSSEPs	iSSEPs mandate Last meeting minutes
		iSSP	iSSP mandate Last meeting minutes
		iPPSP	iPPSP mandate Last meeting minutes Presentation slides
		iSciMP	iSciMP mandate Last meeting Exe. summary
		iTAP	iTAP mandate Last meeting agenda
		iILP	iILP mandate Last meeting minutes
Tab 5	Working group reports	Database WG Microbiology WG Matrix WG Project management system WG Project scooping WG	
Tab 6	Guide to IODP	Draft guide to IODP	
Tab 7	Matters forward to SPC	Committee and panel recommendations IODP active proposal list	

iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB1

Introduction

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP

- interim Planning Committee (iPC) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Planning Committee

1.1General Purpose. The Interim Planning Committee (iPC) will be responsible to the International Working Group (IWG) of IODP for its guidance and direction. The iPC reports to the IWG, provides advice to IWG, facilitates the establishment of the IODP Science Advisory Structure, develops guidelines for evaluations on science proposals for IODP, and continues scientific planning for IODP. More specifically, the iPC is responsible for:

- custody and initial implementation of the IODP Initial Science Plan;
- categorizing of mature drilling proposals (*i.e.*, proposals having been grouped by the iSSEPs , undergone external review, and judged to be complete by iPC) that address the scientific themes and initiatives of the IODP Initial Science Plan

- advising how these proposals might be most effectively mapped into a drilling plan based on the IODP multiple platform concept;
- carrying out science planning, over the 2-year period of ODP to IODP transition;
- fostering communications among and between the international community, the JOIDES and OD21 Science advisory structures, and the IWG.

1.2 Mandate. iPC will encourage the international community to submit drilling proposals for IODP, and will foster the further development of those proposals. Proposals submitted to JOIDES that remain unscheduled in ODP by September of 2001 will be forwarded to the iSAS Support Office. The Co-Chairs of iPC will contact proponents of these proposals requesting from them a statement of intent regarding submittal of their proposal to IODP, as well as any modifications or amendments they wish to make in their proposals that help focus the proposed drilling on important scientific objectives of the IODP Initial Science Plan.

In addition, iPC may assign special tasks to iSAS panels and planning groups. The iPC Co-Chairs convene the iSAS panel meetings and approve the meeting dates, locations, and agendas of all the iSAS science advisory committees, panels, and groups. iPC, through the iPC Support Office, assigns proposals for review to iSAS Science Steering and Evaluation Panels (iSSEPs) and, if relevant, to the three service panels - the interim ScientificMeasurement Panel (iSciMP), Site Survey Panel (iSSP), and Pollution Prevention and Safety Panel (iPPSP). After proposals are reviewed by the panels and judged to be complete, with well-documented scientific objectives and drilling plans, they are considered to be mature and sent out for external (mail) review. After external reviews of these proposals are received, the iPC discusses the iSSEP comments and external reviews of each proposal and categorizes the scientific objectives of the proposals within the major thematic areas of the IODP Initial Science Plan. The iPC then categorizes all proposals based on their scientific merit and provides an assessment of their technical requirements and feasibility within the IODP multiple platform program. The final evaluation and ranking of these proposals will be carried out by the IODP Science Advisory Structure when it is established.

The iPC reviews the interim advisory structure in the light of developments in IODP planning, and recommends to IWG changes in the panel structure and mandates for IODP Science Advisory Structure. Much of the work of iPC is carried out by the commissioning of reports from other interim science advisory panels, including Detailed Planning Groups, *ad hoc*working groups, *ad hoc*subcommittees of its own membership, and its Co-Chairs.

1.3 Structure. iPC is empowered, with the approval of IWG, to modify the iSAS structure as appropriate to the definition and accomplishment of assigned tasks. Communication with the panels and active iPPGs and iDPGs is maintained by having their chairs meet with the iPC annually, and by assigning iPC members as liaison members to its panels and planning groups. Where counsel and communication are deemed important, other individuals may be

asked *ad hoc* to meet with the iPC or its panels.

1.4 Meetings. iPC meets at least twice a year, normally right before or after the meeting of JOIDES SCICOM.

1.5 Membership. iPC will consist of approximately fifteen to eighteen members. All appointees to iPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. If members of the iPC miss two meetings in succession, the iPC Co-Chairs will discuss the problem of iSAS representation with the appropriate country representative on IWG.

1.6 Liaison. The Co-Chairs of IWG, or nominees thereof, are liaisons to the iPC. The iPC Co-Chairs are liaisons to IWG.

1.7 Procedure of Decision Making. Decisions concerning substantive issues (e.g. the categorization of mature proposals) are made through consensus among members present.

1.8 Co-Chairs . The iPC will be co-chaired by the chair of IPSC and the designated iPC representative from the OD21 Science Advisory Committee.

iSAS interim Planning Committee

4th Meeting, 18-20 March 2003

Intercontinental Stephen F. Austin Hotel
Austin, Texas, U.S.A.

interim Planning Committee - iPC

Jamie Austin	Institute for Geophysics, University of Texas at Austin, USA
Andrew Fisher	Department of Earth Sciences, University of California, Santa Cruz, USA
Kathryn Gillis	School of Earth and Ocean Sciences, University of Victoria, Canada
Peter Herzig	Institut für Mineralogie, Technische Universität Bergakademie, Freiberg, Germany
Benoît Ildefonse[a]	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Hisao Ito	Geological Survey of Japan
Kenji Kato	Institute of Geosciences, Shizuoka University, Japan
Jock Keene*	School of Geosciences, University of Sydney, Australia
Jeroen Kenter	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
Hajimu Kinoshita (Co-chair)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Chris MacLeod	Department of Earth Sciences, Cardiff University, United Kingdom
Larry Mayer	Center for Coastal and Ocean Mapping, University of New Hampshire, USA
Ted Moore (Co-chair)	Department of Geological Sciences, University of Michigan, USA
Delia Oppo	Woods Hole Oceanographic Institution, USA
Philippe Pezard*	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Kiyoshi Suyehiro[b]	Japan Marine Science and Technology Center (JAMSTEC), Japan
Ryuji Tada*	Department of Earth and Planetary Science, University of Tokyo, Japan
Yoshiyuki Tatsumi	Japan Marine Science and Technology Center (JAMSTEC), Japan
Zuyi Zhou	Department of Marine Geology and Geophysics, Tongji University, China

[a]Alternate for Philippe Pezard.
[b]Alternate for Ryuji Tada.
*Unable to attend.

Liaisons

Tim Byrne (iISSEP)	Department of Geology and Geophysics, University of Connecticut, USA
Gilbert Camoin (iESSEP)	CEREGE-CNRS, France
Harry Doust (iILP)	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
André Droxler (iSSP)	Department of Earth Science, Rice University, USA
Barry J. Katz (iPPSP)	ChevronTexaco, Energy, Research and Technology Company, USA
Hitoshi Mikada (iISSEP)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kathryn Moran (iTAP)	Graduate School of Oceanography, University of Rhode Island, USA
Richard W. Murray (iSciMP)	Department of Earth Sciences, Boston University, USA

Guests

Jamie Allan	National Science Foundation (NSF), USA
Keir Becker (SCICOM)	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Sherman Bloomer (SCICOM)	Department of Geosciences, Oregon State University, USA
Steve Bohlen	Joint Oceanographic Institutions, Inc. (JOI), USA
George Claypool (PPSP)	Private consultant, Lakewood, Colorado, USA
Paul Dauphin	National Science Foundation (NSF), USA
Steven D'Hondt (SCICOM)	Graduate School of Oceanography, University of Rhode Island, USA
John Farrell	Joint Oceanographic Institutions, Inc. (JOI), USA
David Goldberg	Lamont-Doherty Earth Observatory, Columbia University, USA
Sean Gulick	Institute for Geophysics, University of Texas at Austin, USA
Ulrich Harms (ICDP)	GeoForschungsZentrum Potsdam, Germany
Teruaki Ishii (SCICOM)	Ocean Research Institute, University of Tokyo, Japan
Yoshihisa Kawamura (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Alan C. Mix (Leg 202)	College of Oceanic & Atmospheric Sciences, Oregon State University, USA
Sylvia Nordfjord	Institute for Geophysics, University of Texas at Austin, USA
Nicklas G. Pisias	Joint Oceanographic Institutions, Inc. (JOI), USA

Warren Prell (SCICOM)	Department of Geological Sciences, Brown University, USA
Frank Rack	Joint Oceanographic Institutions, Inc. (JOI), USA
David Rea (SCICOM)	Department of Geological Sciences, University of Michigan, USA
Joanne Reuss	Department of Geological Sciences, University of Michigan, USA
William Sager (SCICOM)	Department of Oceanography, Texas A&M University, USA
Izumi Sakamoto	International Working Group Support Office (IWGSO), USA
Paul Stoffa	Institute for Geophysics, University of Texas at Austin, USA
Anne M. Trehu (Leg 204)	College of Oceanic & Atmospheric Sciences, Oregon State University, USA
Elspeth Urquhart (JOIDES)	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Yasuo Yamada (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan

iSAS Office

Nobuhisa Eguchi	Japan Marine Science and Technology Center (JAMSTEC), Japan
Jeffrey Schuffert	Japan Marine Science and Technology Center (JAMSTEC), Japan
Minoru Yamakawa	Japan Marine Science and Technology Center (JAMSTEC), Japan

iSAS interim Planning Committee

4th Meeting, 18-20 March 2003

Intercontinental Stephen F. Austin Hotel
Austin, Texas, U.S.A.

DRAFT EXECUTIVE SUMMARY (v2.0)

iPC Consensus 4-1: The iPC approves the revised agenda for its fourth meeting on 18-20 March 2003 in Austin, Texas.

iPC Motion 4-2: The iPC approves the revised minutes from its third meeting on 27-29 August 2003 in Ghent, Belgium.

Mayer moved, Fisher seconded; 16 in favor.

iPC Consensus 4-3: The iPC gives its approval for the iSSEPs and their iSAS service panel liaisons to identify proposals that could benefit from advice by particular service panels. The iSSEPs co-chairs must request the iSAS Office to seek permission from the proponents to distribute such proposals to the appropriate service panel for comment.

iPC Consensus 4-4: The iSSEPs should decide when a proposal is ready to be forwarded to the iPC.

iPC Consensus 4-5: The iSSEPs may hold one additional meeting this year in early August. This meeting should be conducted electronically and focus on new external reviews and related response letters from proponents. The iSAS Office should confirm in advance the external reviewers for all proposals that could potentially be sent out for external review following the May 2003 iSSEPs meeting.

iPC Motion 4-6: The iPC appoints Kyoko Okino as a co-chair of the interim Site Survey Panel (iSSP).

Suyehiro moved, Mayer seconded; 16 in favor.

iPC Motion 4-7: The iPC receives the iSSP data bank working group report and forwards it to IODP, and we thank the iSSP for completing the report on time.

Fisher moved, Mayer seconded; 15 in favor, 1 absent (Herzig).

iPC Consensus 4-8: The iPC approves the request for a subset of the iSSP matrix working group to attend the June 2003 iPPSP meeting.

iPC Motion 4-9: The iPC approves the sample and data policy received from iSciMP and forwards it to IODP.

Suyehiro moved, Austin seconded; 16 in favor.

iPC Consensus 4-10: The iPC approves iSciMP Recommendation 02-2-2 to establish an *ad hoc* database working group.

iPC Consensus 4-11: The iPC receives iSciMP Recommendation 02-2-3 on establishing the IODP Operations Committee (OPCOM).

iPC Consensus 4-12: The iPC receives iSciMP Recommendation 02-2-1 on establishing a database operator in IODP, Recommendation 02-2-4 on standardizing the diameter of drill pipe used on IODP platforms, Recommendation 02-2-5 on development of the JAMSTEC anti-contamination drilling and sampling tool, and Recommendation 02-2-6 on formalizing the link between iSciMP and the iSSEPs, and we forward these recommendations to IODP.

iPC Motion 4-13: The iPC accepts iTAP Recommendation 03-1 on conducting a study of pipe diameter capabilities on the non-riser vessel.

Mayer moved, Gillis seconded; 16 in favor.

iPC Motion 4-14: The iPC accepts iTAP Recommendation 03-2 on developing a hole-problem risk mitigation plan.

Gillis moved, Ildefonse seconded; 16 in favor.

iPC Motion 4-15: The iPC accepts iTAP Recommendation 03-3 on asking ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation. The iTAP will define the scope of this evaluation and would like to review the results at its next meeting in July 2003.

Herzig moved, Gillis seconded; 13 in favor, 3 abstained (Austin, Ito, Kato).

iPC Motion 4-16: The iPC groups the following full proposal according to the main scientific themes of the IODP Initial Science Plan and assesses its readiness for future ranking.

Environmental Change, Processes, and Effects

610-Full2	West Florida Margin	not ready for ranking

Kenter moved, Oppo seconded, 15 in favor, 1 absent (MacLeod).

iPC Motion 4-17: The iPC supports the concept that robust international participation is crucial to the long-term success of IODP. The iPC further recognizes the potential scientific contributions of scientists from countries and/or consortia seeking membership in IODP and therefore supports their involvement at the Science Planning Committee level, at least as observers, until such time as their funding commitment to IODP is assured.

Austin moved, Kenter seconded; 15 in favor, 1 absent (MacLeod).

iPC Motion 4-18: The iPC accepts the revised Section 4 of the IODP OPCOM mandate, on participants counting toward consensus and quorum, as proposed by the OPCOM working group.

Suyehiro moved, Kenter seconded; 13 in favor, 1 opposed (Gillis), 2 abstained (Mayer, Oppo).

iPC Consensus 4-19: The iPC accepts the revised Sections 1, 2, 3, 5, and 6 of the IODP OPCOM mandate proposed by the OPCOM working group.

iPC Motion 4-20: The iPC accepts iTAP Recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iSSEPs, iPC or SPC, the OPCOM working group, CDEX, and industry project managers. The system should be developed by June 2003.

Gillis moved, Austin seconded; 15 in favor, 1 abstained (Kinoshita).

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

Gillis moved, Fisher seconded; 14 in favor, 2 abstained (Ito, Kato).

iPC Motion 4-22: The iPC recommends that the Science Planning Committee should have a chair and vice-chair who serve a total term of four years, with the chair replaced by the vice-chair and a new vice-chair appointed every two years.

Herzig moved, Mayer seconded; 13 in favor, 3 abstained (Ito, Kato, Tatsumi).

iPC Consensus 4-23: We sincerely thank Jamie Austin, Nancy Hard, and Kathy Ellins for their superb efforts in organizing and hosting this fourth meeting of the iSAS interim Planning Committee in Austin, Texas.

iSAS interim Planning Committee

4th Meeting, 18-20 March 2003

Intercontinental Stephen F. Austin Hotel
Austin, Texas, U.S.A.

DRAFT MINUTES (v2.0)

Tuesday **18 March 2003** **8:30-17:00**

1. Introduction

a. Welcome and meeting logistics

The iPC co-chairs, Ted Moore and Hajimu Kinoshita, opened the meeting at 08:30 and the participants introduced themselves. Host Jamie Austin explained the meeting logistics and introduced Paul Stoffa, who proceeded to give a brief report on the establishment and purpose of the IODP Management International, Inc (IMI), as included under Item 8a.

b. Approve meeting agenda

Kinoshita proposed to modify the agenda by including in Item 3a a brief report from the Center for Deep Earth Exploration (CDEX) and adding Item 8d for a more-detailed description of CDEX activities. Moore announced that the iPC would convene in an executive session this first evening to hear an advance briefing from the OPCOM working group and the iTAP co-chair. He then called for approval of the revised agenda.

iPC Consensus 4-1: The iPC approves the revised agenda for its fourth meeting on 18-20 March 2003 in Austin, Texas.

c. Approve minutes from previous meeting

Moore asked for comments on the draft minutes from the previous meeting. Austin noted that the first paragraph of Section 10b should say that Fisher and MacLeod volunteered to work on the Guide to IODP and not Fisher and Kenter. With no further comments, Moore called for approval of the revised minutes.

iPC Motion 4-2: The iPC approves the revised minutes from its third meeting on 27-29 August 2003 in Ghent, Belgium.

Mayer moved, Fisher seconded; 16 in favor.

2. International Working Group (IWG) Report

Moore reported on the proceedings of the IWG meeting in late January 2003. He informed the IWG about the progress of the OPCOM working group. He explained that the IWG accepted the draft sample and data policy from iSciMP, pending approval of the final version by the iPC. They also accepted the plan for retaining the current iSAS panel co-chairs beyond September 2003. The IWG accepted a proposal for the new Science Planning Committee (SPC) to have a chair and vice-chair, and they gave permission for the iPC to hold its last meeting in conjunction with the first meeting of the SPC. Moore emphasized the quickening pace of the planning process and the urgency to move through the proposal list as soon as possible, and he mentioned that the iPC co-chairs' newsletter had already presented many of these points. Moore also noted that the newsletter had incorrectly stated that the IWG had accepted ECORD as the consortium that will provide mission-specific platform capability in IODP. It should have said instead that the lead agencies recognized that the IODP core capabilities would not provide for shallow-water and Arctic drilling and that they had endorsed ECORD's designation of its MSP implementing organization for potential IODP drilling,.

Austin asked when the committee would discuss the issue of naming the SPC co-chairs. Moore preferred doing it during the discussion of the iSAS to SAS transition (Item 11).

3. Reports on IODP Planning Efforts

3a. Japan

Yasuo Yamada outlined the IODP related budget in Japan, showing the original $59M in FY2002 and $68M in FY2003, plus an $87.5M supplement in FY2002. He explained that the large supplementary budget had enabled the schedule for construction and delivery of the *Chikyu* to shift forward by approximately one year, such that the ship could begin international operations as early as October 2006, and this meant that the pace of science planning must also accelerate. Yamada showed a few updated images from the ship construction and said that work on the lab stack had nearly finished. He reported that the ship would conduct a test of the dynamic positioning system off Shikoku in early spring, then move to Nagasaki in July for completing the final phase of construction by the end of 2004. Other notable planning events in Japan included the recently completed seismic survey for the riser vessel training cruises, the nearly completed construction of the Marine Core Research Center at Kochi University, scheduled to open in late May 2003, and the publishing of the Japan IODP science plan that highlights research areas of particular national advantage and experience. Yamada also announced that activities of the Japan Earth Drilling Science Consortium would start in April 2003, and MEXT plans to create a new management position for IODP and send a liaison to NSF.

Yoshi Kawamura described CDEX as a new department created at JAMSTEC for platform operations, science operations and engineering site surveys for the riser drilling ship, with many new employees coming from industry. He showed an organizational structure with five divisions for administration, operations, science services, site surveying, and health, safety, and environmental concerns. Kawamura said that he would provide more details about CDEX the next day (see Item 8d).

Hisao Ito reported that the Japan Earth Drilling Science Consortium now has more than forty institutional members, over twenty personal members, and six associate members. He showed the new consortium logo and explained that it represents drilling in the ocean and on land. The consortium officially established its IODP section in February 2003 and will later establish a continental drilling section. Ito outlined the role and tasks of the consortium with regard to participation in IODP management and science planning and domestic research development. They also hope to collaborate with other East Asian countries such as China, Korea, and Taiwan.

Moore asked about the source of funding for the consortium. Kato said that most of the funding comes from the annual membership fee of about $1000. Kinoshita added that the consortium has a small management office supported by MEXT and run by Takeo Tanaka. Moore also asked about the tenure of the new position at MEXT. Yamada replied that, unlike now, the duties of the position would pertain exclusively to IODP.

3b. U.S.A.

Jamie Allan reported on NSF activities. He noted that the complexity of IODP required a higher level of planning and support, and he said that NSF would take guidance on science support, education, and outreach from the report published last year by USSAC after the Conference on U.S. Participation in IODP (CUSP). Allan announced two new employment opportunities at NSF, one for a program director to replace the retiring Paul Dauphin and another for an associate program director to replace Brad Clement, preferably someone with seismological knowledge or experience. Allan then described a new three-phase plan in the U.S. for 1) identifying a system integration contractor (SIC), 2) acquiring an acceptable drilling vessel for use by mid 2004, and 3) acquiring and modifying a vessel to meet IODP needs in FY2005 or FY2006. He expected the release of the RFP for the first phase very soon, possibly today, and explained that NSF and the SIC would work together on the third phase. Allan emphasized that although the third phase would happen one year later than previously planned, NSF remained committed to conducting non-riser drilling as early as possible in IODP.

Gillis asked about the role of the SIC. Allan replied that the SIC would manage all aspects of the program related to the non-riser drilling ship. Suyehiro asked about the definition of an acceptable vessel. Allan defined acceptable as able to meet the identified science needs. Austin noted that the CDC had defined the optimal rather than acceptable qualities for the non-riser ship. Moore said that the planning schedule would have to move forward to prepare a science plan for Phase 2. Macleod asked if NSF would identify the Phase 2 vessel before the planned decommissioning of the *JOIDES Resolution* at the end of September 2003. D'Hondt asked if the Phase 2 vessel would differ from the Phase 3 vessel. Dauphin replied that NSF hoped to decide on the Phase 2 vessel by August. He described it as an open bidding process, probably with a short drilling hiatus between phases. Allan added that they could not predict the outcome of the open bidding process.

Warren Prell, the USSAC Chair, outlined the goals of U.S. participation in IODP from the community standpoint. He noted that the final CUSP report went to NSF in November 2002 and contained nineteen specific recommendations on program development, activities before, during, and after drilling, publication of results, and education and outreach. In addition, USSAC has examined the protocols for staffing, rotation of U.S. panel members, long-term planning initiatives, education, borehole observatories, and the restructuring of USSAC activities. Prell then cited the USSSP-sponsored planning workshops held last year for the NantroSEIZE, deep biosphere, and Costa Rica drilling projects, and those scheduled for this year on the Monterey Bay borehole test facility, tectonic-climate links in Alaska and the NE Pacific, ocean observatories, Indian Ocean fans, the GeoSCAN initiative for general site survey requirements and proposal preparation, and community education and outreach. He mentioned that several U.S. scientists would receive USSSP travel support for attending the JEODI-sponsored Arctic seismic survey workshop in Copenhagen and the IUGG meeting in Sapporo, Japan. Prell also identified a series of IODP-related site augmentation proposals, either accepted or under review by USSAC, on the sub-Arctic Pacific, the Nankai Trough, and Hess Deep.

Suyehiro remarked that some of the site surveys for IODP would require international cooperation, but no good mechanism exists for doing this. Prell said it would take good communication. He also explained that USSSP can only fund small site augmentation surveys and not the broader surveys needed for complete planning. Droxler asked whether scientists from other countries could participate in the U.S. workshops. Prell said yes, but they would have to get support from their national programs. Fisher saw the fast response required for some projects as a challenge for the new program. Mayer also recognized the broader need of having a coherent plan for large-scale site surveys. Moore suggested that the national managers of IODP planning efforts would have to publicize the workshops that they sponsor and keep them open to international participants to promote needed cooperation on site surveys.

3c. Europe

Jeroen Kenter reported that ECORD now officially represented the European consortium for IODP. He presented a diagram of the ECORD structure showing the ECORD Council, the European Management Agency (EMA), the European Science Operator (ESO), and the European Science Operations Committee (ESOC). Kenter distributed a report from Chris Franklin, the chair of the ECORD interim Council (EiC) and the representative of ECORD at the IWG. He emphasized that ECORD aims to provide co-mingled funds equivalent to two participation units for the first four years of IODP and additional funds for MSP operations in 2004. He added that ECORD had begun investigating the possibility of drilling on the Lomonosov Ridge as early as possible in IODP and had thus started developing an infrastructure for managing and operating MSPs. Kenter then announced the appointment of a consortium, led by the British Geological Survey, as the interim ESO and said that ECORD hoped to select the EMA from a group of three applicants by the end of April 2003. He also hoped that ECORD could complete a contract by early summer 2003 for making a commitment to IODP membership in 2004.

Austin asked about the reference in the ECORD report to NSF support for the Arctic project. Moran replied that the U.S. proponents had submitted a proposal to NSF for additional support. Suyehiro expressed concern about how to integrate the Arctic project fully into IODP in 2004 and about the involvement of the IMI after its establishment next week. Kenter said that he could not comment any further on that matter until the EMA had established a contract for IODP. Dauphin reminded everyone that the IWG had agreed to allow the ranking of the MSP proposals as an exception to the IODP principles. MacLeod expressed the eagerness of ECORD to identify an official liaison or chief scientists for the Arctic project, and he wondered who held that responsibility. Moore recalled that the iPC had recommended nominees for co-chiefs at its previous meeting in Ghent, and the ESO should pick from that list. MacLeod then asked if the iPC had prioritized the list or if the ESO could just select any two names from it. The committee confirmed that they had not prioritized the list.

3d. Canada

Kathy Gillis reported that Canadian scientists had learned the previous week that no current government programs would support their proposals for membership and scientific participation in IODP. This means that Canada will not join IODP at the beginning and probably not for at least the first few years. She added that Canadian representatives can still participate for the remainder of iSAS and they hope to keep informed about developments after IODP begins.

Moore suggested that Canadian scientists should emphasize to their government the missed opportunity to participate in the Arctic project anticipated for 2004.

3e. China

Zuyi Zhou gave an update on developments in China. He described the new Chinese prime minister, who just took office the day before, as a former geologist. Zhou hoped that that would mean good news for Chinese earth scientists. He noted that the science ministers had recently promised, though not definitely decided yet, to double the support for Chinese participation in IODP, and Chinese scientists have discussed plans to integrate various marine research programs under one ministry. They also discussed IODP science goals at workshops in Shanghai and Beijing last year and have drafted a national science plan for participation in

IODP. The China-ODP Science Committee plans to translate and publish the IODP Initial Science Plan, and they also want to organize a special issue of the Chinese journal *Progress in Earth Science* devoted to ODP results. Selected topics would include technology developments, ocean lithosphere, deep biosphere, and sub-seafloor fluids and observations, and Zhou invited the iPC co-chairs to contribute. He also announced that the 4th national symposium on scientific ocean drilling would take place in Beijing in October 2003.

Fisher suggested using the previous contributions to the ODP *Achievements and Opportunities* legacy document in the special journal issue. Zhou said that he might prefer to include translated versions of the reports from some of the JOIDES program planning groups, for example on the deep biosphere and architecture of ocean lithosphere.

4. iSAS Office Report

Minoru Yamakawa presented the schedule of upcoming iSAS meetings. He categorized the status of the 93 active drilling proposals, indicating that about two-thirds had already undergone revision and review in iSAS, and so far about one-fifth had reached the iPC. Yamakawa also presented a map showing the global distribution of proposed drilling sites.

5. iSAS Panel Reports

5a. interim Science Steering and Evaluation Panels (iSSEPs)

Gilbert Camoin reported on the third iSSEPs meeting in November 2002. They reviewed sixteen proposals, including four new preliminary proposals addressing IMAGES objectives and five proposals relating to the complex drilling projects (CDPs) on the Costa Rica margin and Nankai Trough seismogenic zones. They also reviewed an addendum requesting to develop another existing proposal into a CDP. Camoin briefly summarized the iSSEPs review and recommendation for each proposal, noting that one proposal went for external review and had now come forward to the iPC.

Camoin presented an iSSEPs working group report on the possible need for new program planning groups (PPGs) to stimulate proposal development on certain topics. The group identified four scientific themes of the IODP Initial Science Plan (ISP) with relatively few proposals in the system: formation of oceanic crust, deep biosphere, continental margins to sedimentary basins, and external forcing of rapid climate change. In addition to the possibility of creating new PPGs to fill those gaps, the working group recommended increasing collaboration with other research programs, perhaps through specially prepared documents. They also suggested that the SSEPs membership should include representatives from those programs.

Austin wondered about the need for another PPG on the deep biosphere and whether a dedicated microbiology proposal could succeed on its own merits. D'Hondt recalled that SCICOM had recommended just having microbiologists as members of the various advisory panels. He touted the success of Leg 204 as a dedicated deep biosphere project and clarified that they had targeted previously drilled holes because of the limits of shipboard staffing space and not from any shortcoming of the scientific goals. Murray noted that iSciMP has developed a keen interest in deep biosphere studies through the efforts of its members. Kato added that the advancement of microbiological objectives requires a broad exchange of knowledge. Kinoshita asked for more insight on the SCICOM consensus regarding PPGs. Becker explained that SCICOM recommends that IODP exhibit caution in creating PPGs.

After a lunch break, Tim Byrne presented an iSSEPs working group report on complex drilling projects (CDPs). The working group defined a CDP as having an overarching scientific goal and a pathway involving a series of interlinked components, with each component achievable in a reasonably short period of time and the overall goal unachievable as merely a series of stand-alone projects. They recommended that a CDP should begin with a single pre-proposal giving an overview of the whole project and describing the minimum goals and operational constraints of each component. The SSEPs would then decide whether to request the development of a CDP package that would include a full umbrella proposal and an additional full proposal for each individual component. Eventually the iSSEPs would judge the readiness of the CDP package for external review and for forwarding to the iPC. Once the iPC accepted a CDP, they would create a detailed planning group that would last for the lifetime of the project, and any subsequent components submitted as full proposals would go immediately for external review, together with the umbrella proposal.

Austin suggested expanding the page limits for CDP proposals and asked why the iSSEPs did not want to allow pre-proposals for the later components. Byrne said mostly just to expedite the process. Mayer thought that perhaps proponents should submit a pre-proposal for any components not originally included in the umbrella proposal. Suyehiro suggested that proponents might want to submit a pre-proposal for every phase. MacLeod wondered about the possibility of new proponents getting involved in the middle of a CDP. Byrne recognized the possibility of advising proponents who submit new proposals to join an existing CDP group. Moore said that proponents have some right of ownership of their proposals, and he noted the potential problem of finding qualified reviewers for proposals with a large number of proponents. Austin worried about committing to too many CDPs early in the program and asked whether every riser proposal would constitute a CDP proposal. Gulick wondered if a proposal could require more than one platform and operator and still not qualify as a CDP. Moore answered that riser drilling or a need for multiple platforms would not necessarily equate to a CDP, and he believed that the time limit of the program required a certain amount of front loading. Fisher added that the program would have to evaluate whatever proposals get submitted. Moran asked if the iSSEPs considered technical issues in classifying a proposal as a CDP. Byrne replied that the working group had not identified any technical criteria for CDPs.

Hitoshi Mikada reported that a third working group had begun considering ways to improve the iSSEPs structure, the proposal review process, and the proposal requirements. The group concluded so far that the SSEPs should continue providing advice to the SPC through review comments and grouping, they should have a set of well-defined criteria for evaluating proposals, and those criteria should remain transparent to proponents at all stages. Mikada expected that the discussion of those topics would continue at the next iSSEPs meeting in Niigata. In the meantime, several volunteers from the iSSEPs would review the latest draft of the Guide to IODP.

Moore emphasized the importance of having as many good proposals as possible for the iPC or SPC to review next September. He called it critical to start planning now for the first riser project but acknowledged the difficulty of not yet having the proposals at an advanced enough stage of development. Moore explored whether the CDP proposals that get externally reviewed after the next iSSEPs meeting could reach the iPC in September. Mikada said that it would require a different mechanism from the existing review process. Byrne asked about the possibility of expediting the external review process between meetings or whether external reviewers could attend the iSSEPs meeting. Austin suggested that the iPC could assist in identifying external reviewers, but the external reviewers would not remain anonymous if they attended iSSEPs meetings. Moore proposed getting a commitment from the external reviewers before the next iSSEPs meeting so that the proposals could go out for review immediately following the meeting. Austin suggested that the external reviewers would need to receive appropriate program information as background for the review.

Later in the meeting, the committee returned to the issue of how to improve the proposal review process. Fisher asserted that the advisory structure should try harder to discourage uncompetitive proposals at an early stage of development and review. Moore thought that the iPC could discourage proposals better than the iSSEPs, and he speculated that the relatively low number of currently mature proposals might reflect a lack of awareness by proponents about the timing of the first scheduling exercise. Oppo noted that proposals could lack maturity for different reasons, and she suggested reconsidering the practice of automatically forwarding proposals to the next level after external review. Prell questioned why the iPC had engaged at all in discussing the basic science of proposals instead of just letting the iSSEPs do it. He also believed that a proposal should remain active as long as the proponents want to work on it. Ildefonse remarked that the iSSEPs get frustrated at seeing proposals repeatedly with only incremental improvements. Austin wondered who would evaluate the technical concerns that can sometimes limit the scheduling of a proposal. Mayer suggested that the iSSEPs could identify those issues and put proponents together with the appropriate service panel, but first they would have to screen the science because not all proposals should undergo a technical review.

After discussing the issue further over lunch, Moore called for a consensus on having the iSSEPs co-chairs and service panel liaisons identify proposals that could benefit from service panel input. He proposed that the iSSEPs would have to request the iSAS Office to solicit permission from those proponents to distribute their proposal to the appropriate service panel.

iPC Consensus 4-3: The iPC gives its approval for the iSSEPs and their iSAS service panel liaisons to identify proposals that could benefit from advice by particular service panels. The iSSEPs co-chairs must request the iSAS Office to seek permission from the proponents to distribute such proposals to the appropriate service panel for comment.

On behalf of the iSSEPs co-chairs, Camoin recommended that the iSSEPs should have complete authority to decide when a proposal could go forward to the iPC, meaning that externally reviewed proposals would not automatically go forward as they do now. Prell suggested specifying that aspect in the recommendation, but Moore said that it did not matter. Austin strongly favored the idea that proposals should not automatically go forward to the iPC after external review. Mayer added that proposals could sometimes benefit greatly from the comments provided by external reviewers.

iPC Consensus 4-4: The iSSEPs should decide when a proposal is ready to be forwarded to the iPC.

Camoin then proposed a scheme for accelerating the external review process after the May 2003 iSSEPs meeting, ostensibly to maximize the number of proposals ready for ranking in September 2003. He suggested confirming the external reviewers before the next iSSEPs meeting so that the proposals could go out for review immediately thereafter. The iSSEPs would then have an additional meeting by email this summer to evaluate the reviews and decide whether to forward the proposals to the iPC in September. After discussing the optimal timing of events and other operational issues, the committee approved the recommendation.

iPC Consensus 4-5: The iSSEPs may hold one additional meeting this year in early August. This meeting should be conducted electronically and focus on new external reviews and related response letters from proponents. The iSAS Office should confirm in advance the external reviewers for all proposals that could potentially be sent out for external review following the May 2003 iSSEPs meeting.

5b. interim Site Survey Panel (iSSP)
André Droxler outlined the background of the nominee for the vacant iSSP co-chair position and offered the full endorsement of the panel. Suyehiro described the nominee as the most eligible and appropriate scientist in Japan for such a position. Moore called for a motion to appoint the nominee.

iPC Motion 4-6: The iPC appoints Kyoko Okino as a co-chair of the interim Site Survey Panel (iSSP).

Suyehiro moved, Mayer seconded; 16 in favor.

Droxler reported that the iSSP reviewed seven full proposals and nine pre-proposals at its third meeting in February 2003. He outlined the iSSP readiness classification scheme, noting that it has evolved slightly with each meeting, and gave an example of the standard message that proponents would receive with their reviews. He then presented the iSSP consensus on Proposals 533, 519, and 564, the three top-ranked MSP proposals. Proponents present in the room included Austin, Camoin, and Moran. Droxler explained that the site-survey data bank has not received any data yet for Proposal 610, the only proposal up for review at this iPC meeting, so the panel could not judge its readiness.

Mayer asked about the distinction between iSSP and iPPSP. Droxler explained that the two panels have different concerns, though with some convergence because they look at the same data. Katz emphasized that iPPSP needs help from iSSP to ensure that they receive a complete data package. Mayer expressed concern about iSSP not having the expertise to address safety issues. Moore noted that the iSSP mandate does not specify anything about safety, though it does mention data gaps, and that could imply safety concerns. He then questioned the appropriateness of classifying the readiness of certain Arctic sites based on safety concerns. After a brief discussion, the committee recognized a scientific basis for the safety concerns.

Droxler presented a report from the iSSP data bank working group and reviewed the timeline of data bank discussions since February 2002. The report states the primary mission of the IODP data bank as to receive, catalog, and store data necessary for the science and safety of all drilling activities and to maintain a system for effectively disseminating those data to panel members and project participants. It also recommends providing broad access to the data to encourage community involvement, while recognizing the need to protect the proprietary nature of many expected data sets. The report includes recommendations on data submission requirements, allowable data formats, communicating with IODP panels and proponents, and data bank facilities, hardware, software, and personnel. Droxler suggested that the working group could help to shape, edit, or review the RFP for the IODP data bank.

Doust noted that the iILP had discussed an idea of creating a meta-database for identifying the availability of existing seismic data within industry. Fisher wanted to ensure that proponents of proposals that could soon come up for scheduling have clear information on upcoming deadlines for submitting seismic data. With no further comments, Moore suggested that the committee should accept the working group report and forward it to IODP.

iPC Motion 4-7: The iPC receives the iSSP data bank working group report and forwards it to IODP, and we thank the iSSP for completing the report on time.

Fisher moved, Mayer seconded; 15 in favor, 1 absent (Herzig).

Droxler reported that iSSP and iPPSP had established a joint working group to develop a new integrated matrix for site survey and safety data. The group envisions the matrix as a web-based tool that will provide a more automated and comprehensive way of informing proponents what types of data they need to characterize a drill hole in terms of science and safety. Droxler requested approval for several members of iSSP to attend the next iPPSP meeting so that the working group could continue its efforts.

MacLeod asked if the matrix plan would differentiate between data supplied by proponents and operators. Katz clarified that the matrix would show all requirements. Moore asked for a consensus approving the request for several members of the iSSP working group to attend the June iPPSP meeting.

iPC Consensus 4-8: The iPC approves the request for a subset of the iSSP matrix working group to attend the June 2003 iPPSP meeting.

5c. interim Pollution Prevention and Safety Panel (iPPSP)

Barry Katz reported on the second iPPSP meeting in December 2002. The panel educated itself on currently available coring and sampling tools and discussed MSP capabilities and interactions. They identified a need to define the minimum measurements for safety monitoring on MSPs, and they concluded that each MSP project should have a technical liaison with the iPPSP. Specific MSP safety issues include different requirements for different platforms, national and international regulations, shallow-water operations, non-oilfield coring techniques, safety monitoring during drilling, the split between onshore and offshore science activities, standard core sizes, and the use of wire-line BOPs.

Katz summarized the recommendations from the iPPSP previews of Proposals 519 and 533 and noted that the panel planned to conduct a final review of those projects at their next meeting. They also discussed Proposal 564, although the proponents could not get a complete safety package together in time for a normal preview. In addition, the iPPSP reviewed the draft safety guidelines for riser drilling. They recognized a shift of responsibility from proponents to the operator for many issues, and they wondered whether that shift poses a conflict of interests because the operator ultimately has responsibility for safety. The panel also realized that its expertise and membership would have to expand to handle all of the issues raised in the new guidelines, and they saw a need for a common safety manual for all three types of drilling operations.

Katz noted that the iPPSP has identified several unexamined issues pertaining to site survey requirements, such as scale-up issues associated with multiple platforms, as well as the standards and specifications for onshore and offshore data handling and processing. They recognized that the type of site-survey data required depends on the risk category of a proposal, and MSP projects pose more of a concern than the relatively few riser projects. Katz previewed the agenda for the next iPPSP meeting, showing items on abandonment procedures, reef drilling, a review of Leg 204, a final review of Proposal 533 and possibly 519, the first reviews of Proposal 564 and the PROMESS project, and the matrix working group. He expressed concern about the limited time left before the anticipated start of IODP operations, and he worried about not having the necessary data packages ready by December 2003, when the first previews should ideally occur for the first riser and non-riser drilling projects.

Doust remarked that industry typically plans backward in time from a drilling date. Katz understood and hoped to find a way to quicken the pace of planning for the first round of projects without compromising safety. Austin suggested that iPPSP should define the boundary between proponent and operator responsibilities and make recommendations on the best drilling approach. Katz worried that the panel might not possess enough expertise to address all issues related to all types of projects, particularly for MSP proposals. Kato emphasized that certain types of proposal, such as for reef or hydrothermal drilling, might require a longer-term assessment. Moore noted that the operators would have responsibility for the shallow gas surveys required for some MSP projects. Doust agreed that iPPSP might have less control over MSP projects than over riser and non-riser operations. Claypool added that hydrocarbon monitoring serves safety and science concerns.

5d. interim Scientific Measurements Panel (iSciMP)

Rick Murray summarized the process that iSciMP followed in developing a sample and data distribution policy. They started with the policy used by ODP, stripped off the implementation portions, and focused exclusively on policy issues. He noted that the draft policy had not changed much since the iPC last reviewed it, except for the sections on the moratorium and the carry-over of obligations from ODP.

Moore stated that the iPC had asked for this policy and must now vote on it. Farrell noted that the sampling policy makes reference to a publications policy and asked how the panel planned to address that issue. Murray said that iSciMP did not want to address that issue before the program made certain decisions on how to handle publications. Fisher commented on distributing samples for educational purposes. He also recalled that sample recipients formerly had to submit publications, but he would not want to penalize someone if they made a good faith effort to do so. Murray said that the panel tried to provide that flexibility by allowing for submission of progress reports. Dauphin asked if the iPC planned to address the publications policy. Pisias suggested that the executive authority would ultimately request a publications policy from the science planning committee. Moore replied that the iPC had enough other matters to address. Moran suggested that the committee could review the policy again once the program had defined better the obligations incurred by participants. Moore then called for final approval of the sample and data policy.

iPC Motion 4-9: The iPC approves the sample and data policy received from iSciMP and forwards it to IODP.

Suyehiro moved, Austin seconded; 16 in favor.

Murray presented the six recommendations from the past iSciMP meeting in December 2002. See the appendix for the background summary provided with each recommendation.

iSciMP Recommendation 02-2-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

The committee made no comments on the above recommendation and later decided to forward it to IODP (see iPC Consensus 4-12 below).

iSciMP Recommendation 02-2-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

The committee had already approved this recommendation by email vote in early January 2002 and thus offered no further comments here. The following consensus reflects that earlier approval to expedite the establishment of the working group.

iPC Consensus 4-10: The iPC approves iSciMP Recommendation 02-2-2 to establish an *ad hoc* database working group.

iSciMP Recommendation 02-2-3: iSCIMP recommends that the Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.
A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

Becker noted that the JOIDES OPCOM made all of its decisions by consensus rather than voting. Pisias suggested that management should not get to vote on the advice that it would receive. Moore decided to table this recommendation until after the report of the OPCOM working group. The committee later acknowledged its receipt.

iPC Consensus 4-11: The iPC receives iSciMP Recommendation 02-2-3 on establishing the IODP Operations Committee (OPCOM).

iSciMP Recommendation 02-2-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

Kinoshita noted that the recommendation did not specify a particular diameter of drillpipe but only that the program should standardize it. Pisias worried that such standardization could hinder the achievement of certain science objectives. Moran mentioned that iTAP had also discussed this issue and she would present their recommendation shortly. The committee later decided to forward this recommendation to IODP (see iPC Consensus 4-12 below).

iSciMP Recommendation 02-2-5: iSciMP applauds JAMSTEC's effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

Kato emphasized the importance of such a tool for microbiology and geochemistry, if it works successfully. MacLeod asked about the inertness of the gel. Murray replied that iSciMP had asked the same question and looked forward to the results of further tests. The committee later decided to forward this recommendation to IODP (see iPC Consensus 4-12 below).

iSciMP Recommendation 02-2-6: iSciMP recommends that the link with iSSEPs be formalized by the following:
(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs throughout the life of a proposal and/or project.
(b) The iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.
(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.
(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives
(e) iSAS policy regarding conflict of interest will be closely adhered to.

Moore said that the issue of service panels reviewing proposals would come up again in the iTAP and iILP reports. Mikada thought that the iSciMP recommendation implied that they wanted to review all proposals. Austin suggested that the program should acknowledge and take action on those issues that might lie beyond the control of proponents. Mayer preferred doing it on a case-by-case basis. Fisher worried about giving more scrutiny to some proposals than others. He preferred having a formal process for deciding whether a proposal gets a technical review, and he did not want to have technical advice taken into account during scientific reviews. Murray explained that the panel did not want to add another layer of review. Austin stated that the previous program had always considered technical issues but not until very late in the review process. He also cautioned against having proponents get input from different panels and different directions. Kato stressed the importance of maintaining consistency throughout the review process. The committee later decided to forward this recommendation to IODP after discussing it in the context of similar recommendations from iTAP and iILP.

iPC Consensus 4-12: The iPC receives iSciMP Recommendation 02-2-1 on establishing a database operator in IODP, Recommendation 02-2-4 on standardizing the diameter of drill pipe used on IODP platforms, Recommendation 02-2-5 on development of the JAMSTEC anti-contamination drilling and sampling tool, and Recommendation 02-2-6 on formalizing the link between iSciMP and the iSSEPs, and we forward these recommendations to IODP.

Murray briefly reviewed several other consensus and action items from the previous iSciMP meeting and noted that they had made progress in establishing a working group for microbiology. Austin expressed concern about needing approval from the national programs for attendance at working group meetings. Moore stated that iSciMP had acted in response to a previous request from the iPC. Murray previewed the agenda for the next iSciMP meeting and noted that the expected location had changed from Nagasaki to Rhode Island.

The committee adjourned for the afternoon at 17:10 and reconvened in an executive session at 19:00.

Wednesday **19 March 2003** **8:30-17:00**

5e. interim Technology Advice Panel (iTAP)

Kate Moran reported on the second iTAP meeting in February 2003. The panel discussed establishing liaisons with the iSSEPs, iSciMP, and iILP. They decided to wait until their next meeting to make a recommendation for completing the iTAP membership and meanwhile planned to advertise for new members in the newsletter of the Society of Petroleum Engineers. Other topics discussed by iTAP included the MBARI observatory proposal, technological needs derived from the IODP Initial Science Plan, establishment of standards for core diameter, pipe diameter, and logging, hole stability, an operational legacy for future planning, and a scheme for developing a project management process. In addition, proponents from two complex drilling projects attended the iTAP meeting and received advice on their proposals.

Moran summarized the pros and cons of setting a standard pipe diameter for IODP drilling operations. She highlighted the greater number of advantages than disadvantages, stressed the importance for standardizing logging, sampling, and specialty tools, noted the common use of 6 5/8" drill pipe in industry, and mentioned that the *Chikyu* could handle that size. Moran then presented an iTAP recommendation on evaluating the benefits of outfitting the non-riser vessel to handle 6 5/8" drill pipe.

iTAP Recommendation 03-1: iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (*e.g.*, core quality, core volume, tool deployment) and costs of outfitting the JR-replacement to be able to handle up to 6-5/8" drillpipe. iTAP will provide a recommended work statement to ODP.

Austin suggested that iTAP should recommend persons who could do such a study. He also asked about drilling ocean crust and using slim-line tools. Moran replied that bit size and thus hole diameter would remain the same. Kenter asked about the key disadvantages of using larger diameter pipe. Moran identified pipe strength as an issue but not a big one. Austin asked about weight. Moran acknowledged that the added weight also posed another minor issue. Kenter asked about shallow drilling. Moran answered that not all platforms could handle the weight, not even for 5 1/2" pipe. Allan noted that the ship could not store as much of the larger diameter pipe onboard. The committee then voted to accept the recommendation.

iPC Motion 4-13: The iPC accepts iTAP Recommendation 03-1 on conducting a study of pipe diameter capabilities on the non-riser vessel.

Mayer moved, Gillis seconded; 16 in favor.

Moran presented an iTAP recommendation on developing plans for mitigating the risks associated with unstable borehole conditions for every IODP project.

iTAP Recommendation 03-2: iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program. The plan should include near-real-time analyses during the drilling program that uses real-time drilling parameters. These parameters should also be captured into the IODP database to be used to improve future drilling plans.

Katz believed that such a plan would require mud circulation and therefore riser drilling. Moran replied that ways exist to manage non-riser holes for temperature and stability if planned in advance. Austin asked for a more precise definition of a hole-problem risk mitigation plan. Moran explained the terminology and the committee voted to accept the recommendation.

iPC Motion 4-14: The iPC accepts iTAP Recommendation 03-2 on developing a hole-problem risk mitigation plan.

Gillis moved, Ildefonse seconded; 16 in favor.

Moran clarified that the following iTAP recommendation referred to documenting the reasons for terminating particular boreholes. She noted that the idea stemmed from the iTAP review of the two riser drilling proposals and an interest in defining the operational limits of non-riser drilling. Moran believed that it would require only a modest effort to extract and organize the relevant information from the various ODP drilling reports.

iTAP Recommendation 03-3: iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP. iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

Austin could not recall ever seeing a comparison of target depths versus actual achievements. He supposed that ODP did not reach many objectives merely because of the time limits imposed on a typical leg. Kinoshita suggested that such a study would only need to look at the deepest hole in each region. Farrell mentioned the RFP for deep drilling in ODP. Austin added that IODP should ensure making the fullest possible use of the available technology. Prell asked if that would amount to a compromise against the science driven philosophy. Mayer thought it should comprise a line item for each hole in IODP. Austin wanted to set a timeline for completing the study. Bohlen believed it would not involve a lot of work and recommended asking TAMU. Prell proposed that iTAP itself should do the study. The committee voted to accept the recommendation and added a timeline for completing the study.

iPC Motion 4-15: The iPC accepts iTAP Recommendation 03-3 on asking ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation. The iTAP will define the scope of this evaluation and would like to review the results at its next meeting in July 2003.

Herzig moved, Gillis seconded; 13 in favor, 3 abstained (Austin, Ito, Kato).

Moran reported that iTAP had reviewed and discussed an industry model for project-based management planning, as introduced by a guest from British Petroleum. The panel recognized the necessity of developing a customized approach for the IODP structure, and Moran presented the following recommendation.

iTAP Recommendation 03-4: iTAP recommends the formation of an IODP working group that will develop a project-based management planning system. The system will be similar to those used by the petroleum exploration industry. It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project. This Project Management Working Group would be charged with developing the project management system by June 2003. Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representative.

Doust strongly favored the idea and wanted to discuss the possibility of industry contribution. Moore expressed concern about the size of the group. He preferred keeping it small so that it could proceed quickly. Gillis thought that the operators should have representatives. Moore acknowledged that CDEX had already done some of the scoping work and suggested replacing iSciMP with CDEX. He also nominated Doust for chair of the working group, Austin as a regular member from the iPC, Moran from iTAP, and Kawamura from CDEX. Kenter suggested having a co-chair from Japan. Kato nominated Ito for co-chair. Macleod nominated Pezard as a member. Katz volunteered to join the group if it would work principally by email. Austin noted that the iPC needed to complete the report before the next IWG meeting in June. Moore deferred further discussion of this topic until after the OPCOM working group report (see Item 10 below on Detailed Planning Groups).

Moran then presented the final iTAP recommendation on forming a detailed planning group for complex drilling projects.

iTAP Recommendation 03-5: iTAP recommends the formation of a Detailed Planning Group (or a Project Scoping Group) to begin the scoping process for complex drilling programs that are currently planned to address seismogenic zone objectives, as an interim measure. The scoping process includes project description (based on the existing proposals in the system), risk analyses, preliminary cost estimates, and project planning. Proposed membership: proponent representative(s), CDEX representative, project management advisor, risk identification specialist, well engineer.

The committee discussed the proposed membership of the planning group. Austin considered well engineering as a responsibility of the operator. Kawamura confirmed that CDEX would employ well designers. Kenter worried about duplicating the expertise already provided by the operator and the cost of involvement for the other participants. Moore agreed but thought that the effort had to begin immediately and could not wait for a definite answer on whether the required specialists would come from inside or outside the program. Austin suggested that the planning group could instruct IODP management on the kinds of employees and expertise needed. MacLeod expected that the program might have to tender outside contracts for MSP projects.

Austin asserted that non-riser drilling would always precede riser drilling, and each riser project would involve unique concerns. He wondered how to do the initial scoping without first identifying the exact drilling sites. Moore noted that the riser ship could drill in non-riser mode, and therefore non-riser drilling constituted a valid part of the scoping process. Moran believed that the scoping could proceed by considering the target depths and scientific objectives. Moore recognized that someone would have to take charge to ensure that the necessary work gets done, and he suggested that CDEX could lead the effort. Moran thought that the industry representatives might disagree with that idea. Austin nominated Moran as group leader. Moran recommended John Thoroughgood as group leader and said that he could host a meeting in Houston. Kato wanted to defer any decisions until after the OPCOM working group report. Becker stated that if this group served only for the interim period then it would not affect OPCOM planning. Mayer agreed with the idea of hearing the OPCOM report before deciding. (For further discussion see Item 10 below on Detailed Planning Groups.)

Moran finished by reporting that iTAP and iSciMP had formed a small, joint subcommittee to review logging technologies and their application to IODP. They plan to identify options for make recommendations to the iPC. Moran also outlined that iTAP had advised proponents at the last meeting to select sites based on science objectives, refrain from identifying platforms, provide access of proposals to the DPG, and develop technical and operational options based on their science objectives.

5f. interim Industry Liaison Panel (iILP)

Harry Doust reported on the first iILP meeting in February 2003. He listed the panel membership and noted the dominance of representatives from the energy industry. He then reviewed the iILP mandate, including proposed additions and amendments, and presented a preliminary set of goals identified by the panel. Those goals included achieving five highly ranked industry-linked proposals within the first five years of IODP, keeping a short list of relevant active proposals and offering advice to the proponents, having certain proponents come to iILP for advice, maintaining an active list of industry science objectives, achieving increased industry support for IODP and placement of industry representatives on iSAS panels, and having at least one industry representative selected as a co-chief scientist within the first seven years of IODP. Doust explained that the panel perceived the low acceptance rate and the typical five-year period between submitting a proposal and executing the project as barriers to industry participants, and they saw a need for providing effective support to industry proponents to streamline the evaluation procedure. They also recognized, however, that the better access and availability of high quality seismic data in industry and a potential strategy of focusing on ancillary projects could help to promote the involvement of industry participants.

Doust said that the iILP expects to provide advice to other iSAS panels as appropriate or requested, particularly on locating seismic and well data. He noted that industry also has valuable experience in complex operational planning and risk assessment. Doust added that the iILP plans to investigate the interest in selectively repackaging ODP legacy data for industry and the possibilities for joint training schemes with industry. They also plan to work on raising the profile of IODP in industry, identifying industry staff to serve on IODP panels, developing a plan for engaging with other industries, and interacting with iTAP and other groups on project planning. Doust reported that the iILP had reviewed the abstracts of all ninety-three active drilling proposals. They identified eleven proposals of direct interest to industry, nine that could benefit from industry data or experience, ten that could perhaps incorporate industry objectives, and ten others of general interest only. Doust then reviewed the time frame of the various activities planned by iILP over the next year or more and announced that they would meet next in Barcelona in mid September 2003.

Herzig asked if the lack of involvement on iILP by the mining and insurance industries reflected a lack of interest or a lack of contacts. Doust saw it as a lack of contacts, and he wanted to dispel anyone from perceiving the panel as merely a pressure group from the energy industry. Fisher appreciated the many avenues for industry involvement, but he worried about finding an appropriately fair and neutral way of advising proponents. He suggested that the iILP could send its list of industry-related proposals to the iSSEPs and let them advise proponents about contacting the iILP. Kinoshita agreed that the iILP should work through the iSSEPs. Suyehiro supposed that the list would evolve and that the door should remain open for proponents to contact the panel. Camoin noted that iSSEPs had already encouraged proponents through their last reviews to contact iTAP and iILP. Austin suggested getting permission from proponents to let the iILP see their proposal. Moore commended the iILP for their enthusiastic approach to the subject. He hoped to enact some procedure for giving them full access to the drilling proposals and noted that the iSAS Office must have permission from the proponents to distribute proposals to other panels.

6. Reports from Other Scientific Programs

6a. International Continental Scientific Drilling Program (ICDP)

Ulrich Harms reviewed the plans for the next twelve months in ICDP. He outlined the goals of the Unzen Drilling Project in Japan that began just a few weeks ago and should last for about two years, and he reported that the Hawaii Scientific Drilling Project would begin a new phase to drill deeper than in 1999 and possibly reach the former ocean floor beneath

Mauna Kea. Harms mentioned that the Chicxulub Drilling Project had generated interest in drilling other impact structures in Chesapeake Bay, near Sudbury, Ontario and the Mjolnir crater in the Barents Sea, and he characterized the planning for the Lake Bosumtwi and Lake Malawi Drilling Projects in Africa as on schedule. Harms described the goals of the SAFOD Pilot Hole and showed results from the associated monitoring project. He reported on the success of the Corinth Rift Geodynamic Laboratory in coring through an active fault zone, and he mentioned the development of other projects to drill active faults in South African mines and the Chelungpu Fault in Taiwan, as well as the seismogenic zone in the Japanese Ultra Deep Drilling Experiments (JUDGE). Harms listed several recent and upcoming ICDP workshops and emphasized that ICDP has a growing membership and a broad scope of drilling projects worldwide. He also referred to the significant achievements to date in IODP-ICDP relations and suggested improving the coordination of meeting dates and defining the pathways for exchanging equipment, tools, and data management.

Kato noted that the Japan Earth Drilling Science Consortium would include ICDP. Kenter confirmed that ECORD and JEODI felt very satisfied with their cooperation with ICDP. Moore asked if the dates for the next iPC meeting in September would conflict with the ICDP schedule. Harms said no. Moore then thanked Harms for his report and encouraged further cooperation between IODP and ICDP.

6b. Other programs

The agenda book contained general background information on several other international research programs in marine geosciences, such as IMAGES, InterMargins, and InterRidge, but no representatives from those programs could attend the meeting.

7. Presentation and Evaluation of Proposals

7a. Review of evaluation procedure

The committee did not discuss or amend its established procedure for evaluating proposals.

7b. Environmental Change, Processes, and Effects

610-Full2 West Florida Margin

Jeroen Kenter presented the scientific goals and objectives of Proposal 610-Full2. After discussing its scientific merits, evaluating the response of the proponents to the external reviews, and noting the lack of supporting data submitted to the site-survey data bank, the committee categorized this proposal as not ready for ranking.

iPC Motion 4-16: The iPC groups the following full proposal according to the main scientific themes of the IODP Initial Science Plan and assesses its readiness for future ranking.

Environmental Change, Processes, and Effects

610-Full2	West Florida Margin	not ready for ranking

Kenter moved, Oppo seconded, 15 in favor, 1 absent (MacLeod).

7c. Status of previously reviewed proposals

477-Full2 Okhotsk/Bering Plio-Pleistocene

545-Full2 Juan de Fuca Flank Hydrogeology

549-Full3 Arabian Sea OMZ

551-Full Hess Deep

553-Full Cascadia Margin Hydrates

Mayer reported that the proponents of Proposal 477-Full2 intend to submit a revised proposal for the upcoming deadline. Herzig reported that the proponents of Proposal 545-Full2 plan to submit an update at the next deadline addressing the previous iPC review and adding new proponents. Moore announced that the proponents of Proposal 549-Full3 had already submitted a revised proposal to the iSAS Office ahead of the deadline. Tatsumi reported that the proponents of Proposal 551-Full still had to wait for additional site-survey data and therefore would not submit anything new for the next deadline. Fisher noted that he had contacted the proponents of Proposal 553-Full but received no response (*N.B.*, the iSAS Office received the revised Proposal 553-Full2 at the deadline).

8. IODP Management and Advisory Structures
8a. IODP Management International, Inc. (IMI)
As noted under Item 1a, Paul Stoffa reported at the outset of the meeting on the establishment of IMI. He identified the twelve founding members of the corporation and noted ten others who definitely intend to join. He also showed the draft agenda for the initial IMI meeting scheduled for the following week, where they must adopt the by-laws and approve the membership and the board of governors. Stoffa explained that the IMI board would have seventeen voting governors plus a non-voting president, with five to seven members comprising an executive committee, and each membership contribution of $5.0 million would yield one seat on the board. He added that regular members and board members must abide by the same conflict-of-interest rules. Stoffa then outlined the types of activities that would require full board approval, and he mentioned certain indemnification provisions of the by-laws.

When the committee returned to the issue of IMI later in the meeting, Moore noted that the lead agencies would each have five seats on the board of governors and the number of other members would depend on the funding contributions. He also explained that the board could establish other standing committees in addition to its own executive committee. Kenter affirmed the strong intent of ECORD to join IODP and emphasized that they would not have a representative at the first IMI meeting because of poor timing, not a lack of interest. He also noted that the current IMI membership consists only of institutions, whereas the members from Europe might likely consist of funding agencies. Moore said that the IMI by-laws allow either possibility and that anyone could join the corporation for $5000. Dauphin clarified that an organization must also belong to an IODP member entity to join IMI. Bohlen added that the by-laws articulate the role of members.

Becker asked if IODP would establish the SAS panel membership using the same formula that defined the JOIDES panel membership in ODP. Dauphin said probably yes. Austin wanted to encourage having observers at SAS meetings from prospective members who might not manage to join IODP from the beginning. Gillis also stressed the importance of enabling prospective members to stay informed, and she wanted to clarify the possible nature of observer status. Becker noted that the associate members of ODP have formal observer status in JOIDES. Dauphin replied that such matters would remain undefined until IODP begins. Austin proposed the following motion to encourage participation at the science advisory level.

iPC Motion 4-17: The iPC supports the concept that robust international participation is crucial to the long-term success of IODP. The iPC further recognizes the potential scientific contributions of scientists from countries and/or consortia seeking membership in IODP and therefore supports their involvement at the Science Planning Committee level, at least as observers, until such time as their funding commitment to IODP is assured.

Austin moved, Kenter seconded; 15 in favor, 1 absent (MacLeod).

8b. Executive authority

Moore defined the executive authority as the policy making body that represents the SAS to IMI. He explained that IMI would establish the executive authority, and its membership would consist of senior scientists from IODP member nations. Kato asked if the board of governors and the executive committee would have the same members. Moore said perhaps, but perhaps not. Suyehiro noted that according to the IODP management principles the executive authority would approve the annual program plan before its submission to IMI and the lead agencies.

8c. OPCOM working group report

Keir Becker delivered the report of the OPCOM working group, noting that the group did not have a chair and had elected him as secretary. The working group defined the paramount goal of OPCOM as achieving the IODP science objectives to the greatest extent possible in operational terms. The group assumed that IODP would follow a similar overall planning process as ODP, but they believed that OPCOM would play a more critical role because of the complexities of operating multiple platforms. Moreover, those complexities would require longer-term operational and fiscal planning, subject to annual change. The working group also viewed the new OPCOM as a bridge between science planning and operator implementation that would require representatives from the advisory structure and management.

Becker outlined a general long-term schedule for the planning process for riser drilling, from initial scheduling four years in advance through modification of current drilling plans as a result of recent drilling. He then presented a simplified flow chart of science advice in IODP, showing the position of OPCOM with respect to the CMO, the operators, the executive authority, and the rest of the SAS. Becker explained that compared to ODP, the OPCOM in IODP would focus on complex, multi-platform operations; it would represent an independent committee rather than a subcommittee of the SPC; it would interact more strongly with the operators and CMO early in the scheduling process; and the service panels would report directly to the SPC instead of through OPCOM. He then presented the proposed mandate for the IODP OPCOM. The version presented here reflects the changes agreed upon by the committee in the following discussion.

Proposed Mandate for IODP OPCOM

1. General Purpose: The Operations Committee (OPCOM) is an independent committee within the Science Advisory Structure whose general purpose is to recommend the most logistically and fiscally effective means to achieve IODP scientific objectives as defined in the long-range IODP science plan and prioritized by the Science Planning Committee (SPC). OPCOM reports to SPC and, through SPC, to the SAS Executive Authority.

2. Mandate: OPCOM is responsible for recommending the optimal means to implement IODP drilling projects that are highly ranked and prioritized by SPC. Following IODP project management principles, OPCOM should consider, in addition to SPC prioritizations, (a) capabilities of IODP drilling platforms, (b) budgetary and logistical constraints, and (c) advice from SAS service panels on safety, environmental, and technological factors. Following the annual SPC prioritization and ranking of proposed IODP drilling programs, OPCOM will specifically recommend options for the schedules of IODP drilling platforms for the appropriate year(s) (as defined by the annual IODP program plan) and will also project a longer-term schedule for future drilling operations. In addition, OPCOM must monitor progress toward achieving the longer-term drilling schedule and therefore is also responsible for recommending any modifications to both the short- and long-term drilling schedules that may be necessary as developments occur or constraints arise after SPC has prioritized relevant IODP science projects.

3. Consensus and Quorum: The Operations Committee will reach all decisions by consensus. In defining consensus, a quorum shall be required consisting of 2/3 of the scientific participants and 2/3 of the management representatives as defined in Section 4.

4. Participants Counting Toward Consensus and Quorum: The Operations Committee will be chaired by a knowledgeable scientist who is non-conflicted in both scientific and operational matters and is appointed by the SAS executive authority. Participants from SAS shall include the SPC chair and as many additional representatives from the SPC as there are implementing organizations (IOs). Participants from IODP management shall include one designated representative from each IO and one designated representative from the central management organization (CMO). The terms of the chair and representatives from SPC should extend no longer than three years, and rotations should be staggered.

5. Liaisons, Observers, and Guests: Each Lead Agency is expected to nominate one liaison to OPCOM. Lead Agencies, the CMO, and IOs may send additional observers as needed. A chair of each of the SSEPs, SciMP, PPSP, SSP, TAP and ILP will serve as liaisons to OPCOM. When necessary to provide additional expertise, guests may be invited at the discretion of the chair. Approximately one year before the end of the chair’s term, the next chair should be identified and he or she should attend that year’s meetings as a guest.

6. Meetings: OPCOM shall meet at least twice per year. One of the OPCOM meetings will be coordinated with the annual SPC ranking exercise, in order to construct the appropriate year’s schedules of the IODP drilling platforms. The other meeting will be held about half a year apart, to recommend adjustments to the drilling schedules if needed. If drilling schedules or modifications recommended by OPCOM are not approved by SPC and/or the SAS executive authority, then additional OPCOM meetings may be required to recommend alternative schedules.

Gillis inquired when OPCOM would enter the planning process. Becker answered not until after the SPC ranking. Austin asked whether OPCOM could conceivably approve a project without any of the scientists agreeing. Becker replied no because OPCOM would decide all matters by consensus. Prell noticed an inconsistency between the text and diagram in terms of the independence of OPCOM and having it report to the SPC. Becker replied that all SAS panels would report to the SPC. Austin sensed concern about the potential for direct exchanges between OPCOM and the executive authority. Becker noted that his diagram did not show a direct link between OPCOM and the CMO. Mayer regarded the position of OPCOM as a philosophical issue in terms of its response to the science program, and he disliked the current model showing an equal balance between scientists and managers. Murray remarked that the iSciMP model shows the participants dominated by the SAS and central management, with IO representatives as merely liaisons.

Gillis wondered if Section 2 of the mandate should include advice from iSAS panels if they had already provided input during the review and scoping process. Austin suggested that the mandate should refer specifically to project management. Fisher asked if OPCOM would respond to budgetary issues that might require changing the schedule. Becker said yes, but only in terms of recommending changes and not deciding on them. Mayer clarified that OPCOM would always report through the SPC, though might have a liaison to the project management team.

In regard to Section 3, Austin suggested setting a specific quorum for each category of participants. Moore proposed having a 3/4 quorum of each of the scientific and management representatives. Kato recommended 2/3 as a better ratio for small numbers.

Kato questioned whether Section 4 should specify that the executive authority would select the chair before knowing the functions of the executive authority. Droxler asked about the meaning of having a neutral chair. Becker replied that the OPCOM chair should not serve as a proponent of an active proposal. Fisher proposed that it should say non-conflicted instead of neutral, or even specify not a proponent of a proposal. Kenter noted that the mandate did not allow for European membership on OPCOM if they would not have lead agency status, except through the IO. Becker agreed that the membership criteria could relate to the number of IOs instead of lead agencies. Fisher noted the lack of an explicit mechanism for identifying alternate members in case of absence or conflict of interest for the scientific members.

The committee debated the issue of whether the operators should count toward the consensus. Becker noted the concern that central management might not satisfactorily represent the operators. Moran said that having only one representative would help to integrate the management. Austin noted that the management principles already give a lot of power to the CMO. Suyehiro preferred giving equal weight to all concerned parties. Mayer had greater concerns about ensuring that scientific objectives would always steer the program. He added that deciding by consensus meant that the outcome could depend on the easiest path for a particular operator. Fisher noted that the platform operators would ultimately have the final say onboard, but perhaps it could work effectively to give them a voice in the consensus. Dauphin asked what would happen if the operator disagreed. Becker responded that the committee would not reach a consensus in that case and would have to refer the issue back to the SPC for a final decision. Gillis thought that the project management scheme would resolve such disagreements before they reached OPCOM. Austin explained that the advanced scoping would happen later in the project management scheme. Mayer noted that OPCOM would decide on the platforms and operational plan, and he suggested that OPCOM should establish the project management team. Doust cautioned that if the operators contribute to the OPCOM consensus it could jeopardize the project management review process. Moore believed that the project specific evaluations would provide strong recommendations to the CMO.

Gillis remarked that the science members of OPCOM would have a high workload, and she expressed concern about the possibly disruptive influence of MSP operators who might have only a very short-term involvement for a single project. Kenter agreed with the current model and assured everyone that ECORD would take a long-term view. MacLeod noted that ECORD would have a say as long as it maintained an intention to schedule legs. Gillis stated that IODP could have other MSP operators besides ECORD. Fisher echoed the concern that the operators would not necessarily take as long term of a view as volunteers from the scientific community, and he remained uncertain how to balance the competing concern of whether having operator input at OPCOM weakens the strength of the CMO. Gillis suggested deferring the vote until learning more about how project management would work. Moore preferred calling for a vote now, while recognizing some dissenting opinions about OPCOM membership and that SPC might revisit this issue.

iPC Motion 4-18: The iPC accepts the revised Section 4 of the IODP OPCOM mandate, on participants counting toward consensus and quorum, as proposed by the OPCOM working group.

Suyehiro moved, Kenter seconded; 13 in favor, 1 opposed (Gillis), 2 abstained (Mayer, Oppo).

With only minor additional comments about the exact wording of Sections 5 and 6, the committee approved the rest of the OPCOM mandate by consensus.

iPC Consensus 4-19: The iPC accepts the revised Sections 1, 2, 3, 5, and 6 of the IODP OPCOM mandate proposed by the OPCOM working group.

8d. Center for Deep Earth Exploration (CDEX) report

Yoshihisa Kawamura reviewed the structure and detailed functions of CDEX. He described the projected staffing levels, emphasizing the industry experience of several current employees, and the general responsibilities of the various groups for operations, site surveys, science services, and HSE. Kawamura then outlined the required preparation period for riser drilling, encompassing the three phases of seismic site surveying to define target depths (17 months), engineering site surveying to define geohazards for safety operations (13 months), and detailed planning and operation preparations (22 months). He explained that the overall preparation period for an ordinary project would require 35 months but would rise to 50 months with more extensive initial site surveying. Kawamura presented a detailed operational timetable and identified the important milestones as the ranking of proposals and probably three safety reviews.

Moore wondered if CDEX would accept the idea of rotating technical staff among the different operators and platforms in IODP. Kawamura could not exclude the possibility. Farrell noted that some of the described tasks involved science costs. He asked if CDEX could reconcile what they had already done in terms of hiring and expenses with what the IMI would eventually allow. Kawamura said that they would have to wait and see what the IMI would allow. Gillis asked if the time estimates included the time needed for the initial non-riser phase of drilling. Kawamura said no. Katz added that riser drilling did not require preliminary non-riser drilling from a safety or operational standpoint but you might want it for scientific reasons. Kenter wondered how to speed up the process. Moore noted that the scoping process could start before the ranking. Herzig asked if CDEX planned to do logging. Kawamura said that they would contract the logging.

The meeting adjourned for the day at 15:30 and an *ad hoc* working group on IODP project management convened shortly thereafter.

Thursday **20 March 2003** **8:30-12:30**

9. Guide to IODP
a. Scientific goals, organization, and structure
b. Science Advisory Structure (SAS)
c. Science planning process
d. Proposal submission and evaluation

Jamie Austin outlined the overall status of the Guide to IODP, described it as still under development, and stressed the importance of having the guidelines available for proponents submitting proposals. He thus aimed to have a workable draft ready to approve at the last iPC meeting so that it could pass on to the SPC and get posted to the public by 1 October 2003.

Austin noted that it would probably take somewhat longer to produce a printed version, if desirable, because it would require a source of funding.

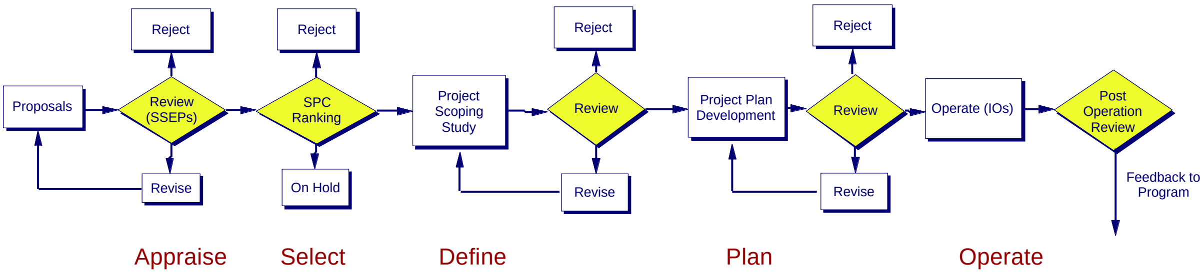
e. Complex Drilling Projects (CDPs)

Kiyoshi Suyehiro outlined the draft guidelines for developing, mentoring, and evaluating CDP proposals, establishing related detailed planning groups, and scheduling and managing the required drilling time. He also referred to the working group report presented earlier by the iSSEPs co-chairs on a recommended structure and review procedure for CDP proposals.

Austin cautioned that the program could not commit to more than a few CDPs without locking up the platform capability from the beginning. He added that evaluating the later-stage proposals of a CDP might depend on results from the initial stages. Suyehiro worried about it taking too long that way to develop the later-stage proposals. Austin suggested that project management would provide a way to assess the later stages. Katz conceded that early results could produce slight changes in the plans for later stages, but that should not pose such a great challenge once the project had entered the system. He also supposed that a project could succeed operationally but not scientifically. Austin doubted very much that the community would regard an operation as a success if the science had failed. Gulick asked whether a late-stage proposal that depended on results from an earlier stage would always return to the SSEPs for evaluation. Moore said yes, but if the proponents have to wait for results before submitting the next proposal then it might not qualify as a CDP.

10. Detailed Planning Groups for Riser Drilling

Becker presented a report from an *ad hoc* working group on IODP project management that convened after the full committee had adjourned the previous day. The working group recognized the added challenge and complexity of using multiple platforms in IODP. They concluded that IODP project management should follow well-established industry practice on a project-by-project basis, customized to IODP needs. Furthermore, they recommended a five-stage process that would include 1) a scientific appraisal by the SSEPs, 2) ranking and selecting the project by the iPC, 3) defining the project by the project management team, 4) developing the project plan by the project management team, and 5) operating or conducting the project by the contractors (see flow chart below). Depending on the nature of a project, each stage might require an independent review and risk assessment before moving on to the next stage.



Austin expressed concern about whether most IODP scientists would understand the associated terminology. Mayer characterized the terms as simple and clear enough. Moore wanted to include a statement about defining the project management team. Becker replied that the working group would do that. Moran wondered about changing the word review. Doust considered review as an appropriate term. Moore suggested adding the word system. Moran said that every project would follow the same system, but not at the same rate. Katz commented that the working group had not specified who would have the responsibility for making decisions at each stage. Prell questioned where the service panels fit into the flow path. Kato inquired if the project management team could contact other advisory panels. Murray asked if the scientific appraisal should come from the SAS and not just the SSEPs. Austin noted that the committee had already decided that the service panels would funnel advice through the SSEPs. He also suggested that the working group should report to the SPC.

With reference to the earlier presentation and discussion of the iTAP report (see Item 5e above), the committee voted to establish a working group on project management.

iPC Motion 4-20: The iPC accepts iTAP Recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iSSEPs, iPC or SPC, the OPCOM working group, CDEX, and industry project managers. The system should be developed by June 2003.

Gillis moved, Austin seconded; 15 in favor, 1 abstained (Kinoshita).

Mayer thought that the flow chart did not differ radically from how ODP had operated. Moore said that it did not specify how OPCOM would fit in the flow path and provide feedback to the SAS. Becker responded that the SAS probably would not need feedback from OPCOM for simpler projects. Gillis wondered who would coordinate and conduct the project management scoping and asked, for example, about the reporting path for the Arctic planning group. Moore replied that the Arctic DPG had reported to SCICOM. Mayer added that proponents and operators would conduct the project scoping. Doust defined project scoping as a means to assure efficient and safe operations for meeting the science objectives. Austin stated that it also implied making a go or no go assessment at each stage of planning and review. Mayer viewed that as a prime reason for having technical and operator involvement at an early stage. Katz added that risk analysis in industry refers to the probability of achieving the goals and thus would involve science.

Moran viewed the scoping process as a generic first step in terms of riser drilling, and she suggested establishing the group as a subcommittee of iTAP. Moore disagreed and said that the group should report to the iPC and not iTAP. Austin prompted that the iPC would need to rank CDP proposals before the end of iSAS. Moore replied that the iPC had not received permission to do so. Gillis suggested that the group should have an observer or watchdog from the iPC. Kato asked if the scoping group would report to the SPC and whether it would involve proponents. He also noted that the group would need expertise on non-riser drilling for making the recommended cost estimates. Moore responded that only proponents could provide much of the information, and he suggested removing cost estimates from the charge. Austin wanted to include the flow chart with the instructions to the group and define a timeline. He also worried that proponents might get the wrong message that they have approval for their project. Moore agreed that the iPC should make it clear to the proponents that this represents an exploratory effort.

With reference again to the earlier presentation and discussion of the iTAP report (see Item 5e above), the committee voted to establish a project scoping group.

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

Gillis moved, Fisher seconded; 14 in favor, 2 abstained (Ito, Kato).

11. iSAS to SAS Transition

The iPC discussed several models for the terms of service of the chair and vice-chair of the Science Planning Committee. Moore explained the simplest model of having the vice-chair replace the chair and appointing a new vice-chair every two years, and he noted the normal three-year term of regular committee members. The committee then debated the merits of the various models and decided in favor of the simplest one. Moore asked whether this simple model would also apply to the first chair and vice-chair of the SPC. The committee agreed that it should apply from the beginning and passed the following motion.

iPC Motion 4-22: The iPC recommends that the Science Planning Committee should have a chair and vice-chair who serve a total term of four years, with the chair replaced by the vice-chair and a new vice-chair appointed every two years.

Herzig moved, Mayer seconded; 13 in favor, 3 abstained (Ito, Kato, Tatsumi).

Gillis asked about the role of the chair versus the vice-chair. Moore replied that the SAS Office would communicate with the chair and the chair would communicate with the vice-chair, plus the vice-chair would serve as an alternate chair in case of a conflict of interest or absence. Kato asked who would select the chairs. Dauphin explained that the lead agencies had asked IMI to develop a scheme for selecting the chairs. Prell noted that USSAC would nominate candidates for the chairs to IMI. Moore regarded the executive authority as the proper body to select the SPC chairs.

12. Other Business

Kato distributed a brief document outlining his views on patent rights and microbiological sampling in IODP. The committee members noted that they would need more time to review the document before discussing it. Kato encouraged them to submit their comments to him at their earliest convenience.

The committee then extended its appreciation to the host and local organizers of the meeting.

iPC Consensus 4-23: We sincerely thank Jamie Austin, Nancy Hard, and Kathy Ellins for their superb efforts in organizing and hosting this fourth meeting of the iSAS interim Planning Committee in Austin, Texas.

13. Review of Motions and Consensus Items

The committee reviewed the entire slate of draft motions and consensus items and suggested minor changes to the wording of a few.

14. Future Meetings

14a. Liaisons to other panels and programs

The committee agreed upon liaisons for the final round of iSAS panel meetings as follows: iSSEPs - Moore and Tatsumi; iSSP - Austin; iSciMP and iTAP - Ito, Kinoshita, and Moore; iPPSP - Kinoshita and Moore; iILP - Pezard.

14b. 5th iPC Meeting, September 2003, Japan
14c. 1st Meeting of IODP Planning Committee

Yamada presented a plan for the September 2003 meeting of the iPC and SPC in Sapporo, Japan coupled with a visit to see the riser vessel *Chikyu* under construction in Nagasaki. The committee discussed the amount of time needed for the meetings and decided to allow four days combined. Some participants expressed concern about splitting the meeting between Sapporo and Nagasaki. Yamada agreed to review the plan and present a final schedule later.

The meeting adjourned at 12:30.

iSAS interim Scientific Measurements Panel

Recommendations from 3rd Meeting, 12-14 December 2002

iSciMP Recommendation 02-2-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.
Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

iSciMP Recommendation 02-2-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.
Background: The opportunity to build and expand on the database efforts of the previous program is now. A comprehensive IODP database must be functioning and ready to receive data at the beginning of the first IODP drilling project. The working group will also identify areas where improvements in the previous database should be addressed, such as observations based on scientific interpretation, and identify additional data types (downhole logging, seismic profiles, digital visual core description, etc.) to be integrated into the comprehensive database.
Constitution and Implementation: We anticipate the working group will comprise 8-10 individuals, with diverse background and international representation (US-Japan-JEODI), gathering for 1-2 day meeting. Dave Divins, iSciMP member, will chair and organize it, along with strong input from other interested iSciMP members (e.g., S. Saito). We anticipate the constituency will include up to several iSciMP members--either as formal members or as observers--but will not be limited to persons with ODP or Janus experience. They will meet in April or March and have a full report draft available in advance of iSciMP's July meeting, so iSciMP can sign off on the final report at that meeting itself.
Progress Report: Early May, Boulder, CO, USA. 1-2 day meeting. Kuramoto (CDEX), Takahashi (Central Comp. Services), Diepenbroek (Bremen), Graham (BGS), Arnold (Sweden), Moran (URI), Courser (BAE) are likely participants, along with panelists Divins and Saito.

iSciMP Recommendation 02-2-3: iSCIMP recommends that the Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.

A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

Background: The operations committee (OPCOM) has the mandate to identify the appropriate platform for drilling projects, schedule each of the platforms, and make recommendations on major expenditures (e.g., ACORKS) on IODP projects. As such, this committee must ensure that the operations/management entities deliver the science recommended by the scientific advisory structure. This can best be achieved by strong input from the science and technical panels within the framework of a clear demarcation between advice and contractual responsibilities. Once the advice from the SAS is provided to the CMO, the CMO is responsible for contractually implementing the scientific and technical recommendations that include, most importantly, operational decisions based on the best possible science plans.

A major difference between IODP and ODP is multiple platform operations as compared with a single operator in ODP. It is important for IODP to adopt management instruments within the SAS and in the CMO that ensures the IODP is managed as a single entity instead of three separate platform operators.

iSciMP Recommendation 02-2-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from iSciMP in early 2003 is needed.

iSciMP Recommendation 02-2-5: iSciMP applauds JAMSTEC’s effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining non-contaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP’s next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

iSciMP Recommendation 02-2-6: iSciMP recommends that the link with iSSEPs be formalized by the following:
(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs throughout the life of a proposal and/or project.
(b) The iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.
(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.
(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives
(e) iSAS policy regarding conflict of interest will be closely adhered to.
Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future. It is recognized that the new IODP program will long-term projects with multiple platforms. Some level of involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others). The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

iSAS interim Technology Advice Panel

Recommendations from 2nd Meeting, 21-22 February 2003

iTAP Recommendation 03-1: iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (*e.g.*, core quality, core volume, tool deployment) and costs of outfitting the JR-replacement to be able to handle up to 6-5/8" drillpipe. iTAP will provide a recommended work statement to ODP.

iTAP Recommendation 03-2: iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program. The plan should include near-real-time analyses during the drilling program that uses real-time drilling parameters. These parameters should also be captured into the IODP database to be used to improve future drilling plans.

iTAP Recommendation 03-3: iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP. iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

iTAP Recommendation 03-4: iTAP recommends the formation of an IODP Working Group that will develop a project-based management planning system. The system will be similar to those used by the petroleum exploration industry. It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project. This Project Management Working Group would be charged with developing the project management system by June 2003. Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representative.

iTAP Recommendation 03-5: iTAP recommends the formation of a Detailed Planning Group (or a Project Scoping Group) to begin the scoping process for complex drilling programs that are currently planned to address seismogenic zone objectives, as an interim measure. The scoping process includes project description (based on the existing proposals in the system), risk analyses, preliminary cost estimates, and project planning. Proposed membership: proponent representative(s), CDEX representative, project management advisor, risk identification specialist, well engineer.

OPCOM Working Group Recommendation

Proposed Mandate for IODP OPCOM

1. General Purpose: The Operations Committee (OPCOM) is an independent committee within the Science Advisory Structure whose general purpose is to recommend the most logistically and fiscally effective means to achieve IODP scientific objectives as defined in the long-range IODP science plan and prioritized by the Science Planning Committee (SPC). OPCOM reports to SPC and, through SPC, to the SAS executive authority.

2. Mandate: OPCOM is responsible for recommending the optimal means to implement IODP drilling projects that are highly ranked and prioritized by SPC. Following IODP project management principles, OPCOM should consider, in addition to SPC prioritizations, (a) capabilities of IODP drilling platforms, (b) budgetary and logistical constraints, and (c) advice from SAS service panels on safety, environmental, and technological factors. Following the annual SPC prioritization and ranking of proposed IODP drilling programs, OPCOM will specifically recommend options for the schedules of IODP drilling platforms for the appropriate year(s) (as defined by the annual IODP program plan) and will also project a longer-term schedule for future drilling operations. In addition, OPCOM must monitor progress toward achieving the longer-term drilling schedule and therefore is also responsible for recommending any modifications to both the short- and long-term drilling schedules that may be necessary as developments occur or constraints arise after SPC has prioritized relevant IODP science projects.

3. Consensus and Quorum: The Operations Committee will reach all decisions by consensus. In defining consensus, a quorum shall be required consisting of 2/3 of the scientific participants and 2/3 of the management representatives as defined in Section 4.

4. Participants Counting Toward Consensus and Quorum: The Operations Committee will be chaired by a knowledgeable scientist who is non-conflicted in both scientific and operational matters and is appointed by the SAS executive authority. Participants from SAS shall include the SPC chair and as many additional representatives from the SPC as there are implementing organizations (IOs). Participants from IODP management shall include one designated representative from each IO and one designated representative from the central management organization (CMO). The terms of the chair and representatives from SPC should extend no longer than three years, and rotations should be staggered.

5. Liaisons, Observers, and Guests: Each Lead Agency is expected to nominate one liaison to OPCOM. Lead Agencies, the CMO, and IOs may send additional observers as needed. A chair of each of the SSEPs, SciMP, PPSP, SSP, TAP and ILP will serve as liaisons to OPCOM. When necessary to provide additional expertise, guests may be invited at the discretion of the chair. Approximately one year before the end of the chair’s term, the next chair should be identified and he or she should attend that year’s meetings as a guest.

6. Meetings: OPCOM shall meet at least twice per year. One of the OPCOM meetings will be coordinated with the annual SPC ranking exercise, in order to construct the appropriate year’s schedules of the IODP drilling platforms. The other meeting will be held about half a year apart, to recommend adjustments to the drilling schedules if needed. If drilling schedules or modifications recommended by OPCOM are not approved by SPC and/or the SAS executive authority, then additional OPCOM meetings may be required to recommend alternative schedules.

<u>POLICY STATEMENT ON ANCILLARY PROGRAMS in IODP</u>

(approved by iPC e-mail vote in June 2003)

Scientific and educational programs are encouraged to develop projects that are ancillary to the IODP Annual Program Plan, and apply for permission to execute such projects as part of IODP research expeditions. Proposals for such ancillary programs must be approved by the Science Planning Committee Chairs in consultation with the Co-Chief Scientists of the drilling project(s) affected, the IODP Science Policy and Planning Oversight Committee, and by IODP Management International Inc prior to the development of the annual program plan. For the purposes of assessing proposals for ancillary projects, it is understood that:

1. Ancillary projects must be conducted at no extra cost (in time or money) to IODP scientific operations,
2. Ancillary projects will in no way interfere with, or require the alteration of, drilling plans approved by IODP;
3. Sufficient space must be available on the project drilling platform(s) to accommodate needed personnel, equipment, and/or laboratory facilities without interfering with primary IODP drilling, sampling and related operations;
4. Permission to undertake at-sea activities required by ancillary programs must be obtained from the on-site operations manager of the IODP project on a day-by-day basis. Such permission can be rescinded at any time as required by operational considerations.

iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB2

IWG Report

iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB3

Reports on IODP Planning Efforts

the 5th interim Planning Committee Meeting
13-14 September 2003, Sapporo

Japan country report

1. MEXT

NSF and MEXT officials reached an agreement on an IODP Lead Agency memorandum at the end of March, and the NSF director and the MEXT minister signed the memorandum on April 22, 2003 in Tokyo, Japan. With the memorandum signed, the IODP international cooperation will officially start in October 2003. MEXT has organized new IODP operational structure according to the significant IODP time coming. The Committee on Ocean Drilling was organized with its mandate of discussing MEXT policy concerning IODP under Subdivision on Ocean Development of Council for Science and Technology, and its first meeting was held on June 19, 2003. In addition, in this July, Mr. Yasuhisa Tanaka was inaugurated as the Director for Deep Sea Research, Ocean and Earth Division, and also Mr. Kenji Kimura was appointed as the MEXT Liaison to NSF. MEXT officials attended IODP Implementation Meeting in Austin, Texas in May, the final meeting of the International Working Group for IODP in Capri, Italy in June, and the meeting of Implementing Organizations in Bozeman, Montana in August.

2. “Chikyu” Construction

Completing the outfit of accommodation and laboratory in Tamano this spring, “Chikyu” did the sea trial of the ship hull part including evaluations of the vessel’s Dynamic Positioning System (DPS) off the coast of Shikoku. Then the vessel moved to Nagasaki at the end of this June to install the vessel’s drilling systems. At the moment the derrick is being built on ground. After the installation is completed, the vessel will take the sea trial and the test of the whole system. The completion of “Chikyu” will be in 2005. Following the completion the vessel will undergo the training cruise for about a year to be ready for IODP international cooperative activities in late 2006.

3. CDEX

CDEX, established last October as an operator of “Chikyu” and headed by Dr. Asahiko Taira, has been conducting various activities for the vessel’s safe and efficient operations; (1) establishing an HSE management system, (2) developing drilling plans, including those for the training cruise, based on site survey data collected, and (3) building science support systems for research activities both onboard “Chikyu” and onshore. CDEX, as the vessel’s operator, supervised the vessel’s machinery construction activities and will supervise the vessel’s drilling systems installation activities.

4. Japanese Core Center

The Center for Advanced Marine Core Research at Kochi University completed the construction of its new research laboratory in March 2003. The laboratory will have capabilities to store core samples collected by “Chikyu” in refrigerator and freezer storage areas, and will provide measurement and analysis capabilities for technicians and researchers. The center celebrated the laboratory’s opening on May 24, 2003.

5. J-DESC

Forty-one Japanese universities and institutions interested in the earth science research officially established the Japan Drilling Earth Science Consortium (J-DESC) on February 22, 2003. The number of the consortium’s members is expected to expand. Dr. Ikuo Kushiro of the Institute for Frontier Research and Earth Evolution (IFREE) was appointed as the consortium’s chairman. The IODP committee was created within the consortium to deliberate and support Japan’s IODP participation, including (1) recommending Japanese IMI governors and SAS committee/panel member nominees, (2) supporting Japan’s scientific drilling proposals, (3) recommending onboard research scientist nominees, and (4) delivering IODP science results to the general public in Japan. The committee’s chairman is Professor Hidekazu Tokuyama of the University of Tokyo’s Ocean Research Institute (ORI).

U.S. Country Report (Part II) JOI/USSSP Activities 2/03 to 8/03:

U.S. Science Support Program (USSSP)

USSSP-successor program associated with IODP
On August 3, 2003, NSF released a program solicitation for a "U.S. Science Support Program Associated with the Integrated Ocean Drilling Program (USSSP-IODP)." The solicitation is available at: www.nsf.gov/pubsys/ods/getpub.cfm?nsf03586. The solicitation is for a 3-year phase-in program, for US fiscal years 2004, 2005, and 2006. Responses are due on November 3, 2003. NSF anticipates making one award for a total that will not exceed $15M for the three-year period, pending availability of funds.

Year 19 Program Plan
In February 2003, NSF approved a program plan for year 19 of the USSSP with a budget of $4.6M. Wind-down of USSSP will begin this year, with ODP operations finishing in September, and will conclude before February 28, 2006 (at the end of USSSP year 21). USSSP operation beyond 2003 is necessary to accommodate post-cruise research and other activities, and to enable financial and programmatic closeout.

USSAC
The U.S. Science Advisory Committee (USSAC) met on July 9-11, 2003 in Bermuda, in conjunction with a port of call of *JOIDES Resolution.* At this meeting, USSAC focused its attention on post-2003 planning issues and the outcome of the Conference on U.S. Participation (CUSP) in IODP. Specifically, USSAC discussed: new terms of reference for USSAC, U.S. protocol for staffing IODP expeditions, criteria and support for long-term planning groups, recommendations for U.S. IODP educational activities, salary support for SAS panel chairs to help them fulfill their responsibilities, obligations incurred by U.S. participants in IODP and resources necessary to meet these obligations (such as adequately sized salary and post-cruise research support), and an omnibus three-year phase in program and budget for the USSSP-successor program for IODP.

USSAC Membership
The following five USSAC members will complete their three-year terms on USSAC on September 30, 2003: Barbara Bekins (USGS), Peter deMenocal (LDEO), Jeff Gee (Scripps), and Carolyn Ruppel (Georgia Tech). The following four new members will begin their terms as USSAC members on October 1, 2003: Larry Peterson (RSMAS), Harold Tobin (New Mexico Tech.), Ellen Martin (U. Florida), and David Smith (URI). Warren Prell (Brown Univ.) continues as USSAC Chair until October 1, 2004.

US Participation on the iSAS and SAS
At their July meeting USSAC selected new members for the following SAS panels and committees: (a) Science Steering and Evaluation Panels (both interior and environment); (b) Scientific Measurements Panel; (c) Site Survey Panel; (d) Technical Advisory Panel, and (e) Industry Liaison Panel. New members were not needed for the Pollution Prevention and Safety

Panel. USSAC also developed slates of candidates for the Science Planning and Policy Oversight Committee (SPPOC) and the Science Planning Committee (SPC). The JOI Board of Governors approved these slates, as presented, on July 11th. Since then, the Board of IODP Management International has ratified the membership of SPPOC and of SPC. No changes were made to the slates initially developed by USSAC. The new US representatives on all panels and committees has been communicated to the iSAS Office and should soon be available on the iSAS website. USSSP funds are made available to offset the travel costs incurred by U.S. panel chairs in fulfilling their duties.

Support for the US iPC Co-Chair
Through a contract to the University of Michigan established in Summer 2001, JOI/USSSP continues to provide financial support (salary, travel, and other costs) to Ted Moore as co-chair of the IODP iPC to implement the mandate specified by the IWG from September 1, 2001 through September 30, 2003. During this period, Moore, and his Japanese iPC co-chair, Hajimu Kinoshita, have lead iPC planning activities. They have overseen the IODP iSAS, administered the evaluation of scientific ocean drilling proposals and helped establish the IODP Science Advisory Structure that will initiate on October 1, 2003. Joanne Reuss has provided programmatic and administrative support to Moore, the iPC, and she has also assisted the iSAS Office at JAMSTEC.

U.S. Planning for IODP

U.S. IODP Education Workshop
Based on recommendations from USSAC and the Conference on U.S. Participation (CUSP) in IODP, JOI/USSAC held a workshop May 6-7, 2003 to focus on the U.S. educational component of the future Integrated Ocean Drilling Program (IODP). A steering committee composed of educational professionals and ODP scientists met at JOI on November 12 to plan the workshop. Two USSAC members, Ellen Thomas (Wesleyan University) and Al Hine (University of South Florida, St. Petersburg) co-chaired the steering committee. The full workshop was co-chaired by USSAC members Al Hine (USF) and Jill Whitman (Pacific Lutheran University).

About 75 participants (mostly from the U.S., but also including Europeans and Japanese representatives) attended the workshop, which was held at the Narragansett Bay Campus, University of Rhode Island. The purpose of the workshop was to develop an effective U.S.-focused educational strategy for the IODP. Recommendations were sought from a range of experts in marine/science education and ocean drilling science. Workshop participants were solicited via targeted notices to recommended educators and through announcing the opportunity on the JOI/USSSP listserver. The recommendations resulting from the workshop address: ideas for initiating and fostering educational activities, the educational role of a future U.S. scientific ocean drilling support program, and potential partnerships to develop and produce educational activities, products, and services needed by educators. A full report of the workshop is pending.

IODP GeoSCAN, a planning workshop focusing on geophysical needs for IODP
To help the U.S. scientific community better understand the geophysical needs associated with developing drilling proposals for the different drilling platforms planned for IODP, USSSP and

BP are sponsoring a planning workshop in Houston, TX on June 6, 2003. The primary objectives of the GeoSCAN workshop are to interact with the industry seismic acquisition community in order to discuss and identify geophysical surveying techniques to be used for site characterization in IODP. Industry representatives and members of the academic geophysical community attended this meeting. The main goals of the meeting will be (a) to identify how to raise the quality of site survey data within the budget constraints of IODP (b) how to acquire data of the appropriate quality to fulfill the site survey needs of the different platforms to be used in the new program, and (c) produce a concrete series of recommendations to NSF concerning the resources that will be needed to acquire and process site survey data in IODP. A draft report has been developed and is currently being reviewed internally by USSAC.

IODP ODaSSI (Ocean Drilling and Site Survey Introduction: a primer for the marine community). In order to better educate the marine community on preparing drilling proposals for IODP, and to broaden U.S. participation in ocean drilling, JOI/USSSP is sponsoring the development of a daylong short course that will be presented at national meetings that will focus on formulating successful, integrated drilling proposals and facilitate coordination between the geophysical and non-geophysical marine scientific communities. This effort, led by USSAC members, will cover issues such as the overall framework of IODP, drilling capabilities, elements of drilling proposals, integration of seismic/site survey data, and case histories. USSAC members intend to debut ODaSSI at the 2003 AGU meeting, December 8-12, 2003.

U.S. contribution to the IWG Support Office (IWGSO

Since November 30, 1999, the IWGSO has continued to provide administrative, contractual, and logistical support to the International Working Group (IWG), and it's designates, in their collective efforts to outline the new IODP. Financial support for IWGSO is provided by the US, through JOI/USSSP, and by Japan, through JAMSTEC until September 30, 2003.

NSF has recently requested a proposal from JOI to extend the activities of the IWGSO until February 29, 2004. NSF intends to support the office's activities during this 5-month extension. The IWGSO will continue to support iSAS/SAS meeting and travel coordination, activities of the IODP Council, and a smooth transition to the Central Management Office, among other things.

During the past year, the IWG Support Office has provided support for two IWG meetings, January 22-23, 2003, in Nice, France and June 12-13, 2003 in Capri, Italy. Information about these meetings is available from www.iodp.org.

The IWGSO hosted exhibit booths at the joint meeting of the European Geophysical Society, American Geophysical Union, and the European Union of Geophysics (April 6-11, 2003) in Nice, France, as well as at the Oceanology International meeting (June 4-6, 2003) in New Orleans, Louisiana, and at the International Union of Geodesy and Geophysics General Assembly (July 1-4, 2003) in Sapporo, Japan. The IWGSO will, as usual, also have a booth at the AGU meeting in December and will assist with the Ocean Drilling Town Meeting. IWGSO's final booth exhibit will be the Ocean Sciences Meeting, AGU, Portland, OR (January 2004).

Promotional materials for IODP, including the general program brochure, a PowerPoint presentation with note pages, and all exhibit posters and hand-outs are now available online as PDF documents for broad promotion of the program. These materials can be downloaded at http://www.iodp.org/brochure/brochure.html. For more information about IODP planning or for assistance promoting the program, please visit http://www.iodp.org, or contact the IWGSO by e-mail at iwgso@joiscience.org or by phone at 202-232-3900 x262.

Education and Community Engagement

Curriculum Development

Kathleen Marsaglia, California State University, Northridge, is developing a "Web/CD Atlas of ODP Core Photographs." Marsaglia received the subaward in Year 17 ($31,810) and her period of performance has been extended to August 18, 2003. The expected result is a prototype teaching and reference tool using ODP core photographs and associated information.

Katie Tauxe, a middle school teacher and former ODP technician, was awarded $3,269 for her proposal, "Motivating Middle School Students with the *JOIDES Resolution*." The purpose of this proposal is to develop an audiovisual presentation on the *Resolution*, its shipboard laboratories, and the lives of people who work on the ship. Ms. Tauxe sailed on the ship transit following Leg 206 to collect video footage and interviews. The purpose of the video is to convey the variety of jobs and the excitement associated with science and research.

Wolfgang Berger, Scripps Institution, is currently developing the "Seafloor Chronicles, An Outline of Ocean History," an online education course that highlights the scientific advances resulting from ocean drilling. Berger received USSSP funding in Year 17 ($15, 419) and his period of performance has been extended until January 1, 2004. A draft version of the course was submitted to JOI in March 2003. Once complete, this course will be offered online for credit to middle and high-school teachers through the University of California, however, the learning modules will be available to interested educators via the USSSP website and CD-ROM. This is a cost-sharing activity with most of the development costs being covered by the California Space Institute and the University of California.

Distinguished Lecturers Series for 2003-04

JOI/USSSP received 76 applications for DLS lecturers this year. The lecturers and the venues for talks in the 2003-2004 academic year have been identified. They are listed below and are presented in the attached map. JOI is working with the speakers and the respective institutions to determine the dates of the individual lectures.

Ruth E. Blake, Yale University
The Deep Biosphere: Microbes in the Mud
Calvin College -- Grand Rapids, MI
Univ. of Missouri -- Kansas City, MO
Case Western Reserve University -- Cleveland, OH

Old Dominion University, Norfolk, VA
University of NC – Wilmington, NC
Huston-Tillotson College -- Austin, TX (HBCU)

Steven C. Clemens, Brown University
Solar Forcing or Climate System Feedbacks: Who's the Boss of Plio-Pleistocene Variations in Asian Monsoon Strength?
Boise State -- Boise, ID
Ohio State Univ.-- Columbus, OH
Lafayette College -- Easton, PA
Montclair State University -- Upper Montclair, NJ
Georgia State University -- Atlanta, GA

Fred Frey, Massachusetts Institute of Technology
Formation of the Kerguelen Large Igneous Province, Gondwana Breakup, Lost Continents, and Growth of the Indian Ocean
University of Hawaii -- Honolulu, HI
Colby College -- Waterville, ME
Purdue University -- West Lafayette, IN
University of Rochester -- Rochester, NY
Florida Institute of Technology -- Miami, FL
University of Rhode Island – Providence, RI

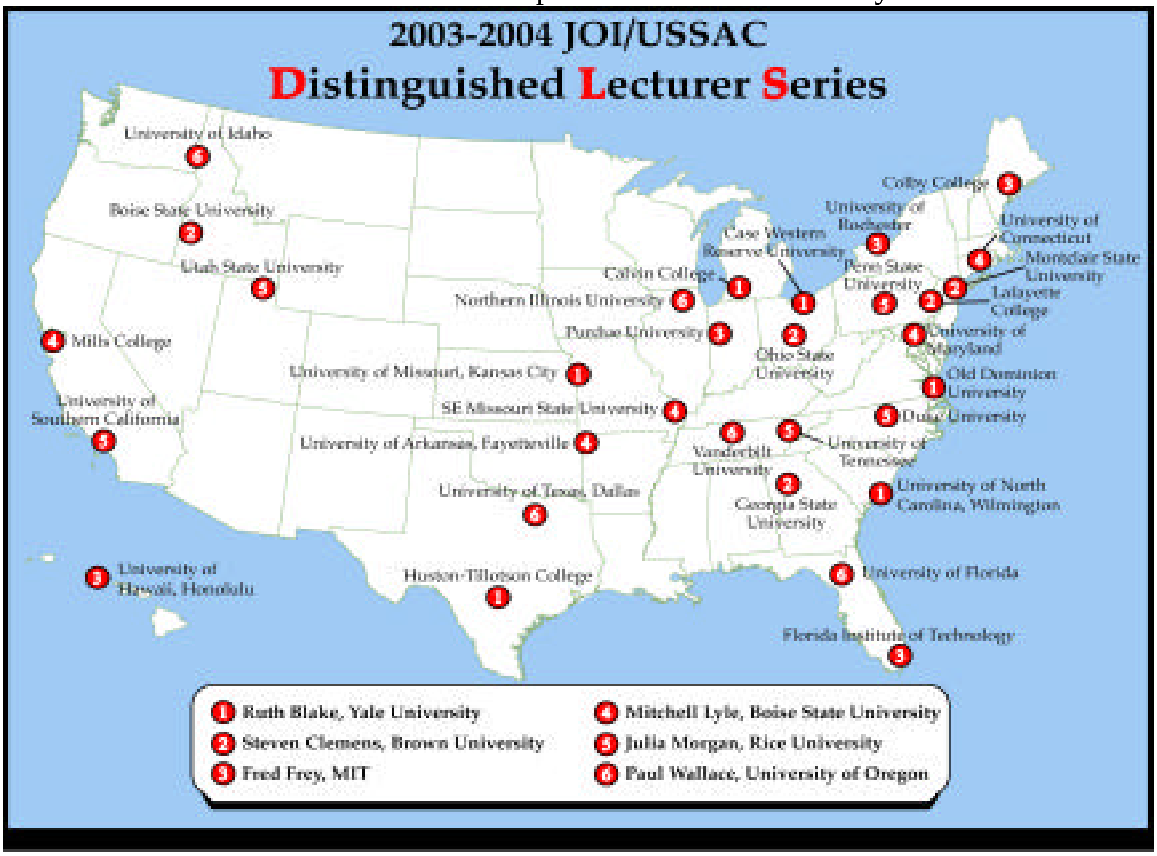
Mitchell Lyle, Boise State University
The Pacific Ocean and Climatic Change, from Eocene Extreme Warmth to Pleistocene Glacial Cycles
Mills College -- Oakland, CA
SE Missouri State University -- Cape Girardeau, MO
University of Connecticut – Storrs, CT
University of Maryland -- College Park, MD
University of Arkansas – Fayetteville, AR

Julia K. Morgan, Rice University
Marine Sediments go to Prism
University of S. California -- Los Angeles, CA
Utah State University – Logan, UT
Penn State -- University Park, PA
Duke University -- Durham, NC
University of Tennessee -- Knoxville, TN

Paul Wallace, University of Oregon
Formation and Environmental Effects of Giant Oceanic Plateaus
University of Idaho -- Moscow, ID
N. Illinois University -- DeKalb, IL
University of Texas at Dallas – Dallas, TX

Vanderbilt University -- Nashville, TN
University of Florida – Gainesville, FL

National distribution of the JOI/USSSP DLS presentations in academic year ‘03-’04.



Distinguished Lecturers Series for 2004-05

The following scientists have been invited by USSAC to serve as distinguished lecturers for the 2004-2005 season: Marta Torres (OSU), Ellen Thomas (Wesleyan), Mark Leckie (U. Mass, Amherst), Jerry McManus (WHOI), Kevin Brown (Scripps), and Kacey Lohman (U. Michigan).

Internship Program

For the third year in a row, JOI/USSSP has employed two recent college graduates as interns. The current interns (Anna Henderson and Matt Niemitz), both with B.S. degrees in geology, began their terms on July 15, 2003. Anna graduated from Brown University and Matt from William and Mary. The previous year’s interns, Jennifer Anziano and Anthony “Tony” Goodman concluded their internships this summer. Jennifer was hired as a JOI employee to work on the ODP legacy project. Tony returned to graduate school at the University of Michigan. The interns from 2001-2002, Micah Nicolo and Christina Riesselman are currently attending graduate school in geology (at Rice University and Stanford University, respectively), and both recently sailed on ODP Leg 208, thus continuing their involvement with ODP research. As part of their training, all interns have sailed on oceanographic research cruises during their year at JOI. JOI thanks the sponsoring scientists that have hosted these interns.

During their time at JOI, the current interns have worked on special projects to enhance JOI/USSSP activities as well as assisting with routine administrative duties. For example, in addition to her regular tasks, Jennifer played a major role in producing the *JOI/USSAC Newsletter* and other JOI/USSSP publications (such as the Submerged Coral Drilling Workshop report). She also assists with updating the IODP website and coordinating the Schlanger Ocean Drilling Fellowship. Another project was to organize a JOI archive file or "electronic filing cabinet" to improve access to programmatic files and images. Jennifer, at the invite of USSAC member Carolyn Ruppel, participated on a Gulf of Mexico research cruise in October 2002. Jennifer wrote an article about the cruise for the Fall 2002 *JOI/USSAC Newsletter*. Also, on February 4, Jennifer presented a talk titled "The JOI of Science Management: the Ocean Drilling Program" to an environmental careers seminar class at the University of Virginia, Charlottesville.

JOI seeks to match intern assignments to their skills and interest, therefore in addition to his routine duties, Tony worked on several database projects, including developing a comprehensive U.S. participation/post-cruise science-funding database and a database to track the involvement of researchers in both ODP and the NSF MGG program. The latter project has allowed JOI/USSSP to better characterize the scientific community it serves. Tony also used GIS and GMT software to create complex maps plotting such things as U.S. participation throughout ODP. His other projects included creating a 10-minute presentation for the AGU booth using Leg 204 video footage and developing a system for submitting Schlanger Ocean Drilling Fellowship applications on line. Because the internship is office-based, JOI has sought cruise opportunities for all the interns. As part of this, Tony, at the invite of Nick Pisias and Doug Hammond, participated on a research cruise in the Pacific off southern California in late February 2003.

Because of its success to date, JOI plans to continue the one-year internship program. In December 2003, and several times in early 2004, JOI will issue a call over the JOI/USSSP listserver for applications for next year's internship. This opportunity will also be advertised at national meetings (GSA, AGU) and in *Eos*.

JOI/USSSP presence at scientific meetings
JOI/USSSP will co-sponsored a joint ODP/IODP booth at the Oceanology International conference, June 4-6, 2003, in New Orleans, Louisiana and at the GSA annual conference, November 2-5, 2003, in Seattle, Washington. USSSP will also sponsor an ODP/IODP exhibit booth at the fall AGU Meeting, December 8-12, 2003, in San Francisco, California, and will co-sponsor with JAMSTEC another Ocean Drilling Town Meeting.

Schlanger Ocean Drilling Fellowship Program

In February 2003, the fellowship subcommittee met to evaluate the seventeen proposals submitted at the November deadline. The following three one-year shorebased awards were made:

Joshua Feinberg, University of California, Berkeley
"*Magnetization of Seafloor Gabbros: Characterization of Crystallographically Oriented Magnetite Inclusions*" (ODP Legs 118 and 176)

Stephanie Healey, University of South Carolina
"A 500,000 Year Record of Deep Sea Temperature and Ice Volume Based on Benthic Foraminiferal Mg/Ca and $d^{18}O$" (ODP Legs 138 and 172)

Ivan Savov, University of South Florida
"The Role of Forearc in Subduction Zone Chemical Cycles: Elemental and Light Isotope Signatures for Serpentinites from South Chamorro and Conical Seamount" (ODP Legs 125 and 195)

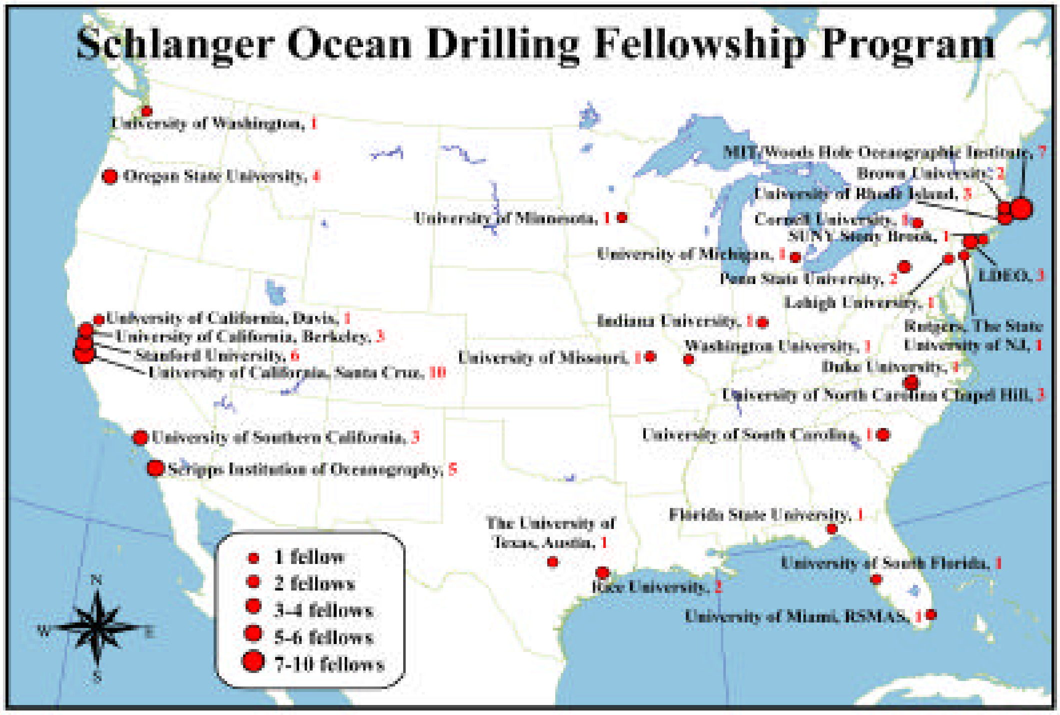
In July 2003, USSAC's fellowship subcommittee met to evaluate the sixteen proposals submitted in April. Three one-year shorebased awards ($23k each) were made, as follows:

Anna Cipriani, Lamont-Doherty Earth Observatory
"Space/Time Mantle Heterogeneity below the Mid Atlantic Ridge: an Isotopic Study of Peridotites and Gabbros Drilled during Leg 209"
(one-year, shorebased , Leg 209)

Kristina Dahl, Woods Hole Oceanographic Institution
"Holocene Reconstruction of the Summer and Winter South Asian Monsoon"
(one-year, shorebased, Leg 117)

Matthew O'Regan, University of Rhode Island
"Lateral Fluid Flow in the Nankai Trough Study Area"
(one-year, shorebased, Legs 181, 190, and 196)

In March 2003, JOI developed and distributed a survey to past recipients of JOI/USSAC and Schlanger Ocean Drilling Fellowships. The results of this survey are providing additional background for a longitudinal study of the fellowship since its inception. The results of this study will be available during the next few months.



Undergraduate Student Trainee Program

During the past year, two U.S. undergraduates have participated in the JOIDES Undergraduate Trainee Program. Kimberly Artita, University of Hawaii, sailed on ODP Leg 203 and Christine Glatz, University of Maine, Orono, set sailed on Leg 207. Sharon Stant, Florida State University, participated on Leg 210 as a trainee. From all reports, the program has been a positive experience for both the participants and the scientific parties on each leg.

Educational CD ROMs and Posters

JOI continues to receive and fill requests for USSSP's popular educational products: *ODP: From Mountains to Monsoons* and *Gateways to Glaciation* educational CD-ROMs and the *Blast from the Past* education poster. The third reprint of the poster is currently underway.

Other events

USSAC Education Workshop (see "US Planning for IODP" above)

JOI/USSAC Newsletter

Three issues of the *JOI/USSAC Newsletter* have been printed and distributed during the last year (July and December 2002, April 2003). The next issue is currently being developed. In addition to regular articles and announcements about USSSP and ODP activities, recent newsletters have included updates on IODP planning and funding activities. In particular, the December 2002 included a full version of the CUSP report.

JOI/USSSP Listserver
The JOI/USSSP listserver, which is mostly U.S. scientists, continues to be an effective means of communicating with the scientific community. If you wish to be added to the listserver, or to distribute a message over the list, please send your request to info@joiscience.org. The email list is moderated at JOI to ensure that all the messages are relevant to USSSP, ODP, or scientific ocean drilling in general.

Approximately 50 messages have been distributed via the JOI/USSSP listserver during the past year. These messages informed the scientific community of USSSP and ODP-related activities including: workshops, conferences, employment opportunities, GSA and AGU exhibits and town meetings, and funding opportunities. They also included the results of the CUSP survey, updates on the DSDP/ODP citation database, and publication policy issues. JOI continues to examine ways to improve and extend this highly useful tool.

JOI/USSSP Website
Maintenance and updating of the JOI/USSSP website is ongoing. For example, a new Education section to the site was created early in 2003 to better organize information on USSSP education programs and to identify useful ODP-related educational links.

Capitol Hill Events
In June 2003, JOI/USSSP participated in two events on Washington DC’s Capitol Hill that provided visibility for ocean drilling and made the case for funding of the new US drilling vessel for IODP.

JOI/USSSP had multiple roles in ***Capitol Hill Oceans Week***, a two-day event organized by the National Marine Sanctuary Foundation that featured talks, exhibits, and a reception. JOI’s Frank Rack spoke about gas hydrates and Leg 204 as part of a plenary on energy. JOI also held a booth on ODP/IODP as part of the Oceans Technology Fair. Finally, JOI/USSSP hosted a reception as part of the week. In addition to displays on ODP and IODP, scientists including Dick Norris, Andy Fisher, Sarah Sherman, John Tarduno, and David Smith presented their research and its relevance in a poster format to an audience of marine policy professionals and congressional staff. They also made visits to their congressional delegation.

A week later, JOI participated in the Coalition for National Science Funding Exhibit, an event sponsored by many scientific societies to illustrate the types of research funded by NSF. JOI had a booth featuring ODP and IODP and highlighting ocean drilling's role in gas hydrates research.

Site Augmentation Proposals

Funded

Liviu Giosan (WHOI): *Mini-Workshop on Quaternary Sedimentation and Climate History of the Black, Marmara, and Aegean Seas.* This mini-workshop will bring together an international contingent of proponents for drilling in the Black and Marmara seas. The proposed agenda includes: 1. deciding overall strategy: multiplatform vs. deep-sea drilling; one vs. two proposals; 2. adding geochemical and deep biosphere components to the proposals; 3. discussing best strategies on how to obtain a valid chronostratigraphy; 4. choosing best sites for drilling and estimating what survey data are still needed. $15,000. October 21-22, 2003, SUNY-Stony Brook, NY.

John Jaeger (University of Florida): *Evaluating Decadal-Scale Climate Change and Geomagnetic Paleointensity Records in Continental Shelf Strata of the Subarctic Pacific.* This site augmentation study was funded to collect shallow sediment cores in the Gulf of Alaska, to study decadal-scale climate change and geomagnetic paleointensity records in support of IODP Proposal 597. $30,486.

Sean Gulick (University of Texas Institute for Geophysics) and **Peter Flemings** (Pennsylvania State University): *Site Augmentation in the Nankai Trough: Geological Reconnaissance, Seafloor Fluid Flow Indicators, and Shallow Seafloor Measurements using Kaiko ROV.* This proposal was funded to conduct an ROV-based geological reconnaissance Site Augmentation study in the Nankai Trough, by participating on a “cruise of opportunity” in May, 2003. The proposed study will investigate the shallow seafloor and fluid flow indicators, increasing the database for future Nankai IODP drilling. $18,830.

Geoffrey Wheat (University of Alaska-Fairbanks): *Retrieval of Data and Continuous Fluid Samplers from the CORK at ODP Site 1200*. This site augmentation proposal was funded to recover data from a CORK installed at the South Chamorro Seamount (ODP Site 1200) during Leg 195. The data were recovered by participation on a NSF-funded “cruise of opportunity” in March, 2003. $20,450.

Charles Paull (MBARI): *Monterey Bay Borehole Test Facility Mini-Workshop.*
This mini-workshop was held March 24-25, 2003 to develop IODP pre-proposal 621 (installation of a borehole instrument test facility in Monterey Bay) into a full IODP proposal. The proposed facility will test instrument packages under development for future deployment in IODP re-entry holes. $9,362.

Terry Edgar (US Geological Survey): *SE Asian Eperic Seas Drilling Project (Proposal #602) Mini-Workshop*. This mini-workshop was funded and held in San Diego November 15-16, 2002, to further develop the SE Asian Epeiric Seas project (262) into a full proposal. $4,716.

Martin Fisk (Oregon State University): *Deep Biosphere Proposal Mini-Workshop*. This mini-workshop was funded to develop an IODP proposal to investigate the subsurface biosphere of the ocean crust. The workshop was held during the two days prior to the International Symposium for Subsurface Microbiology (ISSM), September 5-6, 2002, Bergen, Norway. $18,235.

Peter Clift (WHOI): *Seismic Stratigraphy of the Pakistan Margin and Upper Indus Fan.* This project will fund the interpretation of newly available industry seismic data on the Indus Fan, contributing to the more detailed site characterization needed for a future riser IODP drilling leg. $24,666

Greg Moore (U. Hawaii): Pre-Stack Depth Migration of New Nankai Trough Seismic Reflection Lines In Support of IODP CDP #603 NanTroSEIZE. $26,750.

Planning Workshops

Funded

Sean Gulick (University of Texas Institute for Geophysics) and **John Jaeger** (University of Florida): *Interplay of Collisional Tectonics and Late Cenozoic Glacial Climate in Alaska and the northeastern Pacific Ocean*. May 4-5, 2003, Austin, TX.
This workshop was held to develop a science plan for studying the linkages between tectonics, orogenic processes, glacial landscape modification, and continental margin sedimentation in southeast Alaska and the northeastern Pacific Ocean. JOI/USSSP funding: $24,956.

USSAC (Al Hine, Jill Whitman, and Ellen Thomas): USSAC Education Workshop. This workshop focused on the U.S. educational component of the future Integrated Ocean Drilling Program. The purpose of the workshop is to open a dialog among experts in marine/science education and ocean drilling science in order to develop an effective U.S.-focused educational strategy for the IODP. Workshop topics will include identifying what educational communities can most benefit from IODP and how scientific drilling can benefit from greater involvement with the educational community at large. A full description of this activity, background, and an agenda are available at: http://www.joiscience.org/USSSP/Ed_Wksp/Ed_Wksp.html.

Andrew Fisher (University of California, Santa Cruz) and **Kevin Brown** (Scripps): *Workshop on linkages between the Ocean Observatories Initiative and the Integrated Ocean Drilling Program*. July 17-18, 2003, Seattle, WA.
This workshop will explore linkages between OOI and IODP. The overall goal is to produce a document that identifies essential experiments and technologies to help achieve the primary goals of both programs. $37,552.

Peter Clift (WHOI) and **Peter Molnar** (University of Colorado): *Workshop for planning drilling of the Indian Ocean Fan Systems*. July, 23-25, 2003, Boulder, CO.
This workshop aims to bring the core community of those working in the field of climate-tectonic interactions in South Asia together in order to formulate a list of scientific priorities and then to pick appropriate drill sites in the fan systems to address those priorities. Participation will be sought from both marine geoscientists and those working on land in the foreland basins and the ranges themselves, in order to generate the scientific consensus needed to support a multi-leg drilling strategy. $13,440.

Roland von Huene (University of California, Davis): *Costa Rica Seismogenesis Project (CRISP)*. October 12-14, 2003, Kiel, Germany
This workshop will bring together an interdisciplinary contingent of U.S. and European researchers to further develop planning for CRISP. Specific workshop goals are:

1) A Stage 2 preliminary proposal, a compilation of geophysical and geological data, and a consensus on alternate interpretations based on data.
2) Evaluation of different catalogs of seismicity and consolidation of data.
3) Consensus regarding CRISP hydrology and fluid chemistry objectives and sampling.
4) Interchange and linkage between IODP and ICDP investigators.
5) Identification of new data needed prior to drilling Stage 2
   $26,650

Pending/In review

Peter Flemings (Penn State), **Rick Murray** (BU), **and Andy Fisher** (UCSC): *Mechanisms for Downhole tools in the IODP*: Early 2004, Washington, DC. Requesting $39,988.
In review.

Sarah Fowell (University of Alaska-Fairbanks): *The Bering Strait, Global Climate Change, and Land Bridge Paleoecology:* ??, Seattle, WA.
This workshop proposes to discuss future drilling in the Bering Strait in order to address unresolved questions regarding global ocean circulation, rapid climate changes, flora and fauna of the central portion of the Beringian subcontinent, and prevailing climate of the Pleistocene land bridge. *JOI awaiting formal proposal*.

Workshop Reports

A workshop report from "Costa Rica Seismogenic Zone Drilling Project" was completed in March 2003 by conveners Roland von Heune and Kevin Brown. The report will be posted on the JOI/USSSP website within the next month.

Post-Cruise scientific research proposals

Twenty-nine USSSP post-cruise science proposals were funded from February 1, 2003 through August 15, 2003, for post cruise research from Legs 199-202 and 204-207. This funding is summarized as follows (these totals do not include funding prior to February 1, 2003 or proposals that are still pending revisions. Therefore, the totals listed below represent only partial post-cruise funding allocations for all legs except for Leg 206; the funding total for Leg 206 is complete):

Leg 199 *Paleogene Equatorial Transect*: 1 funded proposal ($15,938).
Leg 200 *Drilling at the Hawaii-2 Observatory (H2O) and the Nuuanu Landslide*: 1 funded proposal ($23,850).

Leg 201 *Controls on Microbial Communities in Deeply Buried Sediments, Eastern Equatorial Pacific and Peru Margin*: 1 funded Proposal ($15,291).
Leg 202 Southeast Pacific Paleoceanographic Transects: 5 funded proposals ($115,404).
Leg 204 *Drilling Gas Hydrates on Hydrate Ridge, Cascadia Continental Margin*: 4 funded proposals ($101,588).
Leg 205 *Fluid Flow and Subduction Fluxes across the Costa Rica Convergent Margin: Implications for the Seismogenic Zone and Subduction Factory*: 8 funded proposals ($205,892).
Leg 206 *An In Situ Section of Upper Oceanic Crust Formed by Superfast Seafloor Spreading*: 7 funded proposals ($193,916).
Leg 207 *Demerara Rise: Equatorial Cretaceous and Paleogene Paleoceanographic Transect, Western Atlantic*: 2 funded proposals ($45,373).

Results symposia

Funded

Will Sager (Texas A&M University) and **Gary Acton** (Texas A&M University): *ODP Contributions to Paleomagnetism.* April 7-11, 2003, Nice, France.
The proponents were awarded funding for travel and logistical support to hold a meeting at the spring 2003 EGU-AGU-EGU meeting in Nice, France, in order to formulate a special volume chronicling ODP's contributions to the field of paleomagnetism. $28,153.

Pending

Gabe Filippelli (Indiana University-Purdue University Indianapolis) and **Detlef Warnke**, (Cal. State Univ., Hayward): *Paleoceanography and Paleoclimatology of the Southern Ocean: A Synthesis of 3 Decades of Scientific Ocean Drilling.* Spring/Summer, 2004, Location TBD
This proposed 3-day workshop will bring together a range of US and international scientists with a focus on the paleoclimatology and paleoceanography of the Southern Ocean, to ultimately produce a Southern Ocean synthesis volume
In review.

iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB4

iSAS Panel Reports

Interim SAS Panel Chairs (PANCH) Meeting Summary
Thursday, 20 March 2003
Meeting convened at 1445.
Led by Tim Byrne, iISSEPS co-chair

Discussion Topics

- Increasing communication within and between panels
    - liaisons
    - sharing proposals across panels

- Transition issues JOI, JOIDES, and national committees to SAS, IMI, IO, and national committees, including meeting logistics.

- Structure – relations of panels to each other and the iSAS Office.

- Panel memberships: number, rotation, alternates, chair terms.

- Next PANCH meeting Sept or March and How long

- Process and reporting: open discussion with oral report to iPC

PANCH Recommendations & Suggestions on Procedures

1. After the Panel chairs submit their draft minutes to the iSAS office, the office will email the minutes to all chairs & co-chairs
2. Proposals submitted to iSAS should probably also be copied to the CMO (IMI), once this office is established.
3. Panel chairs should review their individual mandates, the liaison needs/roles with their panel members and forward recommended modifications to Tim Byrne for discussion at the next PANCH.
4. It would be helpful to have national office representatives attend each PANCH meeting.
5. PANCH should meet in advance of the SPC meetings.
6. PANCH would like to review how proponents and panels interact after the project management plan is completed, but agreed on the following items:
    a. SSEPs should be the "gateway" panel for communication with proponents. All other panels (except ILP) should refer any direct queries from proponents to the SSEPs. The SSEPs will ask other panels for advice on proposals, as needed.
    b. ILP is a liaison panel and should be able to talk directly with proponents, but the chairs should keep the SSEPs chairs informed of all communication with proponents.
    c. PPSP and SSP have mandated interactions with proponents that should continue without change.

7. The JOIDES Guide to ODP calendar should be modified for the IODP Guide to include the new meeting times for PPSP and TAP; deadlines for safety package for PPSP; and the new proposal deadlines. The calendar could include a note that ILP will meet twice per year, but this meeting will be based on the needs of the members and one of the two meetings each year will be joint with SCIMP or TAP.
8. Regarding individual panel comments on broad program issues (like management), panels should be free to discuss these issues, but it would be best to bring them forward to PANCH for discussion that could result in consensus-developed recommendations to SPC.
9. The SAS office support role is essential for SSEPs, SPC, EXCOM, PPSP and SSP meetings. Their support at the other panels' meetings is also important, particularly in the beginning of IODP.
10. The new management structure should be made aware that many panel meetings will not have a local host & that the new travel office may need to provide this service on a regular basis.
11. Panels should discuss their needs in terms of Chairs for discussion at the next PANCH. Three options were discussed: single chair, co-chairs, or chair/vice-chair.
12. Panels should define and describe their membership needs and rotation strategy. For this, it is important to consider the need for balance between new members and experienced members.
13. Formal alternates identified by the national office would be very beneficial. Every member country would have alternate(s) for each panel. The alternates would be informed of all appropriate aspects of the panel's business.

<u>Proposed Agenda for the Next PANCH Meeting</u>

Future panel meetings
Reports of the working group and scoping group
Issues /review of the proposals that are to be ranked
Cross-panel issues: communications, etc.
Progress report on sharing of proposals: is this working?
Note: National office representation should be invited
Procedures for handling problem members
Review of panel structure [e.g., new panels?] and mandates

Co-Chairs: Hitoshi and Eiichi
Location: Sapporo
Date: 13^{th} September or the day of the field trip

Proposed Interim Science Advisory Structure (iSAS)

for the Transition to IODP

- interim Science Steering and Evaluation Panels (iSSEPs) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Science Steering and Evaluation Panels

1.1 General Purpose: The Interim Science Steering and Evaluation Panels (iSSEPs) interact with proponents (and interim Program Planning Groups, as necessary) during the ODP-IODP transition (2001-2003), in order to nurture submitted drilling proposals to maturity, make an initial assessment (in cooperation with the iPC) about the suitability of proposals for a particular drilling platform or technology, and recommend mature proposals for external comment.

• <u>Environmental Change, Processes and Effects iSSEP: Areas of Interest</u>
The interests of this iSSEP are explained in detail in the Initial Science Plan

of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- internal and external forcing of environmental change
- environmental change induced by internal and external processes
- extreme climates and rapid climate change initiatives
- the deep biosphere and the sub-seafloor ocean
- gas hydrates

• Solid Earth Cycles and Geodynamics iSSEP: Areas of Interest

The interests of this iSSEP are explained in detail in the Initial Science Plan of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- formation of rifted continental margins, oceanic LIPs and oceanic lithosphere
- the dynamics, processes, and record of the solid Earth and fluid movement therein.
- recycling of oceanic lithosphere and formation of crust
- the seismogenic zone
- the deep biosphere and the sub-seafloor ocean

1.2 Mandate. Each iSSEP reports to the iPC and will respond directly to requests from the iPC. Each iSSEP will be responsible for:

- examining and reviewing drilling proposals and determining whether they address important scientific problems that are related to the scientific themes outlined in the Initial Science Plan of IODP.
- nurturing to maturity, and examining and reviewing the scientific merits of these drilling proposals, by interaction with proponents and Program Planning Groups (as necessary) ;
- providing proponents, and iPC with written reviews and comments on the proposals through the iSAS Support Office;
- selecting proposals for external comment, suggesting appropriate reviewers, and providing iPC with external comments and a written review and summary of those comments;
- advising iPC on initiatives and themes that need further development (through the formation of interim Program Planning Groups, as necessary);
- facilitating communications among iPC, interim Program Planning Groups, and proponents.

1.3 Meetings. The iSSEPs will meet approximately twice per year, normally right before or after their counterparts in JOIDES. The iSSEPs will have overlapping sessions, as overlap in thematic coverage is expected to continue to evolve. The iPC Co-Chairs will approve iSSEPs agendas and meeting dates, and locations (normally in consultation with JOIDES).

1.4 Membership. The iSSEPs will consist of approximately fifteen to eighteen

members each. The iPC, in consultation with JOIDES and OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise. Members of the iSSEPs will not be members of any interim Program Planning Group. With the approval of the iPC Co-Chairs, guests may be invited to iSSEPs meetings on an *ad hoc*basis to help with examinations and reviews of proposals.

1.5 Liaisons. The Chairs of the iSSEPs are liaisons to the iPC and will meet with the iPC. The iSSEPs chairs will assign liaisons from their membership to the active iPPGs, as appropriate. The iPPG Chairs will normally meet with the iSSEPs at least once per year.

1.6 Chairs The iSSEP Chairs are appointed by iPC.

DRAFT 1.6.1 (19 August 2003)

Minutes

Joint Meeting of the Interim
Scientific Steering and Evaluation Panels for the
Dynamics of Earth's Interior (ISSEP) and Earth's Environment (ESSEP)

May 22-25, 2003

Niigata University and Toki Messe, Niigata Convention Center, Niigata (Japan)

Thursday, May 22   9:00 - 18:00

1. Opening and Introduction of Members

The formal part of the Niigata SSEP meeting began following an enjoyable optional day field trip "Middle Miocene oil/gas and alcohol fields in Niigata" on 21 May lead by Dr. Kouichi Hoyanagi (Shinshu University), Dr. Susumu Kato (JAPEX), Dr. Hiroyuki Arato (Teikoku Oil), and Dr. Norie Fujibayashi (Niigata University). The fourth and the last meeting of the interim Scientific Steering and Evaluation Panels was opened by Hitoshi Mikada, who explained four working group discussions to be proceeded in the afternoon. He also explained how to proceed with group discussions on IODP Guides and SSEP structures to be conducted in the later part of the meeting. Introduction of all the members in the room began with Norie Fujibayashi, who was a hosting member.

2. The minutes from previous Montpellier meeting were approved.

3. Joint session for iESSEP and iISSEP, Reports

3.1. MEXT Report (O. Miyaki)

Osamu Miyaki first reported on "Chikyu" construction with its secured budget of US$105M for JPFY 2002 and US$65M for JPFY 2003. The preparation for Chikyu operation will require US$14M for JPFY 2003 and hence a total of 184M will be required for JPFY 2002-2003. Thus, 95% of construction money has been already approved. This includes budgets for site surveys.

He explained on the latest development on MEXT and NSF- agreement, which was the form of the Lead Agency Memorandum, signed by the NSF Director and MEXT Minister in Tokyo on April 22, 2003. NSF and MEXT has been continuously developing draft contract with CMO. IWG meeting will be held in Capri, Italy on 11-13 June, 2003. Mr. Shingo Satomura was appointed as IODP Unit Chief in Ocean and Earth Division, MEXT as of 1 April, 2003. Finally, a message from Daisuke Yoshida, Director for Ocean and Earth Division, MEXT, was relayed with his greetings and blessing towards success of the iSSEPs meeting in Niigata.

3.2. NSF Report (T. Byrne)

Tim Byrne reported about the Memorandum signed by NSF and MEXT finally materialized after 10 years of hard work towards IODP. NSF budgets have seen 12-13% increases in ocean science and geosciences and they will be doubled in the next several years. NSF has changed its strategy in drill ship operation. That is, a non-riser drilling ship will be available for drilling for IODP in summer of 2004. 2005 and 2006 will be the time for renovation or for a new ship to be designated. There will be an overseeing committee above SPC in IODP. This is Science Planning and Policy Oversight Committee (SPPOC), which will be essentially equivalent of the former EXCOM. Thus, the governing bodies of IODP will be held by SPPOC as an internal body and IMI as an outside body.

He further described that NSF has requested that the US Science Support Program quickly identify a process for selecting: (1) US members of the IODP Science Policy, (2) US members of the Science Planning Committee; and (3) SPC Vice-Chair. As a near future plan, on May 29 and 30, NSF, MEXT and the Interim IODP CMO will meet in Austin, TX to discuss start-up activities, including the establishment of a Science Policy.

3.3. ECORD Report (G. Camoin)

Gilbert Camoin gave a report from ECORD, the European Consortium for Ocean Research Drilling, which is the official European consortium for IODP. ECORD aims to provide co-mingled funds equivalent to 2 participation units for the first 4 years of IODP and will provide additional funds for Mission-Specific Platform (MSP) operations for 2004. Thus, ECORD's primary intention is to push for drilling using MSPs (mission specific platforms). Europe intends to provide MSPs for the areas inaccessible to riser-less and riser ships, whose missions are necessary to accomplish goals of the Science Plan, whose plans must be dealt case-by-case basis.

Two important meetings were held:

-ESSAC--Terms of Reference in Amsterdam, January 17th, 2003: and

- EMA and ESO in Dublin, April 24-25th, 2003.

The structure of ECORD is constituted by (1) EMA, which is an agency of the ECORD management, (2) ESO, which governs operation, and (3) ESSAC, ECORD science support and advisory committee. These three subgroups are mediated by interim ECORD council, which oversees the whole entity.

Major roles of the ECORD Management Agency (EMA) are:

- Organize the European participation to IODP, which is done with the following actions:
    - -Memorandum Of Understanding (MOU) with European partners
    - -MOU with the US and Japan
    - -Contracts with European partners to raise the funds
    - -Contracts with NSF and MEXT for the European IODP funds
    - -Contracts with ESO to operate the « MSPs »
    - -Support ESSAC for the scientific activity.
    - -Promote IODP in the European funding agencies.
    - -Dissemination of Information to the public

Major tasks of ESSAC (ECORD Science Support and Advisory Committee) are:

- -Scientific management of the Programme for the European countries.
- -Interacting with the IODP Central Management Office (CMO), SAS and IODP scientific bodies.
- -Nominating representatives on SAS panels.
- -Coordinating applications for shipboard participation.
- -Initiating and monitoring Workshops.
- -Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP Initial Science Plan and encouragement of IODP-related activities among participating countries.

Assisting and advising ESO and/or EMA are done:

- -On the development of scientific planning and priorities for ECORD.
- -On the preparation of a Science Operations Plan and budget for MSP operations which is to be presented to the EMA and the ECORD Council to ensure a constant flow of funds for MSP operations by coordinating and preparing funding proposals to the European Commission and other funding bodies.
- -On the public outreach within and beyond ECORD member countries to raise public awareness and inform funding agencies, the public, the scientific community, schools etc. on scientific advances made through IODP drilling, and the benefit to society of the work carried out though Europe’s participation in IODP.
- -In encouraging new members to join ECORD.

Camoin then distributed ECORD's brochure, which clearly describes its roles of European participation in IODP.

3.4. IMI Report (K. Suyehiro)

Kiyoshi Suyehiro presented the recent chronicle of IODP Management International, Inc. (IMI), which has been established on 1 March 2003. On December 4-5 2002 the IMI Founders' meeting took place in San Francisco and they agreed on 6 Japanese and 6 US interim officers reflecting the funding scheme of IODP. On March 27-28 2003 the founders, members and board of governors (BOG) met in Honolulu and reached the following conclusions"

- -Adopted IMI by-Laws
- -Approved new members (7J and 15 US institutions)
- -approved Board of Governors (10 and 4 alternates)
- -Search Committee established for president and office location
- -IMI-Japan office in Sapporo with Science Planning Director; IMI-USA office with Program Operation Director
- -Recommended Science Planning and Policy Oversight Committee (SPPOC) as executive authority of SAS.

The plan for the forthcoming IMI related meetings and the approval schedule for committee members such as those of SPPOC and SPC are also presented. The decision concerning the nomination of a permanent IMI President will occur during the BOG Seattle meeting September 9 and 10, 2003. Information concerning IMI can be accessed via [http://www.ig.utexas.edu/imi/]

3.5. J-DESC Report (Y. Tatsumi)

The newly formed Japan Drilling Earth Science Consortium (JDESC), which is equivalent of USSAC or ECORD, was introduced by Yoshi Tatsumi. This group was formed in February in order to promote drilling activities among the Japanese scientific community. JDESC will recommend IODP panel members and IMI members from Japan. It also aims at assisting in getting Japanese government funds for drilling activities.

3.6. iPC/IWG Report (T. Moore)

Ted Moore as an iPC Chair first reported the recent signing of Memorandum of Understanding (MoU) between NSF and MEXT. He then stressed the importance of smooth transition from iSAS to SAS, maintaining the chairmanships of various committees. However, iPC Co-Chairs will change from T. Moore and H. Kinoshita to Chair and Vice Chair whose terms are for two years. The Vice Chair will become Chair, after completing the two-year term. The Chair can remain as a member when rotated off.

He then reported on iPC meeting held in Austin, Texas in March 2003. The iSSEP's complex drilling procedures are worth praising. An Operation Committee Working Group was formed, which is the last committee to be formed. iPC approved the fromation of the committee WG and sent this notion to IWG for approval.

iILP helps the IODP community to gain access to seismic data base, otherwise not possible to have. In the Amsterdam meeting he has attended he acquired the information that riser drilling will take 5 years of preparation. And hence even if IODP shorten it as much as we could, it will take a minimum of three years of planning. Because it takes so long, IODP needs to describe the flow of work, evaluate risks, solve safety issues, and so on. IODP needs to re-evaluate our science because of the riser, which is new to IODP. It will be better making an early decision than late. One can red flag on non-achievable goals early in the decision process. Initial scope groups using the riser vessel already exist in the form of Nankai and Costa Rica proposals, which are general ones. If there are any problems or risks associated with the drillings, they should be identified and discussed for the success of the IODP.

Meeting in June in Austin, Texas, USA initial science group

There are initiatives in getting public involved in the planned Lomonosov Ridge drilling in the Arctic Ocean. That is, to take some tourists and/or students for observation and/or education for advertisement of the project as well as to fulfill the need of funding. Regarding the iPC policy on the Arctic drilling, it is acceptable to take public in as long as they do not interfere with the scientific drilling operation.

3.7. iSSP Report (McIntosh)

Kirk McIntosh presented (1) iSSP Bologna meeting; (2) Data Bank Working Group (DBWG); and (3) MATRIX Working Group.

At the Bologna meeting 9 full proposals and 9 pre-proposals were reviewed. Presentation from the Data Bank Working Group was made and significant discussion followed. The panel formed the MATRIX Working Group together with iSciMP.

The following three items are the major outcome of DBWG:
-Recommendations will help shape the request for proposal for the successor IODP Data Bank;
-Formed from a subset of the iSSP panel and liaisons from iPPSP and iSciMP; and
-Group has met partially, or in full, three times, with the most recent meeting occurring before the iSSP meeting February 2003 in Bologna, Italy.

The iSSP DBWG recommended on (1) digital vs. analog data submissions; (2) allowable data formats; (3) mechanism and timing of communications with IODP panels and proponents; and (4) facilities, hardware, software, and personnel for Data Bank.

The panel recommended that data submitted to the IODP Data Bank (DB) be in a digital form unless this is not possible for the proponent(s) to accomplish. The panel recommended continuing the current policy of early review. DBWG recommended that IODP adopt a GIS-capable, web-accessible, software system. The panel suggested further improvement of the Site Survey data review process during the Bologna meeting (February 2003).

3.8. iSciMP Report (Escartin, iSciMP liaison)

Xavier Escartin presented an iSciMP Report focused on the last meeting that was held in Edmonton, Canada in December 2003. Regarding the Pre-proposal 621, MBARI Observatory, iSSEPs forwarded it (621-pre) to iSCiMP and iTAP for comment and input. An ad-hoc Working Group was then established, whose recommendations were reported to iSSEPs chairs and proponents in February. This 621-pre had proposed to drill a shallow hole near MBARI to be used as a test bed for seafloor observatory technology.

The summary of the recommendations is given below:

- Drill a minimum of 2 or 3 holes so that there are available sites for testing while one or more are being used in long-term experiments and therefore not accessible.
- Open access of the sites to the ODP and the larger community, and not limit the site to the seafloor observatory effort
- Use a standard drill pipe size in coordination with iTAP and iSCiMP, to allow the test of new ODP tools in the future
- Add a scientific component to the proposal (i.e., 3D permeability problems, high-resolution cross-hole geophysics…)

During the Edmonton meeting a series of recommendations and plans was given as follows:
-Database operator. iSCiMP recommends that there is a single database operator for all platforms to insure accessibility of data, standardization of input, storage and retrieval of information collected during IODP operations.
-Database working Group. It is recommended that a database working group be established to insure consistency of data across the program and in time.
-Drill pipe standardization. iSCiMP recommends that there is a single standard of drill pipe size (when possible for the MSP). This needs to be done in coordination with iTAP.
-Chiukyu instrumentation list. The list of instrumentation of the new Japanese vessel will be reported to the panel members to be reviewed during next July meeting.
-Microbiology Working Group. A working group has been established to develop and investigate news issues that arise from microbiological studies in ODP samples. In particular, iSCiMP encourages efforts to develop sampling techniques that avoid microbial pollution (i.e., JAMSTEC's antimicrobial gel).
-Archival, analysis and disposal of cuttings. iSCiMP will interact with other iSAS panels to recommend a policy of archival, analysis and disposal of cutting material.
-Sample data policy. The sample data policy was reviewed and submitted to iPC for approval.

Future agenda items for the July meeting in Rhode Island include:
-Joint iTAP/iSCiMP meeting. Some overlap exists between iTAP and iSCiMP and a joint

meeting will allow the two panels to interact in specific aspects (i.e., drill standards), and establish a working mode and partition of tasks.

-Scientific staffing. Given the complexity and length of CDPs, a new policy and recommendations regarding staffing will be reviewed, including assignation of scientists, access to samples, etc.

-Scientific measurements in the new program. The presence of multiple platforms and the length of CDPs, makes it necessary to re-evaluate both the list of measurements to be performed, and their evolution in time, so as to insure quality and standardization of data across the program. This requires both a closer link with iSSEPs to identify required technologies/measurements that may be needed in he future based on available proposals, and the follow-up of CDPs in time.

3.9. iTAP Report (Masuda; iTAP liaison)

Yoshihiro Masuda reported the proceedings of iTAP. The second iTAP meeting was held on February 21-22, 2003 in Amsterdam, the Netherlands. This was a joint meeting iTAP–iILP on the morning of the 2nd day. The main discussion points were as follows:

- Platform operations (Chikyu, Non-riser, MSP)
- Standards: Drill pipe diameter, core diameter
- Borehole stability & Temperature
- Technical challenges in Complex Drilling Programs (CDPs) including NanTroSEIZE and CRISP [Costa Rica]
- Project Management System in IODP
- Efficient way to extract technical challenges from proposals
- Short discussion on technical challenges included in ISP such as climate history, gas hydrates, hydrogeology, and zero-age crust

iTAP recommended the followings:

Recommendation 03-01:

Evaluation on Use of 6-5/8” Drill pipe for IODP Drill ship:

- iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (e.g. core quality, core volume, tool deployment) and costs of outfitting the JR-replacement to be able to handle up to 6 - 5/8” drill pipe.
- iTAP will provide a recommended work statement to ODP. Proposed work statement on evaluation of use of 6-5/8” drill pipe will be attached to the minutes of iTAP #2.

Standard Pipe Diameters:

- Important for standardizing logging, sampling and specialty tools as an integrated program
- 6 5/8” is commonly used in industry
- More advantages than disadvantages: Potential for larger logging tools, easier fishing, faster wireline trips and less swabbing, higher torques, better hole cleaning due to higher annular velocity, etc.
- Chikyu can handle this size
- Outfit the non-riser vessel to handle 6 5/8”, recommending a small study.

Recommendation 03-02:

- iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program.
- The plan should include near-real time analyses during the drilling program that uses real-time drilling parameters.
- These parameters should also be captured into the IODP data base to be used to improve future drilling plans.

Recommendation 03-03:

- iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP.
- iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

Recommendation 03-04:

- iTAP recommends the formation of an IODP Working Group that will develop a

project-based management planning system. The system will be similar to those used by the petroleum exploration industry.
- It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project.
- This Project Management Working Group would be charged with developing the project management system by June 2003.
- Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representatives.

iTAP Advice to Proponents

- Begin developing a list of specifications (e.g. , measurements and coring/sample requirements that need to be made (depth, location, resolution, temperature and dynamic range, measurement life) and collaborate on development of this list.
- Complete iSCIMP's new cover sheet measurement list
- Select sites based on science objectives
- Do not identify the type of drilling vessel or drilling methods
- Provide proposals early to the DPG

Where appropriate, develop technical/operational options based on the science objectives

- Joint with iSCIMP

Finally, the dates for the next iTAP meeting will be for July 14-16, 2003 at Graduate School of Oceanography, University of Rhode Island, USA.

3.10. iILP Report (H. Arato)

Hiroyuki Arato, the iILP liaison, first explained the mandates of iILP.

Mandate 1:

General purpose:

To facilitate ongoing communication and cooperative scientific activities between IODP and selected industries, with the goal of benefiting IODP science and technology and maximizing economic benefits from sharing resources, such as drilling of sites for shared scientific and technical goals, development of joint drilling and sampling technologies, and the development of improved down hole measurement and observatory capabilites. Industrial sectors of interest include oil & gas companies (e.g., offshore deepwater technology , petroleum geology, and engineering), mining (e.g., understanding potential economic targets), microbiology (e.g., development of new enzymes, etc.), insurance industry (e.g., hazards and climate predictions) and research and development organizations in these fields.

Mandate 2:

The iILP will:

1. Develop effective links between academic and industry scientists with mutual research and technical/engineering interests.
2. Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers.
3. Develop mechanisms for sharing industry data/expertise/resources between IODP and industry scientists and provide advice to IODP scientists where appropriate.
4. Act as the liaison group for IODP to industry and selected industry associations, and promote IODP;
   educational and outreach activities within selected industry professional organizations.
5. Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP as needed. These might include Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programmes and/or interim Programme Planning Groups.
6. Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities

Discussion 1: PROMOTIONS
- introduction of IODP to industries:
    oral presentations in conferences (incl. Local meetings),
    articles on journals / newsletters, (preparation for presentation materials)
    chair a session in AAPG, and invite proposals,
- education for IODP proponents:
    conduct seminars for well operation, wellsite geology,
    seismic interpretation, or well log analysis, etc.
- education for potential proponents:
    conduct seminars for students, and young scientists

After all, linking industry with academia.

Discussion 2: SUPPORTS for PROPONNENTS
- support proposals of industry interests:
    reviewed and categorized proposals,
    examine possibilities of industry collaboration,
- provide a database of meta data:
    seismic line index maps,
    well location maps,
    availabilities of other data ,
- mediation of industry data

Discussion 3: INDUSTRY PARTICIPATION disclosure to IODP proponents
- establishment of contacts with the industry groups:
    energy, microbiology,
    mining, insurance, …..
- mutual promotion:
- support proposals of industry interests:

Current Action Plans

Review proposals submitted to IODP for interest to industry;
- identify data, analyses, etc that could apply
- suggest enhancements and advice for proposals
- meet with proponent(s) when and where requested

Identify areas of interest for joint industry/academic studies and coordination;
- identify topics on list of industry interests
- identify workers in industry and academia that share these interests
- conduct workshops for planning of new proposals
- make new proposals

Promote IODP and its benefits to industry;
- develop advertisement materials
- present to companies, meetings

Liaise between industry and academia on IODP issues;
- make connections where requested
- nominate for committees and panels

3.11. OD21 Report (Y. Yamada and K. Kodama)

Yasuo Yamada explained that a supplementary budget of US$1M for the building of the "Chikyu" was obtained from the Japanese government and hence the completion date of the ship construction will be in early USFY2007 (October 2006), one year earlier than anticipated. He illustrated graphic scenes from the sea trial first leg of Chikyu (April 22-29, 2003), including the departure of the ship from Tamano Ship building area as well as the interior of ship such as the core and the geochemistry labs. He showed that "Japan National Science Plan" in Japanese version had been published in November 2002 and its English version in January 2003.

Kazuto Kodama reported on the newly built Marine Core Research Center at Kochi University, which is celebrated for its opening at this moment. It consists of a core storage laboratory and a core analysis center with the state of the art analytical equipment. There are four sections in the Center: Core repository, sampling room, office space and rooms for advanced measurements including mass spectrometry, microbiology, and paleomagnetics.

Furthermore, Yasuo Yamada showed a video tape containing the footages of the signing of the NSF-MEXT Memorandum and the current operation of Chikyu in the Seto Inland Sea.

3.12. CDEX Report (T. Murayama)

Tatsuya Murayama presented the newly established (1 October 2002) Center for Deep Earth Exploration within JAMSTEC (JAMSTC); Asahiko Taira is the Director General of CDEX. This is a Riser Platform Implementing Organization with the following Services/Tasks:

- Platform Operation
- Science Operation
- Engineering Site Survey

Its missions are to contribute to the accomplishment of the IODP scientific goals, through safe and efficient operation of Chikyu. CDEX acts on:

- Site survey data acquisition;
- Interpretation and evaluation of the site survey data;
- Well planning and preparations;
- Supervising drilling and logging operations; and
- Supervising science services.

He described about the Drilling Hazards:

(1) Ocean Meteorological conditions
(2) Shallow Gas
  - Methane Hydrate
  - Shallow Water Flow; Met Ocean
(3) Geo Pressure
  - Blowout
  - Mud Loss
(4) Geological Condition
(5) Drilling Problems
  - Low Frac Grad
- Stuck pipe

He further illustrated the requirements for typical operations. For example, it will take about a year to drill 5000 m below sea-floor. Riser drilling preparations will take 52 months and thus at least four years must be the starting point before actual drilling. Riser drilling will require stepwise pressure control by setting up number of different size of casing strings.

3.13. iSAS Office Report (N. Eguchi)

Nobu Eguchi reported on statistics of proposal submissions for the last deadline (April 1st, 2003) as well as for those in the past two years. For the last deadline, a total of 26 proposals were submitted including 8 new proposals and 18 revised proposals. As before, slightly more than a half of the proposals concern the Environmental Change theme of the ISP and the others are almost equally distributed between the Deep Biosphere and the Solid Earth themes. A total of 101 proposals have been submitted during the past two years. Approximately the same ratios between the different themes of the ISP have been observed.

3.14. CDP Update (T. Byrne)

Tim Byrne updated the most recent discussions on Complex Drilling Programs. During the Montpellier meeting, iSSEP working Group 1 was formed to discuss about a CDP. The followings are summary of current consensus and recommendations.

Complex Drilling Programs: overview

- Development of CDP Proposals
- Mentoring CDP Proposals within the SAS
- Evaluation of CDP Proposals by SAS
- Assignment of DPGs to CDPs by iPC

- Scheduling of CDP Drilling
- Management of CDP Drilling through Time

Characteristics of a CDP:

- There is one or more, clearly articulated, overarching goal(s)
- The pathway to achieving these goals requires completion of a series of linked scientific and operational components
- All components can be completed in a reasonably short time
- The fundamental goal(s) cannot be achieved through completion of a series of independent drilling projects

Composition of a CDP

1. CDP Preface (umbrella):
   - Overview of the entire project with the vision, goals, context of ISP, and general drilling strategy
   - Accompanies all following component proposals
2. One or more linked (full) proposals

Dealing with a CDP proposal

- Submitted as a pre-proposal
- SSEPs evaluate appropriateness and readiness for full CDP (preface + component)
- If ready: external review of full CDP

Dealing with a CDP proposal

- If ready: reviewed CDP proposal goes to iPC
- If accepted, iPC forms DPG(s)
- Subsequent components submitted to SSEPs as full proposals, which, with the CDP Preface, are sent for external review.

4. Introduction to reviewing processes: Gilbert Camoin

Before starting with the reviewing processes, Gilbert Camoin presented the 4 recommendations made by the iSSEPs co-chairs at the last iPC meeting. During that meeting it was proposed by the iSSEPs co-chairs to organize an electronic meeting in August to review the external reviews and the related PRLs for the proposals sent out for external review after the Niigata meeting. The four recommendations were the following:

1. The iSSEPs should decide when a proposal is ready to be forwarded to
the iPC.
2. The iSSEPs may hold one additional meeting this year in early August.
This meeting should be conducted electronically and focus on new external reviews and related response letters from proponents. The iSAS Office should confirm in advance the external reviewers for all proposals that could potentially be sent out for external review following the May 2003 iSSEPs meeting.
iPC also approved the following:

3. The iPC gives its approval for the iSSEPs and their iSAS service panel liaisons to identify proposals that could benefit from advice by particular service panels. The iSSEPs co-chairs must request the iSAS Office to seek permission from the proponents to distribute such proposals to the appropriate service panel for comment.

He also reviewed the conflict of interest rules and confidentiality requirements prior to the start of proposal reviews (see attached Table 1). Proponents are excluded from being in the room during proposal discussion, as are those having active projects closely related to the projects proposed. iSSEP members at the same institutions as a proponent must identify themselves to the iSSEP chairs prior to review discussions.

5. Working Group meetings.

The objectives of these working group meetings was to start discussions and exchanges on the proposals that are related to the same scientific theme, so that everyone will feel comfortable during the plenary sessions when the proposals will be reviewed. We expected that these working group meetings could improve the presentation of the proposals and the impact of discussions on each proposal. The following four groups were met. Proponents were asked to leave the room when his/her proposals were discussed, applying usual conflict of interest rules.

- WG1: Fluid flow/Deep biosphere : 505, 545, 547, 553, 629 and 633
  iISSEP members: Ashi, Henry, Rosenberg, Ruppel
  iESSEP members: Ge, Smith, Yamamoto, Takahashi
  Other: Takai

- WG2: Seismogenic zones : 537 and 603
  iISSEP members: Bangs, Chen, Tokunaga, Byrne
  iESSEP members: Hill, Ohkouchi

- WG3: Paleoceanography and paleoclimatology : 477, 549, 602, 626, 630, 514, 627, 595 and 618
  iISSEP members: Kominz, Yamazaki
  iESSEP members: Ravelo, Weissert, Wilson, Camoin

- WG4: Solid Earth/geodynamics and Climate tectonic links: 512, 631, 632, 595, 618, 612, and 628
  iISSEP members: Devey, Fujibayashi, Pedersen, Mikada
  iESSEP members: Brumsack, Filipelli, Kodama, Soh
  Other: Tatsumi

Friday May 23 8:30-19:00

6. Joint session for iESSEP and iISSEP: Proposal Reviews.

During the review meetings the panels considered the following proposals:
505-Add3, 545-Full3, 547-Full4, 553-Full2, 629-Full and 633-Pre, 537-CDP2, 537A-Full2, 603-CDP2, 603A-Full2, 603B-Full, 477-Full3, 549-Full4, 602-Full, 626-Full, 630-Pre, 514-Full4, 627-Pre, 618-Full, 512-Full3, 512-Add2, 631-Pre, 632-Pre, 595-Add, 612-Full, and 628-Pre.

The conflict of interest rules and confidentiality requirements have been respected during the whole review procedure (see Attachment Table 1).

7. ICDP Report (Harms)

Ulrich Harms explained the proposal review process by ICDP. In each fall proposals are submitted to ICDP Management, an iSAS equivalent and reviewed and ranked by Science Advisory Group, which is an equivalent of iSSEP. The ranked proposals are forwarded to Executive Committee, an equivalent of iPC, for authorization along with approval by Assembly of Governors. Then drilling operations are started.

There are five major categories of ICDP operations: paleoclimate, impact events, earthquakes, volcanoes, and continental dynamics. He then showed current and future drilling programs.

7.1. Unzen Drilling Project is taking place on an active volcano located in southern Japan and the objectives of the drilling are as follows. Two drill holes with casings and estimated maximum temperatures of 550-600˚C are located on the northern flank of the volcano:
- Eruption mechanism
- Conduit Formation
- Degassing
- Cooling
- Structure & Evolution
- Drilling Technology

7.2. Hawaii Scientific Drilling Project is continuing on Mauna Kea. The upcoming schedule for the operation was presented.

7.3. Dabie Sulu Project attempt to drill more than 5 km of rocks including metamorphic rocks. Thus far 2900 m of drilling has been achieved. It involves with a new 5.5 km ICDP wireline drill string and power swivel; that is the integration of GFZ power swivel into Chinese drill rig.

7.4. Lake Malawi Drilling Project is to drill high-resolution paleoclimatic records and decipher human evolution in the South East Africa. The project has the following key questions and objectives:

- Obtain a continuous, high-resolution (annual-decadal) record of past climates in tropics over 800 kyr
- Paleoclimate studies on unique sensitive lacustrine basin.
- Basin evolution studies in large closed basin.
- Evolut. biology in a system of unparalleled endemic biodiversity.
- Issues of Human origin in area of earliest human ancestors.

7.5. Lake Bosumtwi Drilling Project aims at drilling of 360 m lacustrine sediment of the 1.07 Ma impact which left a lake of 10.5 km diameter and 80 m deep in Ghana in the West Africa.

7.7. Impact workshops are planned for the coming September 2003:

- Deep Drilling in the Central Crater of the Chesapeake Bay Impact Structure, Virginia, USA.
- Anatomy of an Impact Basin- Scientific Drilling of the Sudbury Structure, Ontario, Canada.
- Marine Impact Processes: Drilling the Mjolnir Crater in the Barents Sea, Oslo, Norway

7.8. Fault Zones and Seismogenesis: Chelungpu Fault Drilling in Taiwan is planned and the specifics of the studies were presented.

Saturday May 24 8:30-17:30

8. Joint session for iESSEP and iISSEP: Proposal Reviews.

Sunday May 25 8:30-12:30

9. Joint session for iESSEP and iISSEP:

9-1. Grouping of two proposals (512Full3, 545Full3).

The grouping procedure was organized during a joint session and the panel members were invited to vote for all proposals.

The panel members were invited to group the relevant proposals in two categories:

I: Highest priority for iSSEPs regarding the scientific objectives of the Initial Science Plan ;

II: Important for iSSEPs regarding the scientific objectives of the Initial Science Plan.

9-2. The dispositions of all proposals considered have been summarized in Attachment Table 2. The panels will write a single joint review for each of the proposals of joint interest. The reviews will be edited and passed around to all panel members before being forwarded to the iSAS office for transmission to proponents.

9-3. Gilbert Camoin explained the forthcoming electronic meeting to be organized in August 2003. The iSSEPs electronic meeting will be held during the two weeks starting on 25 August 2003 by this date the anticipated external reviews will be available.

9-4. Guidelines for submitting IODP proposal to SAS

The following specifics are implemented in the Guidelines for submitting IODP proposal to SAS: The maximum length of full proposals: 25 pages, references are excluded from the 25 p limit; Pre-proposals: 10 pages maximum, references are excluded from the 10 p limit. In the past, color figures have been discouraged, but SAS will no longer enforce this and thus color figures are acceptable. Concerning the style of references, we recommend that proponents should write author names in the text and they should include titles in the reference list and thus avoiding the unpopular Nature style. Two pages of CV will be allocated for the lead proponents and one page each for all of the rest of the proponents. The latter inclusion of all proponents will ensure that lead proponents have in fact consulted the other proponents and thus prevents from unauthorized listing of proponent names. Line spacing of 1.5 space for text should be better specifies such as 32 lines maximum. This is because that 1.5 spacing in some word processing programs (e.g., Word 98 Japanese version which can handle English) would tell 20-30% less line numbers than the western ones due to spacing governed by the main language ruler.

9-5. SSEP structures

Kozo Takahashi expressed his and other Japanese members' deep concern about the efficiency of the panel structures and ways of evaluating proposals. The current format of a total of 32 members of iISSEP and iESSEP meeting size is significantly larger than he felt was desirable because there are cultural differences between Japan and the western societies and some people feel intimidated in speaking up, especially for initial and earlier meetings for individual participations rather than the seasoned ones.

It is necessary to overcome the cultural differences among the different nations and all IODP partners must be able to work together closely. Specifically, mutual understanding and communications must be made.

However, he felt that the current system is rather difficult in promoting some panel members' opinions and ideas. One of his suggestions to remedy this would be to reduce the size of meeting group and he suggested about 15 members as a possible candidate, although he also expressed his concern in inability in covering adequate expertise with such a size. He also stated that current proposal reviews in oral discussions are fairly complete and rigorous.

Gabe Filipelli commented that the problem of non-English native panel members has been well recognized by English-native members but could not find a solution. Also he has pointed out the necessity to discuss this issue as a panel.

Hans Brumsack commented that European members had a kind of culture shock when they started participating as members in the ODP/SAS system and that they gradually adapted to the system. He suggested as for the solution that every panel members should pay attention to non-English panel members, try to speak slowly to them, and try to listen to them

Hitoshi Mikada stated the followings. We should think about long and short-term solutions on this problem. The long one is the improvement of the Japanese education system and the short term one is to involve as many Japanese people as possible to the discussions in the iSSEPs. After 4 meetings, we feel the situation is getting improved and this improvement might continue just as many Europeans have applied themselves to the current ODP system. Kazuto Kodama stated that it has been well accepted that the small-sized working group discussions prior to the large sized ~30 people discussions worked out reasonably well. However, the time allocated was too short for satisfaction. And the large sized people's discussion appeared to be one sided.

Shemin Ge expressed the difficulty of non-English native members to jump in discussions and suggested the inclusion of possible future panel non-English native members in the panel meetings as observers.

Concerning this point, Rolf Pederson from Norway expressed his opinion as a non-English speaking point of view. That is, all panel members including non-English speaking representatives are expected to participate in oral debates equally, which cannot be easily done even though they try very hard just because of their handicap as non-English speakers. The speed and the way the meetings are handled cannot simultaneously easily be digested for non-English speaking people. He expressed that the review writing is very hard for non-English speakers and you cannot expect them to be able to complete in a few hours. He also shared his experience on the drilling ship where he was a co-chief scientist. When a cruise begins everyone is equal but gradually a hierarchy is generated. The top of such a hierarchy is lead by English speaking leaders and the bottom of the hierarchy is normally held by Japanese and other non-English speaking people such as Chinese people. Thus, it is desirable to fill the moat we currently have in order to have an equal participation from everyone.

David Smith mentioned his gratitude that this issue has been brought up this time and such an issue has never been brought up in iSciMP and thus he will try to bring it up in the panel. Kirk McIntosh also expressed his gratitude and the necessity to discuss this issue in iSSP.

Finally, Nao Ohkouchi suggested an opinion that 15 members as a new panel size and external reviews to cover adequate expertise in proposal handing, as a radical way to improve the inadequacy that we face.

Some panel members commented to Ohkouchi’s opinion in terms of the difficulties of conducting external reviews. Gilbert Camoin suggested as one of the directions of the discussions as follows: (1) the iSSEPs panel co-chairs will pay attention to non-English members to express their opinions, (2) the co-chairs perceived the value of working group meetings of smaller scale before the review meeting as a whole.

Kozo Takahashi also brought up the conflict of interest issue. Because that Japan is such a country that substantial part of ocean sciences are dealt by JAMSTEC or ORI, most ODP proposals have proponents from these institutions and thus the conflict of interest issue will eliminate many JAMSTEC or ORI panel members in proposal reviews and thus it does not help. Gabriel Filippelli asked if, in the case that a proposal by a superior was negatively reviewed by iSSEPs in the presence of a junior lab member this might cause trouble with the superior in a tightly clustered Japanese society. Kozo Takahashi noted that it may well be the case, but it depends on the situation. Gilbert Camoin stated that the current rule does not say that the panel members from the same department of the same institute must declare co-chairs that he or she is from the same department, but it does not say beyond that. Hitoshi Mikada mentioned that the role of iSSEPs is to improve the quality of proposals and not to be rigorous about the conflict of interest issue, which should be one of the discussion items in SPC, SPPOC, etc. Tim Byrne told that the co-chairs have noticed some Japanese people were pretty nervous about the conflict of interest and summarized that the panel member should not feel the issue so deeply in iSSEPs unless they are included as one of proponents of proposals under review. Kozo Takahashi stated that most of us have not been encouraging them to participate in discussions on the conflict of interest cases thus far, but that in the future we should encourage people more in this attitude.

9-6. Discussion on CDP guide

A vision statement part of a CDP proposal should be 15 pages maximum in length. One to three pages each components should also take part in the proposal. The maximum length of a CDP proposal should be 25 pages.

9-7. Announcement on the coming SSEPs Meetings

Regarding the next SSEP meeting, Shemin Ge offered that the next meeting can be held in Boulder, Colorado. Two possible dates were given: 13-16 November or 20-23 November. The spring of 2004 meeting may be held in Europe somewhere.

The co-chairs thanked the iSAS Office and host Norie Fujibayashi for the excellent arrangements for the meeting.

9-8. Adjournment of the meeting and writing of proposal reviews in the afternoon.

List of Participants:

iISSEP
Juichiro Ashi
Nathan Bangs (Alternate to Donna Blackman)
Tim Byrne (co-Chair)
Colin Devey
Norie Fujibayashi (Host)
Michelle Kominz
Hitoshi Mikada (co-Chair)
Rolf Pedersen
Nina Rosenberg
Tomo Tokunaga
Toshi Yamazaki (Alternate to M. Yamano)

iESSEP
Gilbert Camoin (co-Chair)
Gabriel Filippelli
Shemin Ge (New member)
Phil Hill (New member)
Kazuto Kodama
Nao Ohkouchi
Christina Ravelo
David Smith (Alternate to Katrina Edwards)
Wonn Soh
Kozo Takahashi (co-Chair)
Helmut Weissert
Paul Wilson
Hiroyuki Yamamoto

iSAS Representatives
Minoru Yamakawa, iSAS Office
Nobu Eguchi, iSAS Office

Liaisons and Guests
Ken Aoike, CDEX observer
Hiroyuki Arato, iILP liaison
Millard F. Coffin, ORI observer
Javier Escartin, iSciMP liaison
Ulrich Harms, ICDP liaison
Jimmy Kinoshita, iPC liaison
Yoshihiro Masuda, iTAP
Tadao Matsuzaki, OD21 observer
Kirk McIntosh, iSSP liaison
Osamu Miyaki, MEXT
Ted Moore, iPC liaison
Tatsuya Murayama, CDEX observer
Kyoko Okino, iSSP liaison
Kiyoshi Suyehiro, iPC member, IMI secretary
Ken Takai, iSciMP liaison
Yoshi Tatsumi, iPC liaison, J-DESC
Yasuo Yamada, OD21 observer

Meeting Logistics
Toru Nishikawa, AESTO
Yu Shinmyo, AESTO
Mariko Tanaka, AESTO

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP
- interim Site Survey Panel (iSSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Site Survey Panel

1.1 General Purpose. The general purpose of the interim Site Survey Panel (iSSP) is to provide information and advice to the iPC on the adequacy of, and need for, site surveys in relation to proposed drilling targets.

1.2 Mandate. The interim Site Survey Panel (iSSP) is mandated to:

- Review site survey data packages prepared by the IODP Site Survey Data Bank and to make recommendation as to their adequacy to the iPC in light of the needs defined in mature proposals of the interim Science Steering and Evaluation Panels, interim Program Planning Groups and interim Detailed Planning Groups;
- Identify data gaps in proposed future drilling areas and recommend

appropriate action to ensure that either:

(1) sufficient site survey information is available to pinpoint specific drilling targets and interpret drilling results; or

(2) sites will not be drilled until specific information has been reviewed.

- Provide guidelines for proponents and panels regarding required site survey data and examine the opportunities and requirements for the use of new technologies for surveying potential drill sites;
- Promote international cooperation and coordination of site surveys for the benefit of the IODP, particularly between participating IODP partners'survey activities;
- Promote the submission of all data used for planning drilling targets to the IODP Data Bank.
- Interface with the JOIDES Site Survey Panel to assure a smooth transfer of site survey data from ODP to IODP*.

1.3 Meetings. iSSP will normally meet right before or after the JOIDES SSP meeting or as requested by iPC. One meeting will usually be at the location of the JOIDES Site Survey Data Bank.

1.4 Membership. The iSSP is composed of 15 to 18 Members. It will be made up of experts who can provide advice on the site survey requirements of proposed drill sites. The membership will have an equal number of appointees from Japan and the US, with at least one appointee from eachof the other IWG members. The iPC, in consultation with JOIDES and the OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise.

1.5 Liaison. The Panel maintains liaison with the IODP Site Survey Data Bank Manager, and the iPC Support Office, each of which sends representatives to iSSP meetings. iSSP maintains liaisons to the iSSEPs.

1.6 Chair. The iSSP Chair is appointed by iPC.

**Note: IODP Site Survey Data Bank represents a function for IODP data repository to be defined by IWG.*

11 August 2003

4th Interim Site Survey Panel Meeting
28-30 July 2003
Lamont Doherty Earth Observatory
Columbia University NY

Minutes

Day 1: 28 July 2003 (9:20-17:00)

1 Welcome and Introduction

1.1 Co-chair's welcome (Okino)
1.2 Round table introduction of participants
1.3 Meeting logistics (Quoidbach)

2 Reports

2.1 iSAS office (Eguchi)

- iSAS office received 8 new proposal by the latest deadline, and the total 101 proposals are active. Proposals ranked, ready to be ranked, and the remainders were summarized. Half of the old ODP proposals have been reactivated in to IODP.
- The office may become TSAS (Transition SAS) and should remain in operation from October to next January.

2.2 iPC (Ito)

- IODP and the related new panels will start October, 2003. SPC (not co-chair, chair and a vice chair) and OPCOM will have their first meeting in Sapporo, September. Under new IODP system, SPC rank the proposals, SPOC makes decision, and IMI makes contracts to IOs. The mandate will be very complicated because of the three different platforms.
- A flow chart of review process concept was shown.

2.3 iISSEP/iESSEP (Okino)

- The panels reviewed 25 proposals at Niigata meeting, three proposals are sent to iPC for ranking, two are ready for external review. One CDP proposal (1 CDP umbrella + 2 full proposals) is waiting for external review, because the umbrella and one full proposal are ready for external review, but another one is required to revise.
- New guideline for proposal submission in IODP was shown.
- The SSEP structures and the effective review process are open to discussion and debate. All panel members are expected to join debate equally, however the current size of joint panel meeting (32 members), the speed and manner of discussion makes non-English speakers feel handicapped. The same situation applies to other panels; co-chairs should pay attention and encourage non-English members to express their opinions.

2.4 iPPSP (Watkins/Shipp)

- Two holes of leg 204 (off Oregon) had been cut off due to hydrocarbon flow, gas thought to have used an ash layer to accumulate giving unacceptable c1/c2 ratios and H_2S. The safety issues of gas hydrates have come up and Shipp mentioned the concern that logging should be done prior to coring (following methodology of industry in an effort to remain as safe as possible). The safety issues about gas hydrate should be dealt with MWD – Monitoring While Drilling – within the iPPSP. The iPPSP will bring this issue to iPC.

- Proposal 553 (Arctic) was formally reviewed and approved. Proposal 564 (new Jersey Margin) is not ready at the moment but the issues are not major. The panel discussed the e-mail reviews for low risk proposals.
- Guidelines on near surface operations need to be revised and need input from operators once they are chosen and finalized. Communication among iPPSP and iSSP watchdogs is important and useful.

2.5 iSciMP (Divins)

- The mandate and structure of the ISC (IODP Information Service Center) – results of a working group report – were presented. It is an internet service that functions as a clearinghouse and coordination center, and serve as a portal to site survey data, logging data, and data curation - Publication DataBanks, IO's data and ODP legacy data. Databanks will be decentralized but users can access (link) from ISC web. No decisions on who or where, until RFP is made.
- The security and access controls will be treated in each databank separately.

2.6 ODPDB (Quiodbach)

- The current ODPDB will close Sept 30, 2004.
- New data for proposals 512, 519, 533, 537A, 545, 552, 564, 572, 595, 603A were submitted.
- ODPDB (at LDEO) wrote proposal for non-riser databank as part of ODP/TAMU response to US non-riser RFP.
- A test model of MATRIX web site is under construction.
- Enachescu proposed that all forms (proposals, data submission etc.) have dates on them, so that panel members will know what is revised and what has not been modified. *ACTION ITEM: attempt to date all future data submission including version of data, including figures and other illustrations in the new revised documents, directly on the data items if possible.*

2.7 OD21/CDEX (Hashimoto)

- CHIKYU sea trial will be June-August, 2004 (responsibility of the operator), and equipment test from September 2004 to 2005.
- The ship will ready for international operation in October 2006.

2.8 J-DESC (Ito)

- Japan Drilling Earth Science Consortium, which is equivalent of USSAC or ECORD, was established. The tasks of J-DESC are nominations of SAS and IMI members, promotion of drilling activities in Japan scientific community, and assisting in getting funds for drilling activities. J-DESK also supports databanks, core center, SAS office, reference and logging center and public relations.

3 Presentation –CDEX's site survey for shake down cruise results (Hashimoto)

- Results of seismic surveys in Sanriku-Oki were presented. The surveys were conducted for two sites whose bathymetry is 1000m and 2000m. The surveys consist of 2D exploration (EX2D) high-resolution 2D seismic (HR2D), which were conducted in 2002 and 2003, respectively.
- EX2D survey: dominant frequency is 50Hz at seabottom and 20-30Hz at the acoustic basement. Cable length and receiver interval are 5100m and 12.5m, respectively. Total 3500ci air gun is used. Suggestion of gas and hazardous events in a few places.
- HR2D survey: Dominant frequency is 100Hz in top 1000m. Line spacing is 100m for east survey area and 75m for west (shallower) area. Cable length and depth are 1500m and 4m, respectively. Cable length is important parameter, good velocity focusing was observed with cable length ranging in 1100-1500m. Cable depth of 3-

4m maximized the data quality. Hazardous events in shallower part become more visible than on EX2D, so this type of survey is valuable for predicting drilling hazard in top 1000m.

- Survey with side-scan, current profiling, and single channel seismic for the both are
- Diebold's suggestion: make streamers and source at the same depth AND add compass to streamers if possible especially if there are currents.
- Enachescu's suggestion: take a piece of 3D deep penetration data, process shallow resolution, and compare upper 1 sec.

4 Discussion on MATRIX

- Naar reviewed concept and progress of committee on behalf of Shipp and Droxler and Katz and others at the Norway meeting. A list of data sets required from iSSP and iPPSP (for different given conditions) was shown.
- Quoidbach reviewed progress of creating an algorithm using the results of the Norway meeting.
- Eguchi reviewed new web page design for proposal submission that will provide input information for Quoidbach's algorithm – thus reducing redundant input from the proponents and streamlining the web submission process.
- The site characterization requirements listed in matrix are a starting point to help the proponents. After the iSSP meeting, then refinements to the site characterization list may take place related to specifics of each hole and review of any existing data.
- Although iPPSP does not review pre-proposals, the proponents will have an idea of what the typical safety requirements will be for the proposed drill holes much earlier on in the proposal process.
- It was suggested that the pre-proposal website inquire if the drill hole investigates paleomag or magnetic anomalies (which in turn would be used in the MATRIX algorithm in defining site characterization requirements).
- Panel realized that the list of site characterization requirements was not to replace the panel function, but rather to reach out and help the proponents and serve as a starting point for both the proponents and the iSSP and iPPSP panel members.
- A WG report should be submitted to iPC by the end of interim period, though the WG discussion will continue. Present plans include direct interaction between Quidbach (LDEO) and Eguchi (iSAS) to identify funding to complete programming tasks, to continue collaboration, and eventually to provide a test version for panel members to test hopefully sometime in the Fall of 2003.

5 Individual review of proposal datasets available at Data Bank

Day 2: 29 July 2003 (8:30-17:00)

(**Continue individual review of proposal datasets available at Data Bank for 45 minutes)**

6 Proposal reviews

Panel reviewed 24 proposals, three top ranked MSP proposals, 2 proposals forwarded to iPC, 2 CDP /9 full/3 pre-proposals reviewed in last iSSEP meeting, and 2 full proposals which were not reviewed at the last iSSEP meeting but new data were submitted. The list of proposals, watchdogs, and iSSP readiness classification is shown in attachment.

Day 3: 30 July 2003 (9:00-10:30)

7 Date selection for next panel meeting

- Next panel meeting will be held in the University of Tokyo, Japan. Local hosts are Dr. Kimihiro Mochizuki (Univ. Tokyo) and AESTO.
- The date selected is tentatively 11-13 February 2004, with a data submission deadline moved up to January 15, 2004.

8 Selection for liaisons and other SAS meetings

- iPC/SPC: September, 2003 at Sapporo, Japan: Droxler, Okino
- SSEP: 13-16 or 20-23 November at Boulder, USA: Droxler, Naar (not fixed)
- PPSP: 15-17 December at Nagasaki, Japan: Okino

9 Final Discussion

9.1 Modification of readiness classification

Panel agreed a part of definition of readiness classification should be rephrased to clarify its meaning. The modified classifications are as follows;

1A: All required data are in the Data Bank *and have been reviewed by SSP.*

1B: A few required items are missing from the Data Bank, *or have not been reviewed by SSP,* -but data are believed to exist and to be readily available.

3B: No data are in Data Bank.

9.2 Mandate update for IODP phase

- Communication between watchdogs of SSP and PPSP should be written in new mandate.
- One of the important tasks of the SSP is to help proponents and nurture proposals. A clear system of contact with proponents is needed.
- Any comments on mandate update should be sent to co-chairs by next iPC/SPC meeting in September.

9.3 Others

- The possibility of inviting funding agency members to the panel was discussed.
- Short reports on site-survey capability in academia (ship, instruments, 3D survey ability etc.) from each country in next panel meeting will help the panel disucussion.

10 Presentation of R/V Ewing replacement

- New seismic survey ship: 3D survey, multi streamer
- High-resolution swath bathymetry and swath sub-bottom profiling

Adjournment of the panel meeting and writing of watchdog reviews.

List of participants:

iSSP panel members:
Caress, David
Droxler, Andre (co-chair)
Enachescu, Michael
Gutscher, Marc-Andre
Hoyanagi, Koichi
Korja, Annakaisa
Naar, David
Nogi, Yoshifumi
Okino, Kyoko (co-chair)
Qiu, Xuelin
Reves-Sohn, Rob
Tsumura, Noriko
Tsuru, Tetsuro

Liaisons and guests:
Ito, Hisao (iPC)
Divins, David (iSciMP)
Eguchi, Nobuhisa (iSAS office)
Hashimoto, Tsukuru (CDEX)
Quoidback, Daniel (ODP DataBank)
Shipp, Craig (iPPSP)
Watkins, Joel (iPPSP)

Proposal reviewed by iSSP
LDEO (USA), July 28-30, 2003

Top ranked 3 MSP proposals						
Proposal No	Title	Lead Proponent	Watchdog 1	Watchdog 2	Readiness classification	Spcial Comments
519-Full2(MSP)	South Pacific Sea Level	Camoin	Naar	Enachescu	Tahiti: 1A, Great Barrier: 2B	
533-Full3(MSP)	Arctic-Lomanosov Ridge	Backman	Hoyanagi	Gutscher	almost 1A but 2C for LORI-06A,08A,12A	we can understan the dificculty for getting new data for this area and the importanc of the science
564-Full(MSP)	new Jersey shallow Shelf	Miller	Enachescu	Tsuru	1A	
Proposals sent for external reviews (reviewed by iSSEP in May)						
512-Full3/Add2	Oceanic Core Complex	Blackman	Reves-Sohn	Tsuru	2A	
553-Full2	Cascadia Margin Hydrates	Riedel	Tsuru	Caress	2A	
595-Full3/Add	Indus Fan and Murray Ridge	Clift	Narr	Hoyanagi	2B	
Proposals forwarded to iPC (reviewed by iSSEP in May)						
545-Full3	Juan de Fuca Flank Hydrogeology	Fisher	Caress	Reves-sohn	FRsite:1A, SR:1B,DR:2C	
547-Full4	Oceanic Subsurface Biosphere	Fisk	Tsumura		2A	
CDP proposals (reviewed by iSSEP in May)						
537,537A (CDP)	Costa Rica Seismogenic Zone	von Huene	Korja	Caress	CRIS01-04: 1B	
603,603A,B(CDP)	NanTroSEIZE	Kimura	Gutscher	Enachescu	2A/2C	We concern that the scientific objective cannot be achieved without at least dense 2D or preferencially 3D for splay and deep site
Other proposals reviewed by iSSEP						
477-Full3	Okhotsk/Bering Plio-Pleistocene	Takahashi	Hoyanagi	Narr	BOW:2A, UMK:2A, GAT:2C,others:3A	
505-Add3	Mariana Convergent Margin	Fryer	Caress		2A	
514-Full4	Maldives Sea Level	Droxler	Tsuru	Korja	MAL1-7:1A, MAL8,9:recommend to move sites	
549-Full4	Arabian Sea OMZ	von Rad	Naar	Qiu	2B	
602-Full	Tropical Epeiric Seas	Edgar	Hoyanagi	Reves-Sohn	3A	
612-Full	Geodynamo	Yamazaki	Nogi	Gutsher	3A/3B	
618-Full	East Asia Margin	Clift	Tsuru	Enachescu	3A	
626-Full	pacific equatorial Age Transect	Palike	Tsumura		3A	
629-Full	Chamorro Seamount Deep Biosphere	Inagaki	Reves-Sohn	Nogi	3A/3B	
630-Pre	Magellan and Manihiki Plateaus	Erba	Korja		3B	
631-Pre	ION Observatories	Stephen	Caress	Reves-Sohn	no specific site	
633-Pre	Middle America Slope	Brueckmann	Nogi	Qiu	3A/3B	
Proposals not reviewed at iSSEP in May but new data were submitted						
552-Full3	Bengal Fan	France-Lanord	Hoyanagi	Reves-Sohn	MBF1A,2A,3A(deep): 2A, MBA4A,5A,6A(shallow): 2A	
572-Full3	Late Neogene-Quaternary Climate Record	Chanell	Droxler	Korja	ORPH1A, LAB2A:1B, LAB1A,IRM1A,IRM2A,GAR1,GAR2:1A	

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP - interim Pollution Prevention and Safety Panel (iPPSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Pollution Prevention and Safety Panel (iPPSP)

1.1 General Purpose. The general purpose of the interim Pollution Prevention and Safety Panel (iPPSP) is to provide independent advice to the iPC with regard tosafety and pollution hazards that may exist because of general and specific geologic circumstances of proposed drill sites, and advice on what drilling technology should be applied in order to avoid drilling hazards.

1.2 Mandate. This panel will review all drilling proposed in IODP and advise on safety requirements and appropriate technology needed to meet these requirements. All drilling operations involve the chance of accident or pollution. The principal geologic safety and pollution hazard in ocean drilling is the possible release of substantial quantities of high-pressure fluids and volatiles

including hydrocarbons from subsurface reservoir strata. However, the riser capability of the IODP will permit application of blow out prevention (BOP) technology to mitigate this hazard in a number of geological environments. In other environments, such as most of the deep-sea regions, the risk of hydrocarbon release can be reduced or eliminated by careful planningand proper site surveys.

Those who develop IODP drilling plans and select drilling sites are initially responsible to carefully assess sites in terms of safety and indicate the appropriate mode of drilling for each site. The iPPSP independently reviews each site to determine if and how drilling operations can be conducted safely.

The preliminary site survey information and the operational plan are examined for each site. Advice is communicated in the form of:

1. site approval, for riser/BOP or non-riser drilling,
2. lack of approval, or
3. technical advice for relocation or amendment

Approval is based on the judgment of the Panel that a proposed site can be safely drilled in light of the available technology, information, and planning.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after of the JOIDES PPSP meeting, as approved by the iPC Co-Chairs.

1.4 Membership. Members of the iPPSP are specialists who can provide expert advice on the safe drilling of proposed drill sites, including sites in hydrocarbon prone areas. Members of the iPPSP are primarily selected on the basis of this specific expertise, with a view toward a fair representation of IWG members as a second priority. Membership is determined by iPC based on nominations from IWG countries. Panel membership, not to exceed 15, should be maintained as small as is allowed by the range of expertise necessary to meet mandate requirements.

1.5 Liaison. The iPPSP maintains liaison with the interim Site Survey Panel, and a designated iSSP member attends its meetings. Representatives from the main drilling operators will also be invited to attend the meetings. The iPC Co-Chairs or a designate from iPC attends as a liaison.

1.6 Chair. The Chair is appointed by iPC.

iPPSP Meeting #3 – Minutes
June 16 – 17, 2003
Sola Strand Hotel
Stavanger, Norway

iPPSP members present:	Bob Bruce, Neil DeSilva, Martin Hovland, Hans Juvkam-Wold, Barry Katz (Chair), Susumu Kato, Jean Mascle, Toshifumi Matsuoka, Nobuo Morita, Craig Shipp, Dieter Strack, Manabu Tanahashi, and Joel Watkins
iPPSP members absent:	Juanjo Danobeitia and Tim Francis
Guests:	Jan Backman (MSP-533), Jack Baldauf (TAMU), Serge Berné (Promess), Colin Brett (BGS), George Claypool (Leg 204), Mike Coffin (UORI, University of Tokyo), Andre Droxler (iSSP), Nobu Eguchi (iSAS), John King (Lake Bosumtwi), Hajimu Kinoshita (iPC), Yngve Kristoffersen (MSP-533), Ted Moore, (iPC), Kate Moran (MSP-533), Greg Mountain (MSP 564), Dennis Nielson (DOSECC), Yoshifumi Nogi (iSSP), Terje Olsen (Smedvig Offshore), Dan Quoidbach (LEDO SSDB), Alister Skinner (BGS), Uko Suzuki (CDEX), Shinichi Takagawa (JAMSTEC), Masaoki Yamao (GODI)

The meeting was called to order by the chair on June 16, 2003 at 08:30.

Martin Hovland, acting as host, explained the safety procedures and meeting logistics.

Self introductions were performed by panel members and guests.

Minutes of the second meeting were approved, noting that the revisions suggested by panel members after the draft minutes were circulated had been incorporated.

The proposed agenda was reviewed.

Report on ODP Drilling Activities

Jack Baldauf reviewed drilling activities beginning with Leg 204 and discussed the remaining program.

> Leg 204 (Gas Hydrates Oregon) examined nine sites at South Hydrate Ridge. This leg was considered the most complex leg in the program's history because of the number of new tools introduced, changes in operations in response to observations and other scientific operations in

the drilling area, the use of LWD prior to coring, and the number of staffing changes. On-shore storage facilities for the hydrate cores were built for their storage under pressure and with liquid nitrogen in response to the amount of material recovered. Thermogenic hydrocarbons were encountered during the leg. The relative abundance of the higher molecular weight hydrocarbons was greater below the hydrate stability zone.

Leg 205 (Costa Rica) was drilled to examine fluid flow along the decollement and the igneous alteration history of the down-going plate. A modified CORK was successfully deployed at two locations. Problems were encountered in the deployment of the CORK on two other occasions.

Leg 206 (Fast Spreading Crust) drilled Site 1256 into the upper section of the crust in the eastern Pacific. The leg was designed to sample the crustal sequence in a fast spreading center. A follow-up leg is planned for the next drilling program.

Leg 207 (Demerara Rise) was a paleoceanographic cruise designed to sample along a paleodepth transect. The leg targeted Cretaceous anoxic events, the Cretaceous/Tertiary boundary, and the Paleocene/Eocene thermal maximum. The leg recovered significant amounts of black shales, recovering material from three different Oceanic Anoxic Events (OAE's). The Cretaceous/Tertiary boundary was sampled at 3 sites. The Paleocene/Eocene thermal maximum was recovered at five sites.

Leg 208 (Walvis Ridge) drilled sixteen holes as part of a paleoceanographic program. Drilling was performed along a paleodepth transect. The stratigraphic records recovered were near complete.

Leg 209 (MAR Peridotite) is currently drilling at the $15^{o}12'$ Fracture Zone. Five sites have been completed on the south-side of the fracture zone.

Leg 210 (Newfoundland Margin) is planned to assess the stratigraphic sequence of the margin, the nature of the basement, and its subsidence history. Plans are for a ~2100 meter cased hole.

At the completion of Leg 210 the ship will be demobilized. Demobilization will take place between September 21 and 30, ending the current program.

Leg 204 Detailed Review

George Claypool provided a more detailed review of the results of Leg 204 as it may impact PPSP policy. It was noted that the ODP PPSP had approved the drilling into a frozen gas accumulation of ~9.2 BCF on top of the structure. Only the first site was cored prior to logging. The remaining sites were first drilled using LWD (logging while drilling) with follow-up coring. The holes were routinely deepened because of the position of the tool on the drill string. No real time LWD was available to the scientific party. LWD resistivity data clearly showed massive hydrates and free gas intervals. During the leg, hydrocarbon monitoring clearly lagged the coring operation. As per the *Safety Manual* the C_1/C_2 ratio was monitored. The data revealed slightly different values for the vacutainer and headspace samples. The headspace values tended to be lower (appeared more thermogenic) as a result of the loss of methane. The vacutainer data appeared similar to the actual hydrate values. Within the region, gas was largely present either in the hydrate or dissolved in water. There was no evidence for massive amounts of free gas below the BSR (i.e., it did not appear to represent a viable seal). Low C_1/C_2 ratios were observed in the shallow portion of the sedimentary sequence. These values increased with depth as a result of dilution by significant amounts of biogenic gas (methane). There tended to be a significant reduction in the C_1/C_2 ratio below the BSR. Hole 1248B was terminated because of the rapid decrease in the C_1/C_2 suggesting a greater proportion of thermogenic hydrocarbons. It was also noted that there was poor core recovery at the BSR. The gas expansion on deck was a clear safety issue. Sufficient expansion occurred in some cores to "explode", shattering the liner. H_2S was encountered in some shallow cores. The levels of H_2S required that the core technicians wear protective breathing equipment.

Key learning LWD as performed on Leg 204 was not providing real-time monitoring of the well and was not providing information on conditions near the drill bit. This suggests that those sites drilled using LWD were largely drilled "blind". This will be an item to be discussed at the next PPSP meeting in December.

<u>Report on iPC Activities and IODP</u>

Ted Moore briefly reviewed the status of drilling proposals that may come before the panel. There are currently seven proposals to be ranked in September. Additional proposals may be ready to rank by the September iPC/SPC meeting. A listing was provided and is presented below.

Ready to Rank

- 482 – Wilkesland
- 557 – Storegga Slide
- 573 – Porcupine Basin Mounds
- 584 – TAG II Hydrothermal
- 589 – Gulf of Mexico Overpressure
- 543 – CORK 642E
- 572 - N. Atlantic, Late Neogene

Pass to iPC

- 545 - Juan de Fuca Hydrothermal

External Review August '03 (may go to iPC/SPC for September ranking)

- 512 - Ocean Core Complex
- 547 - Ocean Subseafloor Biosphere
- 553 - Cascade Margin Hydrates
- 595 - Indus Fan

Report on iSAS Activities

Nobu Eguchi presented a brief report on iSAS activities. This review included a summary of the current panel meeting calendar and the distribution of proposals. A map was presented showing the distribution of proposals that may come before the panel in the near-future.

Riser Program Status and Operations

Uko Suzuki presented a status report on the riser program. He began with the presentation of a promotional video entitled "Journey into the Unexplored World". The first proposed riser program is planned for the Nankai Trough. It currently appears that this program will deviate from the originally proposed timeline. The timeline appears compressed relative to the original guidelines suggested by both iPPSP and the operator. A complete science review for this initial program is being delayed pending additional seismic data. The *Chikyu* has completed its first sea trial and is currently in Nagasaki for installation of equipment modules, rigging, etc. Plans are that the CDEX safety panel will meet in association with the PPSP.

Review of Proposal 533-Arctic Lomonosov Ridge

Jan Backman presented a brief reminder of the scientific and drilling proposal for MSP-533. It was noted that the program includes five primary and three alternate sites. Four of the proposed sites are planned to penetrate below the unconformity by 50 meters. The program will address a series of tectonic and paleoceanographic objectives. The proponents reported that they believed, where appropriate, that they satisfied the issues raised at the panel's December, 2002 meeting. These issued included:

- A need to clearly demonstrate that proposed drilling locations are off-structure. Structure maps, with posted control, might be a viable alternative for the lack of cross-lines;
- Better images of the shallow section are required, as is a seafloor swath map. The deeper seismic should be migrated, with "light AGC"; and
- Drilling order should be considered. The drilling sequence may permit deeper penetration.

Yngve Kristoffersen provided a review of the activity of the proponents since the preview and the geologic and geophysical framework required for the site by site review. Post-unconformity thickness is commonly 450 meters, but may vary. Much of the variability is thought to be a result of mass wasting, resulting from ice movement. The erosion patterns suggest that the ice was diverted indicating that it was in the form of large icebergs rather than as a massive ice sheet. Problems associated with seismic data collection were reviewed. Depth control on both source and receiver was complicated by the presence of ice. These variations resulted in the need to manually edit the data. Maps were presented which indicated that locations 13A and 14A were not associated with structural closure at or below the unconformity.

It was noted by Alister Skinner that the capability to "kill" the hole with a wireline tool exists and will be available.

A site by site review was presented by Jan Backman.

LORI-06A was approved to a depth of 650 meters for shot point range 940 to 1350 on Line 98590. (An unusual BSR was observed. The panel's consensus was that it was not a reflecting a hydrate zone as a result of its continuity.)
LORI-12A was approved to a depth of 500 meters for shot point range 575 to 625 and to a depth of 720 meters for the shot point ranges 150 to 350, 450 to 575, and 625 to 840 on Line 98580.
LORI-5A was approved to a depth of 350 meters for shot points from 500 to 1100 and to 400 meters for shot points 1100 to 1600 on line 98565.
LORI-10A was approved to a depth of 400 meters between 980 and 1180 on line 96012.
LORI-4A was approved to a depth of 200 meters for shot point ranges 150 to 275 and 300 to 500, to a depth of 375 meters for shot point range between 500 and 650, and 475 meters for shot point range 650 to 800 on line 96015.
LORI-13A was approved to 500 meters for shot points between 1400 to 2100 and to 450 meters (drape only) for shot point range between 2100 to 2300 on line 91091.
LORI-8A was approved to a depth of 500 meters for shot points between 1800 and 3300 on line 91090.
LORI-14A was approved as requested to 400 meters at shot point 240 on line UB-0105.

The approvals are base on the assumption that the seismic line width is 200 meters with the stated navigation as the center point. Deviation beyond these defined limits would require review and approval by PPSP.

The proponents have requested that a member of PPSP participate on the cruise. Alternatively, the panel was asked to provide the name(s) of potential petroleum geochemists that may be able to participate.

(Martin Hovland was the watchdog for this proposal.)

The dataset should be consistently labeled (i.e., no data shifts exist) and available for review in its entirety (i.e. truncated data limited the panel's ability to assess site viability and lengthened discussions and review).

Courtesy Review Promess-1 Drilling

Serge Berné presented an overview of the Promess-1 program which is the drilling component of the Eurostrataform project. It was originally envisioned to be a test of the European participation as the operator for mission specific platforms. Promess-1 plans to drill within the Gulf of Lyon and within the Adriatic Sea. The idea is to examine the sedimentary systems linked to two major river systems, the Rhone and the Po. Specifically, the program will examine:

- Processes associated with the formation of sedimentary strata and the architecture of sedimentary bodies;
- Processes and timing associated of slope instability and the evolution of canyons; and
- Rapid climate change.

Rapid sedimentation in the study area makes it an ideal area to examine the climate change issue. Pockmarks were identified on sequence boundaries. These are thought to be areas of venting. There was no evidence of stacking of these pockmarks. These data suggest that venting was intermittent.

The panel required no additional review of the Adriatic Sea sites. The proposed deepest penetration in the Adriatic was only 70 meters. The seismic data from the Gulf of Lyon was briefly reviewed, where penetrations as great as 300 meters were proposed. No significant concerns were raised by the panel. iPPSP reminded the proponent that shallow gas should be avoided when attempting these deeper cores. The panel suggested that the seismic data should be reviewed/reexamined with this in mind.

The panel recommended that the data be reprocessed for reflectance amplitude to identify shallow gas.

Courtesy Review of Lake Bosumti Drilling

John King presented an overview of the proposed Lake Bosumti (Ghana) drilling program. The lake formed about 1.1 million years ago as a result of meteor impact. The lake is 8 km in diameter and does not currently fill the crater. It has a maximum water depth of about 80 meters. The maximum sedimentary thickness is ~310 meters. The sediments rest on Precambrian metasediments. The upper 10 meters of the water column is oxygenated. The remainder of the lake is anoxic. H_2S is present in the water column. The high reflectivity of the bottom water reflector represents shallow gas in the section. The gas is also thought to be responsible for the poor imaging along the lake basin flanks. Shallow piston cores reveal the presence of significant amounts of organic carbon (up to 10%). Even though the sedimentary section is organic-rich and there is seismic evidence for shallow gas, recovered cores did not display significant expansion. Nine sites are planned along the available MCS lines. Drilling is planned to take place between March and June. This is considered the lake's most stable period during which turnover is least likely to occur. After the initial presentation, which included a summary of the proposed drill sites, no specific PPSP concerns were expressed about any of the proposed locations.

The primary concern expressed by the panel was how the drilling operation could impact the stability of the water column. It was recommended that the gas content and character be determined in the water column prior to drilling to determine how close to saturation it is and that gas content be measured while drilling. If gas content in the water column shows a significant increase, approaching saturation levels, it is recommended that coring be stopped.

<u>Review of DOSECC (Drilling, Observation, and Sampling of the Earth's Continental Crust) Lake Drilling Capability</u>

Dennis Nielson presented an overview of the DOSECC's lake drilling capability. The program currently has three drilling systems capable of operating over different water depth ranges. Details were presented for the GLAD 800 system, which will be used in the Lake Bosumti program. The rig has a water depth limit of ~200 meters. It is designed for operation under calm lake conditions because it lacks heave compensation capability. Minimal crew shelters are available on-board. The drilling barge is non-motorized and requires a support vessel. A 6 5/8" riser is used to stabilize the drill string. In addition to supporting the drill string the riser may be inserted into the mud to prevent sloughing. Mud and cuttings are returned to the lake floor.

<u>Preview of Proposal 564-New Jersey Margin</u>

Greg Mountain presented an overview of the scientific program and history of the New Jersey margin drilling program. The program was developed to examine the sea level curve and the depositional model associated with the development of clinoforms. The clinoform pattern within the area is well developed through at least the Miocene. The proponents recognized early that there was a need to use an alternate platform to complete this program This assessment was based on the limitations placed on prior drilling within the region. Leg 150 was restricted to slope drilling. Leg 174 included plans for shallower holes, but operator restrictions imposed after site approval limited drilling to water depths greater than 75 meters. The drilling of these two legs also identified a number of potential problems associated with the use of a dynamic positioned ship in shallow water including hole stability. Prior drilling also suggested that sand control could be a problem. It was assumed that a jack-up rig would be the preferred drilling platform.

Prior to the final review the panel requests that the following be made available:

- An independent assessment of the distribution and risk of shallow gas (products should include a map with the distribution of any gas accumulations, if present, and the proposed drill sites);
- Side-scan sonar over the sites to identify possible surface hazards. If these data are unavailable, the panel will consider granting approval with the stipulation that a visual (ROV) inspection be made prior to final positioning; and
- A map of subsurface channel distributions with proposed site locations.

PPSP requests that the implementing organization contract for the necessary shallow gas risk assessment. It is our understanding that safety required surveys are not the responsibility of the proponents but of the implementing organization. PPSP would like this assessment completed before its December 2003 meeting so that it may hold a final review of this proposal.

Any required permitting by MMS is the responsibility of the operator. The operator and proponent should work together to insure that this process is completed in a timely and efficient manner.

The panel recommended that alternate sites be proposed and that the sites be located on the hazard survey line crossings. The panel will, however, consider approval based on a series of structure maps built from the available seismic dataset.

(Craig Shipp is the assigned watchdog.)

Review of the Data Bank and MATRIX Working Groups

Andre Droxler presented a review of the progress made by the two working groups which impact both iPPSP and iSSP. iSSP was recommending greater involvement including an annual review of the databank, and assisting in defining the role of the databank. There was also a suggestion that a report template should be defined. The MATRIX working group discussed an integrated, “automated” approach for the problem of data requirements for drilling program development for both scientific and safety purposes. The MATRIX working group simplified merging of the data requirements and provided a foundation for the planning of a database/databank. The recommendations from the MATRIX working group are attached.

The discussion following the presentation indicated a need to clarify the difference between recommendations and requirements. A timeline is needed to show when the data are needed in the review process and who is responsible for the collection of a given dataset (operator vs. proponent).

Panel members are asked to review the data requirements and provide any suggested revisions prior to the July meeting of the iSSP. Jack Baldauf, Alister Skinner, and Uko Suzuki will provide input from an operator's perspective.

Review Guidelines for Drillsite Selection and Near Surface Drilling Hazard Surveys

Bob Bruce presented on overview of shallow hazard survey requirements and final site selection. It was noted that the term shallow refers to the position within the sedimentary column and is independent of water depth. The draft guideline document was discussed (attached). It was noted that the single most dangerous hazard was the encountering of free gas before any pressure control system is in-place. The draft document was considered an excellent starting point clearly noting the many potential hazards and the data required to mitigate their associated risks. The discussion which followed raised questions concerning responsibilities (operator vs. PPSP). It was agreed that this discussion will be continued at the next meeting after the three operators for the program have been established.

e-Review Process

The e-review process was discussed. It was agreed that panel members will be given two weeks to review the drilling proposal and return their votes and comments to the panel chair. As with all proposals the databank will handle the distribution of the safety package. The operator should be included in the proposal distribution. If there are concerns expressed by any of the panel members or the operator a full review will occur at the next meeting. If any panel member feels that a full review is required or that a site needs to be disapproved an explanation will be required so that the proponent can take the necessary actions to satisfy the panel member's needs, if possible.

Discussion on Coral Reef Drilling

Much of this discussion will be deferred to a later meeting (December, 2003). The key concerns are environmental, specifically how the drilling operation itself may impact the reef.

Jack Baldauf will provide a name of a contact to discuss environmental issues associated with reef drilling. The panel chair will then extend an invitation to participate in our December meeting.

Preview of Proposal 519-South Pacific Sea Level

No formal presentation was made on Proposal 519. A brief general discussion took place. (The proponent was not present.) Jack Baldauf noted that prior drilling in the Great Barrier Reef by the *JOIDES Resolution* required an understanding of the environmental zonation of the reef. Different restrictions were placed on different environmental zones. It was noted by Alister Skinner that the proposal is currently in review by the Australian authorities. It was suggested that the rules and restrictions imposed by Australia be accepted as the standard since they are likely to be stricter and considered a "best practice". The panel had requested at its last meeting the following items be prepared and/or considered prior to its final review:

- A map showing the distribution of living reefs and man-made objects relative to the proposed drill sites.
- High resolution back-scatter imagery/maps.
- An assessment as to how drilling might impact hydrologic conditions and ultimately impact existing reefs. Comments on proposed abandonment/completion procedures should be included.
- The type of drilling platform should be identified and a statement concerning the environmental impact of this selection should be included in the final package.

The final review of this program will be the first attempt an e-review.

The proponent will be asked to provide all necessary material to the data bank by September 22, 2003 so that it can be distributed to the panel by September 30. Panel members will be asked to respond by October 15 so that the proponent can be advised as to whether it will be necessary to make a formal presentation at the December meeting.

Dan Quoidbach will provide paper copies of the safety package to members of the PPSP and Alister Skinner who will be acting for the potential MSP operator.

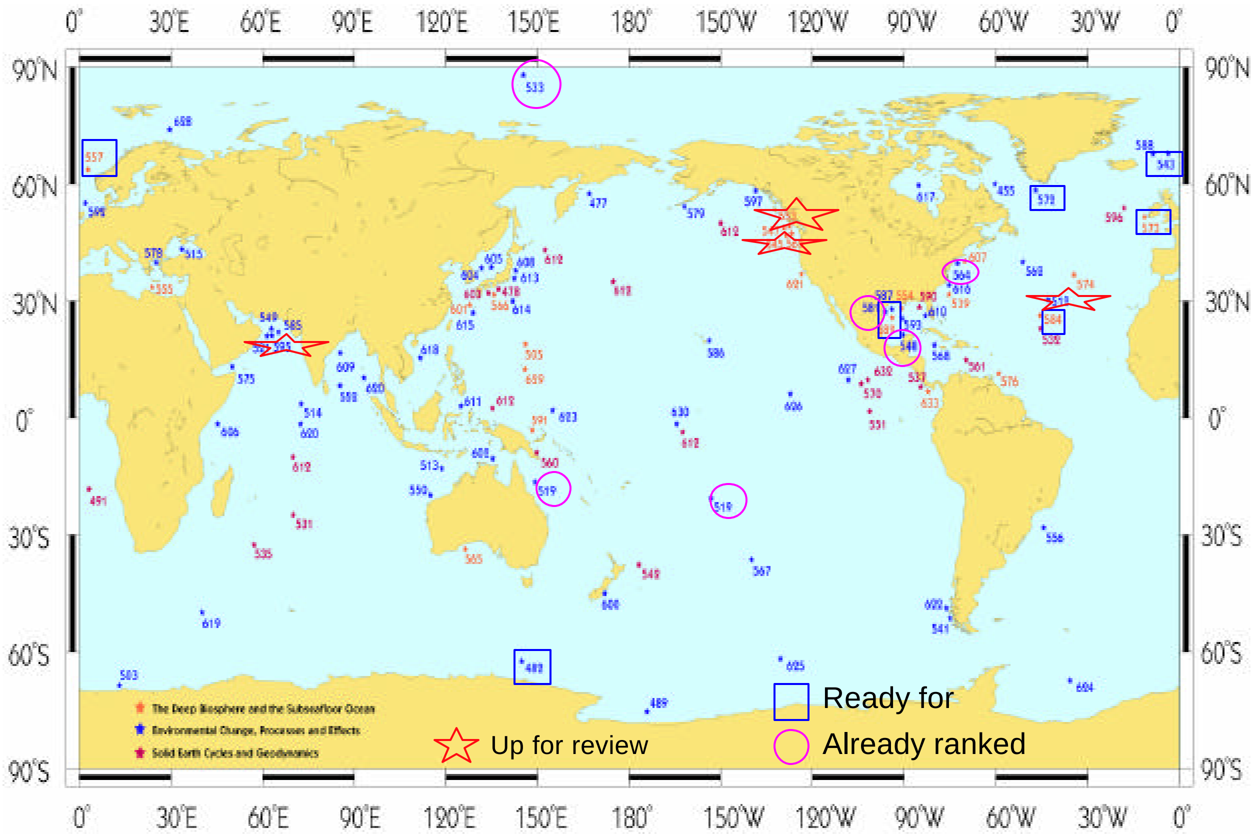
(Dieter Strack is the watchdog for the proposal.)

Next Meeting

The proposed next meeting date is December 15-16, 2003 (alternate dates December 18-19, 2003) in Nagasaki, Japan. Nobuo Morita will act as meeting host. Tentative items for inclusion in the meeting agenda are reviews of non-riser legs 1-3 (to be determined by SPC), review of Proposal 564-New Jersey, preview of first riser leg, discussion on philosophy of LWD vs. coring order, definition of roles of PPSP and platform operators, and environmental consideration for reef drilling. Additional safety items may be added as suggested by members of the panel, and as needed by the SPC and SAS.

The meeting was adjourned at 4:05 (June 17, 2003).

IODP Proposed Sites



MATRIX WORKING GROUP DATA NEEDS AND REQUIREMENTS

	Information/data (common data)	Special requirements	When needed
Basic needs	Depth of penetration Tectonic/depositional setting Nearby wells	_*Man-made hazards_ _*HC shows_ _*Environmental ristrictions_	
Surface	3.5KHz	Video/photography	"Hard" irregular rock outcrop
		Side-scan	_Suspect gas seep, Bottom founded_
		Swath bathymetry	Active margin, bare rock, tectonic window, All riser
		Surface samples	Paleo (sed), bare rock and tectonic window (rock), re-entry sites **Surface slope >10°**
		Geotechnical properties	_Bottom-founded rig (MSP)_ _Anchored-suspected hard bottom (MSP)_
Sub-surface	Lithologic projection Structural configuration (Seismic types be defined: see below)	_Shallow drilling hazard assessment_	_PPSP TO REVIEW_
		Heat flow	_Suspected HC provinces, suspected high heat flow_
		High resolution magnetic (hazard)	_Bottom-founded rigs, anchored rigs (pipeline?)_
		Velocity profile (time-depth control)	All riser, only passive & active margin >200m non-riser, _Case by case_
		Gravity/Magnetic	All riser(influenced by basement), non-riser tectonic window

Other		*Currents *Ice *Weather window *Tidal	
		Pour pressure *Fracture gradient* *Pressure prediction*	*Riser, suspected over-pressure*
		Maturity	*Potential HC provinces >2km sediment*
		Well program	*Riser, over-pressure w/o riser*
		Waste disposal	*Returns to sea floor EEZ drilling as required*
		Abandonment	*Riser*
		Environmental survey	*EEZ drilling as required*

Seismic: (soft rock: sediment)
based on penetration depth

less than 100m	2D SC high resolution (including Boomer) or 3.5kHz if it images the objective or 3.5kHz/low resolution if images the objective **Cross lines**
101 – 1000m	2D grid MCS (passive and active margins), X-line SCS (away from margins penetration <400m), >400m with grid MCS
more than 1001m	2D grid MCS, Spacing and 3D (case by case), *3D (horizontal riser)*

Bold=black=both groups requirement
Italic=blue=iPPSP requirement
Plain=green=iSSP requirement
*=blanket requirement

iPPSP Presentation to the iPC

September 2003

iPPSP June 2003 Meeting Agenda

- Review Leg 204 – Gas Hydrates (South Hydrate Ridge)
- Formal Review - MSP 533 – Paleoceanographic and tectonic evolution of the Central Arctic Ocean
- Preview – MSP 564 – Global sea level and the architecture of passive margin sediments: shallow water drilling of the New Jersey Continental Shelf
- Courtesy Review - Promess-1
- Courtesy Review – Lake Bosumti
- Review MARTIX Working Group recommendations
- Review guidelines for drillsite selection and near surface drilling hazard survey
- Review of e- review guidelines for MSP 519 – South Pacific Sea Level

Review of Leg 204

- Approval had been granted by ODP-PPSP to drill into a frozen gas accumulation of ~9.2 BCF.
- Only the first site was cored prior to logging
- Remaining sites were drilled first using LWD
  - Logging tool located significantly above the bit
  - No real-time data transmission or review
  - Drilling “blind” in a region with known gas
  - No evidence for massive amounts of free gas below the BSR
- LWD policy will be reviewed at the December panel meeting
- Exploding gas because of gas expansion posed another safety problem

Formal Review - MSP 533

- Key issues
  - Requesting approval to drill within a band rather than single location
  - Quality of seismic data and its availability
  - Need to document that structural closure did not exist
- Outcomes
  - Eight “locations” were approved
  - “Locations” were limited by the panel
  - Approval assumed a seismic line “width” of 200 m using the center point
- Post-review items
  - PPSP will have Joel Watkins participate in the Leg
  - Data package preparation can save significant amounts of panel times
  - Still not clear how the different operators will deal with their safety issues.

Formal Review - MSP 533

LORI-06A was approved to a depth of 650 meters for shot point range 940 to 1350 on Line 98590.

LORI-12A was approved to a depth of 500 meters for shot point range 575 to 625 and to a depth of 720 meters for the shot point ranges 150 to 350, 450 to 575, and 625 to 840 on Line 98580.

LORI-5A was approved to a depth of 350 meters for shot points from 500 to 1100 and to 400 meters for shot points 1100 to 1600 on line 98565.

LORI-10A was approved to a depth of 400 meters between 980 and 1180 on line 96012.

LORI-4A was approved to a depth of 200 meters for shot point ranges 150 to 275 and 300 to 500, to a depth of 375 meters for shot point range between 500 and 650, and 475 meters for shot point range 650 to 800 on line 96015.

LORI-13A was approved to 500 meters for shot points between 1400 to 2100 and to 450 meters (drape only) for shot point range between 2100 to 2300 on line 91091.

LORI-8A was approved to a depth of 500 meters for shot points between 1800 and 3300 on line 91090.

LORI-14A was approved as requested to 400 meters at shot point 240 on line UB-0105.

e- review Issues for MSP 519

- A map showing the distribution of living reefs and man-made objects relative to the proposed drill sites.
- High resolution back-scatter imagery/maps.
- An assessment as to how drilling might impact hydrologic conditions and ultimately impact existing reefs. Comments on proposed abandonment/completion procedures should be included.
- The type of drilling platform should be identified and a statement concerning the environmental impact of this selection should be included in the final package.

e- review guidelines for MSP 519

- First formal e-review by PPSP
- Proponent will be asked to provide all necessary material to databank by September 22
- Data packages to be distributed by September 30
  - Dan Quoidbach will provide paper copies of safety package to PPSP members and Alister Skinner for review
- Vote by October 15
  - If questions are raised a full review will be included in the December meeting agenda

Preview – MSP 564

- Follow-up to Leg 174 which was restricted to water depths greater than 75 meters
- Identified problems with dynamically positioned ships in shallow water – Jack-up rig preferred platform
  - Hole stability
  - Sand control
- PPSP requires
  - Independent assessment of shallow gas hazards
    - Formal request made to operator
  - Side-scan sonar to examine surface hazards
  - Map of sub-surface channels
- Requested additional alternate sites (will consider using structure maps rather than cross-lines)
- MMS permitting responsibility of operator

Courtesy Review - Promess-1

- Drilling component of the Eurostartaform project
  - Examination of sedimentary systems linked to the Rhone and Po Rivers
    - Processes association with the formation of sedimentary bodies
    - Slope instability
    - Effects of rapid climate change
  - Pockmarks identified (no stacking) suggesting intermittent venting
- Adriatic Sea – 70 meters maximum penetration
  – No additional review required
- Gulf of Lyon – penetrations as great as 300 meters
  - No significant concerns
  - Recommended that the data be reprocessed for amplitude to identify any shallow gas occurrences

Courtesy Review – Lake Bosumti

- Drilling to examine climate record
- Maximum sedimentary thickness 300 meters
- Lake formed 1.1 million years ago (impact crater)
- Stratified water column
- The primary concern expressed by the panel was how the drilling operation could impact the stability of the water column.
  - Recommended that the gas content and character of the water column be measured before and during drilling.
  - Recommended that coring be terminated if there were any significant changes in water column gas character or

MARTIX Working Group

- Working group defined
  - Common data
  - Special Requirements
  - Timeline
- Need to clarify
  - Difference between recommendations and requirements
  - Who is responsible for data collection
- Operator’s perspective has been solicited

Near Surface Drilling Hazard Survey

- Draft guidelines prepared by Bruce and Shipp
- Shallow hazard refers to position in the sedimentary section and not water depth
- Single most dangerous hazard is encountering gas before any pressure control is in place.
- Discussion to continue after all operators have been determined

Next Meeting – December 15 -17, 2003 – Nagasaki, Japan

- Reviews of non-riser legs 1-3 (to be determined by SPC)
- Preview of Nankai Trough (NanTroSEIZE)
- Discussion on philosophy of LWD vs. coring order (with SciMP who will be meeting independently in Nagasaki at the same time)
- Definition of roles of PPSP and platform operators
- Environmental consideration of reef drilling
- Safety monitoring requirements for the different platforms
- Reef drilling
- Results of the Matrix working group
- SSP activities related to site safety previews and reviews
- Abandonment procedures

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Science Measurement Panel (iSciMP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Scientific Measurements Panel (iSciMP)

1.1 General Purpose. The interim Scientific Measurements Panel (iSciMP) will contribute information and advice to the IODP community through the iPC with regard to the handling of IODP data and information, on methods and techniques of IODP measurements, on laboratory design, portable laboratory needs and downhole measurements and experiments.

1.2 Mandate. iSciMP will provide advice on IODP information related to scientific measurements made onboard the riser and non-riser ships and on _as-needed_ platforms, within and around boreholes, and on samples collected by IODP and associated programs. Its specific mandates are to develop guidelines concerning said measurements and to furnish advice about scientific

measurements which will assist iPC in developing recommendations to IWG regarding equipment and measurement procedures in IODP.

Specific responsibilities for the panel are publications, databases, curation, computers, shipboard equipment usage and needs, measurement calibrations and standards, and borehole measurements, equipment, usage, and needs.

iSciMP recommendations will be sent to iPC.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after the JOIDES SciMPmeeting. Agendas are approved by the iPC Co-Chairs.

1.4 Membership. iSciMP will consist of fifteen to eighteen members. The iPC, in consultation with JOIDES and OD21, will advise on membership replacement (if vacancies occur), based upon maintaining breadth of expertise. Members should have expertise representing the three core areas of the panel mandate covering information handling, downhole measurements, and shipboard measurements. With iPC approval, the panel may bring inadditional information about its mandate issues by setting up *ad hoc*advisory committees whose lifetimes are mandated by iPC.

1.5Liaison. The iSciMP will have liaisons from iPC. Liaisons to other iSAS advisory bodies may be sought with the approval of iPC. Representatives from the main drilling operators will also be invited to attend the meetings.

1.6Chair. The Chair will be appointed by iPC.

DRAFT

Executive Summary
Interim Scientific Measurements Panel (iSciMP)
July 13-16, 2003
Narragansett, Rhode Island, USA

<u>Attendees</u>

i-SciMP

Arnold, Eve (alternate for Sagnotti)	University of Stockholm, Sweden
Buecker, Christian	Germany, RWE-DEA AG
Divins, David L.	US, National Geophysical Data Center, NOAA
Escartin, Javier	France, CNRS Institut de Physique du Globe
Gulick, Sean	US, Institute for Geophysics, Univ. of Texas
Ikehara, M. (alternate for Aita)	Japan, Kochi University
Kikawa, Eiichi (co-chair)	Japan, JAMSTEC, Washington DC
Murray, Rick (co-chair)	US, Boston University
Nanba, Kenji (alternate for Takai)	Japan, University of Tokyo
Neal, Clive	US, University of Notre Dame
Saito, Saneatsu	Japan, JAMSTEC
Schmitt, Douglas	Canada, University of Alberta
Smith, David	US, Grad. School of Ocean., Univ. Rh. Island
Tsunogai, Urumu	Japan, Hokkaido University

Liaisons and Guests

Austin, Jamie	Interim Director, IODP
Brewer, Tim	ECORD
Davies, Tom	TAMU
Farrell, John	JOI, Associate Director ODP
Friefeld, Barry	Lawrence Berkeley Laboratory, USA
Goldberg, Dave	BRG, LDEO
Ito, Hisao	iPC
Kingdon, Andrew	ECORD
Kuroki, Kazushi	JAMSTEC
Moore, Ted	iPC co-chair
Myers, Greg	BRG, LDEO
Roehl, Ursula	University of Bremen
Schuffert, Jeff	iSAS Office
Thomas, Ellen	Wesleyan University

Regrets

Aita, Yoshiaki	Japan, Utsunomiya University
Lovell, Mike	UK, University of Leicester
Sagnotti, Leonardo	Italy, Istituto Nazionale di Geofisica e Vulcanologia
Takai, Ken	Japan, JAMSTEC

Executive Summary

The first iSciMP meeting of 2003 occurred on July 13-16, 2003 at the Graduate School of Oceanography of the University of Rhode Island, USA, with iTAP co-chair Kate Moran serving as host. The three day meeting was held jointly with iTAP for Day 1 and the afternoon of Day 3. As a result of the meeting, iSciMP generated the following 10 Recommendations, 4 Consensus Statements, and 4 Action Items. These are forwarded to iPC for comment and/or approval.

This draft Executive Summary is presented to assist in planning for the iPC and SPC meetings in September, 2003, in Sapporo, Japan. It is not finalized and *only presents the iSciMP aspects of the joint iSciMP – iTAP meeting*. iTAP will be separately forwarding to iPC their recommendations.

Summary of iSciMP Recommendations, Consensus Statements, and Action Items

Joint iSciMP-iTAP Rec 03-01-1: Joint Logging Subcommittee Report.

iSciMP Rec 03-01-1:	Microbiology Working Group Report.
iSciMP Rec 03-01-2:	Database Working Group Report.
iSciMP Rec 03-01-3:	Paleomagnetics Working Group Report.
iSciMP Rec 03-01-4:	Physical Properties Working Group Report.
iSciMP Rec 03-01-5:	Paleontology Working Group Report.
iSciMP Rec 03-01-6:	Underway Geophysics Working Group Report.
iSciMP Rec 03-01-7:	"Seismic Integrator" Staffed In Scientific Party.
iSciMP Rec 03-01-8:	Routine Checkshots or Zero Offset VSPs.
iSciMP Rec 03-01-9:	Importance of Integrated Shorebased Laboratories and Facilities.
iSciMP Rec 03-01-10:	Publications Plan.

iSciMP Consensus 03-01-1:	Thank you to Ellen Thomas for MRC report.
iSciMP Consensus 03-01-2:	Thank you to Barry Freifeld for x-ray CT presentation.
iSciMP Consensus 03-01-3:	Next meeting, Nagasaki, Japan, December 15-17, S. Saito.
iSciMP Consensus 03-01-4:	Thank you to K. Moran, D. Huey, and D. Farmer as hosts.

iSciMP Action 03-01-1 Continue revision of iSAS Proposal Cover sheet to include "anticipated non-standard measurements" section.
iSciMP Action 03-01-2 Revise WG reports by Aug 14 for distribution, recommendation, and comment at September iPC meeting.
iSciMP Action 03-01-3 Get more information on Friefeld's x-ray CT system for inclusion as Appendix into minutes of meeting and for potential further consideration by SciMP and IOs.
iSciMP Action 03-01-4 Revisit IODP Sample and Data Policy with regard to linking obligations to publication policy.
iSciMP Action 03-01-5 Forward to S. Saito all information gathered so far regarding drill cuttings. A. Kingdon to solicit European input and forward names to Murray. Saito and CDEX to provide full report and recommendations at next SciMP meeting.

Joint iSciMP-iTAP Recommendation to iPC

Joint Recommendation 03-01-1: iSciMP and iTAP recommend to iPC acceptance of the **Joint iSciMP-iTAP Logging Subcommittee** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the Logging Subcommittee is found in Appendix Joint-1 and includes descriptions of standard parameters to be measured, a discussion of potential industrial contacts, and other topics.

Specific recommendations include:

A. The aim to fulfill the scientific objectives will drive the logging program in IODP. The choice of methodology for data acquisition must be driven by the resolution, quality, and costs of key measurements required for scientific objectives. Recent trends in industry demonstrate that the standard suite of downhole measurements will migrate from wireline to memory tools and real time data transmission. This major change in downhole data acquisition has to be acknowledged when designing logging programs and developing drilling technology in IODP.

B. IODP should predominantly lease downhole tools instead of buying a standard tool suite. However, special circumstances may require the program to purchase or to develop new technologies.

iSciMP Recommendations to iPC

<u>Recommendation 03-01-1</u>: iSciMP recommends to iPC acceptance of the **Microbiology Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 3 and includes descriptions of measurements to be made on platforms and shorebased laboratories, curatorial issues, and other topics.

Specific recommendations of the Microbiology WG include:

A. Drilling methods that yield cores of optimal quality for microbiological studies should become standard. (Details regarding APC drill over, development of pressure retaining core barrel, minimizing exposure to oxygen and temperature changes, further improvement of contamination testing are provided in the report.)

B. IODP should establish a repository for samples routinely collected and stored appropriately for subsequent microbiological analysis. The samples should be taken in sterile syringes (50 cm^3 capacity) as soon as the core arrives and stored as described in the report depending on the subsequent analysis. (Details regarding nucleic acid analysis, culturing work, and microscopy are provided in the report.)

C. IODP should adopt similar policies that are established within the international community of microbiologists for the exchange of culture and sequence data. (Details regarding internationally recognized and publicly accessible databases, and subcultures of organisms derived from IODP efforts are described in the report.)

D. IODP should institute routine measurements that will be performed in support of an ongoing study of microorganisms in the marine subsurface. The data produced from these assays will be submitted to the general IODP database and be subject to the same stipulations as other data. To achieve this goal, it is recommended that IODP routinely sail a dedicated technician specifically trained in microbiological techniques and procedures, including the use of radioisotopes, for the microbiology laboratory. (Details regarding routine measurements of biomass and metabolic rates [via radioisotopes] are provided in the report.)

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-2: iSciMP recommends to iPC acceptance of the **Database Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 4.

Specific recommendations of the Database WG include:

A. That an IODP Information Services Center (ISC) be established to provide database services within a distributed networked system and not within a centralized system. The system, termed the IODP Information Services, is composed of the database management activities of each of the IOs, a database of legacy data (DSDP and ODP, where these data will be maintained is not specified), and, at its heart, the Information Services Center operating directly under the IMI. The primary functions of the ISC should include:

- A **clearinghouse function** provided by ISC management, technical, and communications staff with appropriate network and computer infrastructure to provide integrated access to the program-wide information; and
- A **coordination function** provided by an assemblage of information services staff from each of the IOs as well as the ISC, site survey data bank services staff, and scientific drilling legacy data staff.

B. That the ISC have the following specific responsibilities:

- Provide integrated access to all IODP data (e.g. shipboard and shore-based)
- Develop & maintain:

– --the central program-wide web-based portal to stakeholders (scientists, educators, industry, policy-makers, public). Note: this portal should be dynamic & open to other international information systems & communities (e.g. physical oceanography)

– --portal user interfaces that are scalable for different stakeholders

- Following SAS advice, adopt & maintain standards to:

--capture, storage, and distribution of data and metadata on each platform and of shore-based data. Required developments and implementations should be largely based on ISO, OGC, W3C standards and recommendations (for more information see http://www.fgdc.gov/standards/related_activities.html)

– --foster publication of data within IODP information services, e.g., using Digital Object Identifiers (DOI, http://www.doi.org)

- Perform regular (360 degree) evaluations of the performance of the clearinghouse and the IOs in the delivery of IODP information services
- Oversee the archiving of IODP legacy data (e.g, in partnership with recognized data centers)
- Maintain and provide access to the program's publications database and integrate IODP information/data with IODP publications, e.g., using DOIs
- Provide access to IODP curatorial information
- Coordinate the development of data capture interfaces for specific platforms on an as-needed basis
- Coordinate communications among the platform operator's IT/IS managers to share new ideas, resolve problems, and to adopt new information technologies.

• Maintain links with other data groups (e.g. WDC, NGDC, ICDP, DEOS) and disseminate relevant information among IOs.

C. That IODP Information Services include the following standard practices:

- The ISC should be regularly evaluated following IODP project management standards to ensure that it meets the data and information needs of the IODP stakeholders as defined by the SAS
- An annual review of the ISC by external IT/IS experts to ensure that IODP is utilizing the best technology possible (e.g. in terms of cost, applicability or efficiency)
- IOs should ensure that the standard (as defined by SAS) shipboard IODP data are captured electronically by the end of the moratorium period for each project
- IOs will work together with the ISC to provide consistent data collected on all platforms with particular attention given to common units, calibration information, and standardization of measurements (e. g. depth, age models, etc.)
- IOs are responsible for performing quality control and consistency checks on all data and metadata generated on their platform for each project
- The ISC will provide feedback to the IOs on the quality and consistency of the metadata supplied

D. Standards are essential to the success of the ISC clearinghouse. The Group recommends that:

- Based on advice from the SAS, the ISC will adopt data standards for IODP consistent with international and emerging standards such as ISO and FGDC

- IOs provide the ISC with access to IODP data using consistent, standard metadata catalogues (e.g. in XML following adopted IODP standards)

E. Information includes, but is not limited to:
- Shipboard and shore based collected data (ODP Janus data and microbiology, drilling parameters, downhole measurements, site-specific survey, paleontology, visual core description, XRF, CT data)
- Engineering data
- Citations that include IODP information
- Curation information
- Observatory data links
- Ship schedules
- Applications
- Project description information
- Policies
- Publications.
-

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-3: iSciMP recommends to iPC acceptance of the **Paleomagnetics Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 5 and includes descriptions of measurements to be made on platforms and shorebased laboratories, curatorial issues, and other topics.

Specific recommendations of the Paleomagnetics WG include discussions of u-channeling, instrumentation, sampling frequency and type of sampling.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-4: iSciMP recommends to iPC acceptance of the **Physical Properties Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 6 and includes descriptions of measurements to be made on platforms and shorebased laboratories, curatorial issues, and other topics.

Specific recommendations of the Physical Properties WG are based on discussions on how to best integrate with logging and other associated measurements, which are minimum measurements (for all platforms), and other issues.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-5: iSciMP recommends to iPC acceptance of the **Paleontology Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 7 and includes descriptions of measurements to be made on platforms and shorebased laboratories, curatorial issues, and other topics.

Specific recommendations of the Paleontology WG are oriented towards how to best incorporate the skills and expertise provided by the Micropaleontological Reference Centers (MRCs) as well as potential development of a new sample processing scheme for routine use. This resulted in the following recommendation:

A. That the iSciMP populate an *ad hoc* Working Group that would meet once to discuss these multiple issues. Analogous to the former Microbiology WG and Database WG, the *ad hoc* group would be composed of 8-10 US, Japanese, and European experts and would provide a final set of recommendations to iSciMP for consideration at their Nagasaki meeting. Proposed co-chairs are Yoshiaki Aita and Ellen Thomas, with potential members tentatively including M. Knappertsbusch, B. Huber, N. Suzuki, M. Iwai, plus others.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-6: iSciMP recommends to iPC acceptance of the **Underway Geophysics Working Group** report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 8 and includes descriptions of measurements to be made on platforms and shorebased laboratories, curatorial issues, and other topics.

Specific recommendations of the Underway Geophysics WG include:

A. Each platform needs adequate navigation and bathymetric data collected underway and on site.

B. All site surveys should be acquired by bona fide seismic vessels prior to drilling. However, seismic capabilities need to be continued on the non-riser platform primarily as a support for VSPs and Checkshots rather than using the non-riser platform as a seismic survey vessel. Seismic capabilities on the *Chikyu* should exist to provide adequate seismic sources for downhole VSP or Checkshot acquisition but no underway seismic capability is recommended. It is not necessary for MSPs to have seismic capabilities unless it is required for VSPs and Checkshots or it is required by the contractor for safety purposes.

C. Magnetic capability underway on the non-riser platform is desirable but no routine towed underway geophysics capability can be reasonably discussed for the *Chikyu* or MSPs.

D. Gravity and Swath Mapping systems are seen as too expensive in personnel and operating costs to be maintained on any of the drilling platforms.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-7: iSciMP recommends a **Seismic Integrator** be included as part of the scientific party for any drilling project where core-log-seismic integration is required.

> Background: The position should be filled by a person with scientific background in seismic interpretation and core-log-seismic integration. The person should facilitate integrated interpretations. The responsibilities of the Seismic Integrator are to: receive pre-cruise training on the seismic interpretation and integration package prior to the cruise, ensure the backing up and loading of the seismic dataset that is associated with the drilling project prior to the cruise, do on-board core-log-seismic integration and prepare results for the Expedition Report, establish a depth-time model for each logged hole to be incorporated into the

platform database, and create a backup tape of the workstation project at the end of the cruise.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-8: iSciMP recommends that whenever correlation of logs to seismic is required for any IODP drilling project, either **checkshots or zero-offset VSPs** should be routinely collected.

Background: It is expected that the need for VSPs will increase with increasing target depth and therefore the Chikyu and JOIDES Resolution replacement should have the capability to collect checkshots and zero-offset VSPs. Collection of checkshot or VSPs during MSP drilling project should be dependent upon logistics and science needs. The quality of VSPs is expected to increase in IODP versus ODP through the use of appropriate tools for lithologies and depths of a drillsite, cumulative experience, and standardized procedures.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

Recommendation 03-01-9: iSciMP identifies the importance of **shore-based facilities** to complete routine measurements after IODP drilling expeditions and to calibrate and develop the measurements facilities continuously on shore. iSciMP recommends that integrated laboratories of core repository and shore-based facilities ("IODP integrated core repository"), which does not exist in the ODP period, are required to maximize the IODP multi-platform operations and to create new sciences.

Potential examples of such combined laboratory and curatorial facilities include, but are not limited to, the Center for Advanced Marine Core Research (CMCR), Kochi University, Japan, operated in cooperation with JAMSTEC, and the Bremen Core Repository at Bremen University, Germany.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

(Recommendation 03-01-10 is on next page…)

Recommendation 03-01-10: iSciMP recommends that the **publications program** of the IODP include the components listed below. The responsibility for implementing and overseeing these components will lie within central management of the IODP. The publication obligations incurred by a member of the Scientific Party are described in the IODP Sample and Data Policy.

1. A complete print and electronic Expedition Report volume. Both versions will capture all information produced by the Scientific Party for each drilling project, including core images and descriptions, and will be consistent and standardized across all platforms and shorebased components.

2. A continually updated on-line bibliography of each drilling project.

3. An Expedition Science Summary written by the chief scientists of the expedition will serve as a lead-in to the on-line bibliography. The Expedition Science Summary will be submitted 32 months post-moratorium.

Vote: 14 yes, 0 no, 0 abstain, 1 absent (Lovell).

(Consensus Statements begin on the next page….)

Consensus Statements

Consensus Statement 03-01-1: iSciMP thanks Dr. Ellen Thomas for providing the Micropaleontology Reference Center (MRC) Report (see Appendix 9). iSciMP acknowledges the value the MRC's have provided to scientific ocean drilling in the past, and hope they will continue to be of assistance to IODP in the future.

Consensus Statement 03-01-2: iSciMP thanks Barry Freifeld of Lawrence Berkeley Laboratory for his presentation on the portable x-ray CT system (see Appendix 10) and acknowledges the potential opportunities this instrument presents to the multiple platforms and laboratories of the IODP.

Consensus Statement 03-01-3: iSciMP will hold their next meeting in Nagasaki, Japan, with iSciMP member Dr. Saneatsu Saito serving as host. The meeting will occur from December 15-17, 2003, and will include a visit to the *Chikyu*.

Consensus Statement 03-01-4: iSciMP and iTAP thank Dr. Kathryn Moran, iTAP Co-Chair, for hosting our joint meeting in Rhode Island, and appreciates the effort she and her assistants (Jason Ressler, Jennifer Henderson) have provided on our behalf. We further thank David Huey of Stress Engineering Services, Inc., and Dean David Farmer of GSO-URI for their support of our meeting activities and functions.

(Action Items begin on the next page….)

Action Items

iSciMP Action 03-01-1: Continue revision of iSAS Proposal Cover sheet to include "anticipated non-standard measurements" section.

Status: On-going. On July 24 the iSAS Office forwarded to iSciMP a suggested revised cover sheet, which iSciMP is currently discussing.

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iSciMP Action 03-01-2: Revise WG reports by Aug 14 for distribution, recommendation, and comment at September iPC meeting.

Status: On-going.

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iSciMP Action 03-01-3: Get more information on Friefeld's x-ray CT system for inclusion as Appendix into minutes of meeting and for potential further consideration by SciMP and IOs.

Status: On-going.

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iSciMP Action 03-01-4: Revisit IODP Sample and Data Policy with regard to linking obligations to publication policy.

Status: On-going.

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iSciMP Action 03-01-5: Forward to S. Saito all information gathered so far regarding drill cuttings. Kingdon to solicit European input and forward names to Murray. Saito and CDEX to provide full report and recommendations at next SciMP meeting.

Status: Done. On July 21, Murray forwarded to Saito all relevant information gathered to date. On August 8, David Roberts of British Petroleum provided to Murray via Kingdon the contact information of Paul Page (Sudbury), Bryan Chambers (Aberdeen), and Juan Carlos Rojas (Houston), and Murray forwarded it to Saito.

List of "Appendices" is on following page.

Appendices

Joint-1: **Logging Subcommittee Report.** (Pending)

iSciMP 1. **Agenda.**

iSciMP 2. **Updated Equipment List, *Chikyu*.**

iSciMP 3. **Microbiology Working Group Report.**

iSciMP 4. **Database Working Group Report.**

iSciMP 5. **Paleomagnetics Working Group Report.**

iSciMP 6. **Physical Properties Working Group Report.** (Pending)

iSciMP 7. **Paleontology Working Group Report.**

iSciMP 8. **Underway Geophysics Working Group Report.**

iSciMP 9. **Micropaleontology Reference Centers (MRCs) Report.**

iSciMP 10. **X-Ray CT Report by Dr. B. Friefeld, Berkeley.**

Proposed Agendas for the
Joint Meeting of iSCIMP and iTAP
July 13 - 16 2003

University of Rhode Island
Graduate School of Oceanography
Narragansett Bay Campus, Narragansett Rhode Island

Overview

July 13th (Afternoon – starts at 13:00) Joint iTAP/iSCIMP Logging Subcommittee Meeting
July 14th (Full Day) Joint iTAP/iSCIMP Meeting
July 15th (Full Day) Separate Meetings of iTAP and iSCIMP
July 16th (Morning) Separate Meetings of iTAP and iSCIMP
July 16th (Afternoon) Joint iTAP/iSCIMP Meeting

July 13th Afternoon

Meeting of the Joint iTAP/iSCIMP Logging Subcommittee (Subcommittee Members are: Buecker, Schmitt, Gulick, Kamata, Arai, Gearhart, Becker)

July 14th Morning (Joint iTAP/iSCIMP)

1. Welcome
2. Introductions
3. Review and Approval of Joint Agenda
4. IODP Overview (Austin, Interim Director)
5. Reports
   a. iSSEPs (Escartin & Masuda)
   b. iPC (Moore & Ito)
   c. OD21 / CDEX (Kuroki & Ikehara)
   d. OD21 / J-DESC (Ito & Saito)
   e. ECORD (Skinner)
   f. Leg 209 Report (Kikawa)
   g. Status on Pipe Diameter

July 14th Afternoon (Joint iTAP/iSCIMP)

6. Joint Panel Issues
   a. Overview (Murray)
   b. Procedures for Technology Development & Implementation (Masuda)
   c. Discussions on IODP Standard on Drillpipe and Core Diameter (Moran)
   d. Logging Subcommittee Report/ IODP Logging Standard (Buecker)
   e. Measurement While Drilling and Coring (Huey / Goldberg)
   f. Status of CDP Planning
7. Project Management for IODP (Becker)

July 15th Morning & Afternoon

Proposed ITAP Agenda

1. Review, changes & approval of iTAP Meeting #2 minutes and iTAP agenda
2. Business arising from iTAP meeting #2
   a. Project Task Group Status (Moran)
   b. Legacy Project Report (TBN)
3. Prioritize & Recommend Technical Challenges from ISP:
   a. Climate history challenges (Taylor)
   b. Gas Hydrates (Masuda/)
   c. Hydrogeology (Becker)
   d. Zero-age Crust (Huey)
4. Other Important Technical Challenges
   a. TAGII Presentation (Rona)
   b. Difficulties in Deep Drilling (Arai)
   c. Long-term Monitoring under High Temperature (Kamata)
   d. MSP Technical Needs (Skinner)

Proposed iSCIMP Agenda

1. Review & approval of Alberta minutes
2. Review & approval of iSciMP agenda
3. Report of Microbio WG (Smith)
4. Report of Database WG (Divins)
5. Remaining Lab WG Summary Reports
6. Micropaleo Ref Centers (Thomas)
7. Drill Cuttings: Acquisition, Curation, etc.
8. X-Ray CT System (Friefeld)
9. Publications (Murray)

July 16th Morning

Proposed ITAP Agenda (continued)

5. Role of iTAP for the IODP proponent community & iSAS
   a. Discussion on relationship among SSP/SSEPs
   b. Clarify iTAP's role in iSAS
   c. Identify iTAP members to work on technical briefs
6. Cross-platform technical issues
   a. Logging tools
   b. LWD for detecting hydrocarbons
   c. Other Issues
7. Future Structure & Membership in IODP
8. Review of Recommendations and Action Items

Proposed iSCIMP Agenda (continued)

10. Technician Support (Murray)
11. Scientific Staffing (Murray)
12. Membership Rotation (Murray)
13. iSciMP/iTAP Future (Murray)
14. Review of iSciMP Recommendations

July 16th Afternoon (Joint iTAP/iSCIMP)

Science & Technology Panel Structure in IODP

8. Review of Recommendations
9. SciMP/iTAP future (Murray, Kikawa, Moran, Masuda)
10. Any Other Business
11. Next Meeting(s) and Hosts

OD21 SHIPBOARD LAB EQUIPMENT (DRAFT) Status
As of June 31, 2003

	Item	No.	Provider/manufacture	Specification	Purchased
	CO-CHIEF & STAFF SCIENTIST'S OFFICE (Lab. Management Deck)				
H-50	PC(win)	3			
H-51	PC(mac)	3			
H-60	Compact Copy machine	1			
H-61	CATV monitor	1			
	Lab. Roof Deck				
Q-1	Core Container (20ft)	10			
Q-2	Gas monitor for Core container	1set			
Q-5	Core catcher bench with sink	1	Ship yard	Steel bench with steel sink, Hot, and cold water, and compressed air	yard provided
Q-7	Core rack	1	Ship yard		yard provided
Q-100,101	Utility for container lab. and RI lab.	1set	Ship yard	Hot and cold water, Chemical drain, Compressed Air, Telephone, and other utilities.	yard provided
	CORE REGISTRATION ROOM (Lab. Roof Deck)				
S-50	PC(win)	1			
S-60	BC printer	1			
S-61	Printer (mono)	1			
S-62	CATV monitor	1			
	DOWNHOLE MEASURE LAB (Lab. Roof Deck)				
P-4	Chain Block	2set	Osaka Futaba (Japanese)	Electric powered, Lifting weight: 250Kg. Lifting speed : 8.5m/min Chain size: 6.3	Yard Provided
P-50	WS	2			
P-51	Logging Units	1set			sub-contractor
P-52	PC(win)	6			
P-53	PC(mac)	2			
p-60	Printer (color)	1			
P-61	Compact Copy machine	1			
P-62	Plotter(A0)	1			
P-63	CD-RW	1			
P-64	MO	1			
P-65	ZIP	1			
P-66	DAT	1			
P-67	EXBYTE	1			
P-68,69,70	CATV monitor	1ea.			
	X-RAY CT SCANNER LAB (27m2) (Core Processing Deck)				
G-1	X-ray CT Scanner	1	GE Medical Systems: LightSpeed Ultra 16	16 channel, 1 slice: 0.65mm, x-y resolution: 0.35mm, axis resolution: 0.4mm	FYJ2003
G-100	X-RAY shield structure	1	Ship Yard	passed test (2mm pb, 4mm pb for the floor)	Yard provided
	QA/QC Sampling Room (35m2) (Core Processing Deck)				
I-1	Sampling device for microbiology	1			
I-2	Fluorescence microscope	1			
I-3	Gas chromatograph (ECD)	1			
I-4	Liquid chromatograph	1			
I-5	Fume Hood	1	Yamato kagaku (Japanese): RBF-180S-Y	inside dimension: approx. 150x55cm, exhaust air volume: 19m3/min, Air flow rate: approx. 0.5m/s	Yard provided
I-6	Clean Bench	1	Yamato kagaku (Japanese): PCV-1305BNG3	inside dimension: approx. W116xH72cm, Air flow rate: approx. 0.3m/s w/HEPA filter, Class 10	FYJ2003
I-7	Anaerobic glove box	1	Coy: 7000-000BT Special	similar to JR's glove box: 195x99x102cm with two pair gloves on opposite side, airlock, oxygen and hydrogen analyzer, gas leak detector and so on	Supplemental budget FYJ2003
I-8	Autoclave	1	Tomy (Japanese): BS305	Chamber Capacity: 45 litters, Operating Temperature: 105~127degree C, Max Operating pressure: 167kPa	Supplemental budget FYJ2003
I-9	4-Column 100-ton Press	3			
I-10	Fume Hood	1	Yamato kagaku (Japanese): RBF-120S-Y	inside dimension: approx. 100x55cm, exhaust air volume: 12m3/min, Air flow rate: approx. 0.5m/s	Yard provided
I-11	LN2 bottle	2			
I-12	LN2 rack	1			
I-13	Ultrapure water system	1	Millipore Corporation: Milli-Q EQG-10L	Elix 10 UV Purification System with Mili-Q Gradient System: Use for Analytical chemistry, Resistivity: 18.2, TOC(ppb): 1-5, Pyrogens(EU/mL): NA, Bacteria(cfu/mL): <1, Flow Rate(L/min): 1.5	Supplemental budget FYJ2003
I-14	Dry Heated Sterilizer	1			
I-15	Centrifuge	1			
I-17	Balance	1			

I-18	Drying oven	1	Tokyo rika (Japanese): WFO-451SD	Internal Dimensions: 450mmWx450mmDx400mmH, Temperature control range: 40C~200C +/-1C	FYJ2003
I-50	PC(win)	2			
I-51	PC(mac)	2			
I-52	CATV monitor	1			
I-60	BC printer	1			
	Microbiology Laboratory (80m2) (Core Processing Deck)				
J-1	Safety cabinet	1	Yamato kagaku (Japanese): SCV-1305ECIIAB	internal dimensions: 1300mmWx520mmDx675mmH, Air flow rate: 0.3~0.5m/s, Exhaust air volume: 8.6~10.9m3/min w/HEPA filters, Class II based on National Sanitation Foundation	Yard provided
J-2	Pharmaceutical refrigerator	1	SANYO (Japanese): MPR-513R	internal Dimensions: 800mmWx465mmDx1300mmH, effective capacity: 486L, Temperature control range: 2C~14C,	FYJ2003
J-3	Freezer_-85 _C_	2	SANYO (Japanese): MDF-493AT	360 Litter, open top type with Liquid CO2 support system	Supplemental budget FYJ2003
J-4	Freezer_-150 _C_	2	SANYO (Japanese): MDF-1155AT	128 Litter, open top type with Liquid CO2 support system	Supplemental budget FYJ2003
J-7	Pressure pump	1			
J-8	Pressure chamber for sample preservation	5			
J-9	Freeze drier	1	Labconco: FZ-4.5CL	FreeZone 4.5 litter Console Freeze Dry System, 10 drying chamber, capable of 4.5 litters of ice, remove over 2 litters of water in 24 hours	Supplemental budget FYJ2003
J-10	Incubator (0-30_, 10-60_, 25-150_)	3			
J-11	Anaerobic glove box	1	Coy: 7000-000BT Special	similar to JR's glove box: 195x99x102cm with two pair gloves on opposite side, airlock, oxygen and hydrogen analyzer, gas leak detector and so on	Supplemental budget FYJ2003
J-12	Autoclave (large)	1	Tomy(Japanese): BS305	Chamber Capacity: 45 litters, Operating Temperature: 105~127degree C, Max Operating pressure: 167kPa	Supplemental budget FYJ2003
J-14	Fluorescent phase contrast microscope	1			
J-15	Fluorescent microscope	1			
J-17	Photo micrographic system	1			
J-19	Ultrapure water system	1	Millipore Corporation: Milli-Q EQE-10L	Elix 10 UV Purification System with Mili-Q Element System: Use for Ultratrace Analysis, Resistivity: 18.2, TOC(ppb): <5, Pyrogens(EU/mL): NA, Bacteria(cfu/mL): <1, Flow Rate(L/min): 1.5	Supplemental budget FYJ2003
J-20	Electronic Balance	1			
J-21	Centrifuge with temp control	1			
J-29	Refrigerator (4_, -20_)	1	SANYO (Japanese): MPR-411FRS	Up right type Pharmaceutical Refrigerator, Refrigerator compartment (2~14 degree C) Capacity: 340 Litter, Freezer compartment (-10~-30 degree C) capacity: 82 Litter	Supplemental budget FYJ2003
J-32	Fume Hood	1	Yamato kagaku (Japanese): RBF-180S-Y	inside dimension: approx. 150x55cm, exhaust air volume: 19m3/min, Air flow rate: approx. 0.5m/s	Yard provided
J-33	Clean bench	1	Yamato kagaku (Japanese): PCV-1305BNG3	inside dimension: approx. W116xH72cm, Air flow rate: approx. 0.3m/s w/HEPA filter, Class 10	FYJ2003
J-34	Gas Chromatograph (TCD,FID)	1			
J-35	Ultrasonic Cleaner	1	Branson: 3510J-DTH	Digital control variable temperature: 200W, 42KHz, Tank: 5.7L	FYJ2003
J-36	Desiccator	1			
J-50	PC(win)	2			
J-51	PC(mac)	2			
J-52	Mobile PC(win)	1			
J-60	Printer (color)	1			
J-61	CATV monitor	1			
	Core Lab./PP (210m2) (Core Processing Deck)				
B-1	Whole Core MSCL	1			
	_Gamma-Ray Attenuation Porosity Evaluator(GRAPE)				
	_Magnet Susceptibility Meter				
	_P-Wave Logger(PWL)				
	_Electric resistibility				
B-24	_Natural Gamma-Ray Spectrometer				
B-2	Digital Image MSCL__________Color line scanner	1			
B-3	Whole/Split Core MSCL	1			
	_P-Wave Logger(PWL)				
	_Magnet Susceptibility Meter				
	_Electric resistibility				
B-25	Color spectrometer	1			
B-4	XRF Core Logger	1	JEOL(Japanese): JSX-3600CA1	non-destructive measurement system, Detection Range: Na~U, Detector resolution: <150eV, X-ray tube: 5~50KV, 0.1~1mA	FYJ2003
B-5	Mini core Drill Press	2	Maruto (Japanese): MGC-10	Similar to JR, exchangeable diamond bits.	Supplemental budget FYJ2003

B-6	Laser Particle Analyzer	1			
B-7	Stereomicroscope	2			
B-8	Polarization Microscope	2			
B-11	Cut-off Saw/Tile Saw	1	Maruto (Japanese): MC-442S	Max. blade size: 300mm, Table size: 290x250mm	Supplemental budget FYJ2003
B-12	Parallel Saw	1	Maruto (Japanese): MC-442SS2	Same as above, Adjustable blades distance	Supplemental budget FYJ2003
B-13	Super Saw/Core Splitter	1			
B-14	X-Ray System (Soft X-ray camera)	1			
B-15	Heat sealer w/ vacuum	5			
B-20	Thermal Conductivity System	1	TeKa Berlin: TK04	same as JR, Use needle probe method, Measuring range: 0.1-1.2 $Wm^{-1}K^{-1}$(VLQ), 0.3-12$Wm^{-1}K^{-1}$(HLQ), Accuracy: better than +/-5% (standard), Reproducibility: better than +/-1.5%, Heater current: better than 0.01%	Supplemental budget FYJ2003
B-21	Penta-Pycnometer	1			
B-22	Electronic Balance(2)	2			
B-23	XRD	1			
B-26	Oven dryer	1	Tokyo rika (Japanese): WFO-601SD	Internal Dimensions: 600mmWx500mmDx500mmH, Temperature control range: 40C~200C +/-1C	FYJ2003
B-50	PC(win)	4			
B-51	PC(mac)	2			
B-52	PC(win)	2			
B-53	PC(mac)	2			
B-54	WS	1			
B-55	WS	1			
	Paleomagnetics Laboratory(28m2) (Core Processing Deck)				
C-1	Cryogenic Magnetometer System	1			
	(Alternating Field Demagnetizer)				
	(ARM Magnetizer)				
	(IRM Coil)				
C-3	Spinner Magnetometer	1	Natsuhara Gikenn (Japanese): SMD-88	Measurement range: 10^{-1}~$10^{-6}$$mAm^2$, Accuracy: below +/-2.5%, Noise level: ~1x$10^{-7}$$mAm^2$(256stacking), magnetic shield: 4 layers of parmaloy, Resodue magnetic field: below 10nT	Supplemental budget FYJ2003
C-4	Thermal Demagnetizer	1			
C-5	3-Axis Fluxgate Magnetometer	1			
C-6	AF Demagnetizer	1	Natsuhara Gikenn (Japanese): DEM-95	Max. demagnetize field: 180mT, Mini. Magnetic field setting: 0.2mT, Demagnetized frequency: ~100Hz, ARM: max 0.4mT(40e), Accuracy: below +/-2.5%, Resodue magnetic field: below 10nT	Supplemental budget FYJ2003
C-7	Pulse Magnetizer	1	Magnetic Measurements Ltd.: MMPM10	Field strength: more than 9Tin 3 ranges, Pulse duration: 3msec	Supplemental budget FYJ2003
C-8	Partial Anhysteric Remanence Magnetizer(PARM)	1	ASC Scientific: Dtech D-2000	AF Peak Field: 0.2T(2000 Gauss), Minimum AF Field Step: 0.0001T(1.0 Gauss), ARM Peak Field: 0.0015T(1.5 Gauss), PARM Peak Field: 0.0015T(1.5 Gauss), AF Decay Rates: Eight discreet rates available, Minimum PARM Step: 0.0001T(1.0 Gauss)	Supplemental budget FYJ2003
C-9	Bartington MS2 Susceptibility Device	1			
C-10	Kappabridge	1	AGICO, Inc.: KLY-3S Kappabridges	Operating Frequency: 875Hz, Field intensity: 300A/m, Field Homogeneity: 0.2%, Measuring range Automatic: Up to 0.1 (SI), Sensitivity (typical): Bulk:2.5x10^{-8}(SI), Aniso:1.2x10^{-8}(SI), Accuracy Within One Range: +/-0.1%, Absolute Accuracy calibration: +/-3%, Pick-up Coil Diameter: 43mm	Supplemental budget FYJ2003
C-11	Hall-Effect Gaussmeter	1	Walker LDJ Scientific: MG-5DP	Range: +/-100.0 gauss, +/-1.000kG and +/-10.00kG with 100% over-range(+/-100 mG to +/-19.99kG), resolution: 0.05%, Peak meter reading Accuracy: +/-1% of full scale, Peak reading Resolution: (10-40 degree C) from DC to 20kHz8sinewave) minimum pulse width 50 microsec(square wave)	Supplemental budget FYJ2003
C-12	Fluxgate Digital Magnetometer	1			
C-14	Magnetic shield room	1		3.5mG shield	Yard Provided
C-50	PC(win)	3			
C-51	PC(mac)	3			
C-60	Printer (color)	1			
C-61	CATV monitor	1			
	OFF-TIME SPACE (Core Processing Deck)				
KK-50	WS	1			
KK-51	PC(win)	1			
KK-52	PC(mac)	1			
KK-60	Printer (color)	1			
KK-61	CATV monitor	1			
	CURATOR OFFICE (Core Processing deck)				

X-60	PC(win)	1			
X-61	CATV monitor	1			
	SAMPLE PREP ROOM(62m2) (Lab. Street Deck)				
E-1	Freeze Dryer	1	Labconco: FZ-4.5CL	FreeZone 4.5 litter Console Freeze Dry System, 10 drying chamber, capable of 4.5 litters of ice, remove over 2 litters of water in 24 hours	Supplemental budget FYJ2003
E-3	Ultrapure Water System	1	Millipore Corporation: Milli-Q EQA-10L	Elix 10 UV Purification System with Mili-Q Academic System: Use for general laboratory applications, Resistivity: 18.2, TOC(ppb): 5-10, Pyrogens(EU/mL): NA, Bacteria(cfu/mL): <1, Flow Rate(L/min): 1.5	Supplemental budget FYJ2003
E-4	Electro balance	2			
E-6	Fume Hood	1	Yamato kagaku (Japanese): RBF-120S-Y	inside dimension: approx. 100x55cm, exhaust air volume: 12m3/min, Air flow rate: approx. 0.5m/s	yard provided
E-9	Tabletop clean bench	1	Yamato kagaku (Japanese): PCV-750APG	Outside dimension: approx. 750mmWx500mmDx1120mmH, Air flow rate: approx. 0.45m/s, Class 100	FYJ2003
E-10	Tabletop cooling centrifuge	1			
E-12	Forced convection constant temperature oven	2	Yamato kagaku (Japanese): DNF400	Internal Dimensions: 400mmWx450mmDx450mmH, Temperature control range: 5C~260C +/-0.5C	FYJ2003
E-14	Glassware Washer	1	SANYO (Japanese): MJW8010	Inside dimension: 500X505x600mm with one rack, shower on top and rotary jet nozzle on bottom.	Supplemental budget FYJ2003
E-16	Ultrasonic Cleaner	2(1)	Branson: 8510J-DTH	Digital control variable temperature: 560W, 44KHz, Tank: 20.1L	FYJ2003
E-17	Ultraviolet Lamp	2	Sanhayato (Japanese): BOX-W9B	Exposed dimension: 160mmx250mm	FYJ2003
E-19	Fume Hood for HF	1	Yamato kagaku (Japanese): RFB-120VZ	inside dimension: approx. 100x55cm, exhaust air volume: 12m3/min, Air flow rate: approx. 0.5m/s	yard provided
E-20	High speed solvent extractor	1			
E-21	Tabletop Centrifuge(2)	1			
E-22	Bead Sampler	1			
E-24	Isotemp Programmable Ashing Furnace	1			
E-25 (37)	Mixer Mill	1			
E-31	Scientific Balance System(2)	2			
E-32	X-Press Motorized Hydraulic Press	1			
E-34	Desiccators Specimen Cabinet for XRF Standards	1			
E-35	Refrigerator (4_, -20_)	1	SANYO (Japanese): MPR-411FRS	Up right type Pharmaceutical Refrigerator, Refrigerator compartment (2~14 degree C) Capacity: 340 Litter, Freezer compartment (-10~-30 degree C) capacity: 82 Litter	Supplemental budget FYJ2003
E-36	Ice maker (flake ice)	1	Hoshizaki (Japanese): FM-230AE-1-SA	Capacity: 120kg, approx. 200kg/day	Supplemental budget FYJ2003
E-37 (25)	Ball Mill	1	Fritsch: P-5/4	Outside dimension: 580mmLx670mmWx570mmH, available pots: 2,4 or 8, Pot RPM: 65~870rpm, final grinding size: 1micron	FYJ2003
E-38	molder and pestle	1			
E-39	Hot plate	2	Advantec: TP-320	Temp control: 50~250C, plate size: 350mmx250mm	FYJ2003
	Hot plate stirrer	2	Advantec: SRS710HA	Temp Control: 50~300C, Stirrer rate: 100~1500rpm, Stirre volume: 100mL~7L	
E-50	PC (win)	1			
E-60	BC printer	1			
E-61	CATV monitor	1			
	PALAEONTOLOGY/ PETROLOGY LAB(47m2) (Lab. Street Deck)				
D-1	Automatic Point Counter	1			
D-2	Polarization Microscope	6			
D-3	TV Camera for microscope	1			
D-5	Camera for microscope	1			
D-7	Video copy processor	1			
D-8	Stereomicroscope _____	3			
D-11	Digital camera for microscope	3			
D-12	Color Video Image Printer	3			
D-13	Microscope camera	1			
D-15	Anti-vibration pad	6			
D-17	Image analysis system _main unit, color processing soft, printer, video printer_	1			
D-18	3CCD color video camera DXC-9000	1			
D-50	PC(win)				
D-51	PC(mac)				
D-60	printer (color)				
D-61	CATV monitor				
	GEOCHEMISTRY LAB(141m2) (Lab. Street deck)				
A-1	ICP-MAS	1			
A-2	ICP-AES	1			
A-5	CHNS/O analyzer	1			

A-7	Alkalinity Titrator System	1	Metrhom: Basic Titrino Model 794	masters all titration methods that are relevant in practice. Two inputs for pH electrodes, ion-selective electrodes, metal electrodes. One input for polarized electrodes. Differential amplifier for low-conductivity (non-aqueous) media.	Supplemental budget FYJ2003
A-8	Other Titrator Systems	2	Metrhom: Basic Titrino Model 794	Same as above, Different Cell	Supplemental budget FYJ2003
A-9	Refrigerated Circulator for Waterbath(2)	2	Shibata (Japanese): CW-301	Temp control: -20~80C, +/-0.5C, water tank size: 5L, Flow rate:16L/min	FYJ2003
A-11	Coulometer	1			
A-12	Ion Chromatograph	1			
A-13	Spectrophotometer	1			
A-14	Gas Chromatograph #1(NGA)	1	Agilent: 6890N	NGA: Wasson-ECE, attached FID and TCD FID detector identifies: C1-C12, TCD detects: isobutene, n-butane, ...so on.	FYJ2003
A-15	Gas Chromatograph #2(MAS)	1	Agilent: 5973N	with Mass Selective Detector, Mass range: 1.6 800u in 0.1 u steps, Scan speed up to: 5200 u/sec with 0.1 u scan step size, with eight sampling rates. Mass axis stability: 0.15 u over 12 hours.	FYJ2003
A-16	Gas Chromatograph #3(FID)	1	Agilent: 6890N	FID detector only	FYJ2003
A-18	Hydrogen Generator	3	Packerd: H2-90	Product purity: 99.9995% pure hydrogen, Reservoir Capacity: 4L, Flow Range: 90cc/min, Delivery Pressure: 0-90psig	FYJ2003
A-19	Rock Eval	1	Vinch Technologies: Rock-Eval 6 "Standard"	Pyrolysis and oxidation ovens, 1 Flame Ionization Detector, 1 infra-red cell. Measurement parameter: S1-S2-Tmax, S3co/S3co2(New Oxygen Index), S4co/S4co2(Residual Organic Carbon), S5(Mineral Carbon)	Supplemental budget FYJ2003
A-25	Ultra pure Water System	1	Millipore Corporation: Milli-Q EQS-10L	Elix 10 UV Purification System with Mili-Q Synthesis System: Use for Molecular biology applications, Resistively: 18.2, TOC(ppb): 2-5, Pyrogens(EU/mL): <0.001, Bacteria(cfu/mL): <1, Flow Rate(L/min): 1.0	Supplemental budget FYJ2003
A-33	Liquid chromatograph	1			
A-34	Ultra-high temperature furnace	1			
A-35	Tabletop clean bench	1	Yamato kagaku (Japanese): PCV-750APG	Outside dimension: approx. 750mmWx500mmDx1120mmH, Air flow rate: approx. 0.45m/s, Class 100	FYJ2003
A-41	Reefer showcase	1	SANYO (Japanese): MPR-513R	internal Dimensions: 800mmWx465mmDx1300mmH, effective capacity: 486L, Temperature control range: 2C~14C,	FYJ2003
A-45	Clean air equipment	1set			
A-48	Trash box	1			
A-50	Compact Isotope ratio MS analyzer	1			
A-51,52	Micro balance	2			
E-7,18	Fume Hood	2	Yamato kagaku (Japanese): RBF-120S-Y	inside dimension: approx. 100x55cm, exhaust air volume: 12m3/min, Air flow rate: approx. 0.5m/s	Yard provided
A-80	PC(win)	3			
A-81	PC(mac)	3			
A-90	printer (color)	1			
A-91	CATV monitor	1			
	THIN SECTION ROOM(18m2) (Lab. Street Deck)				
F-2	Polarization Microscope	1			
F-7	Fume Hood	1	Yamato kagaku (Japanese): RBF-120S-Y	inside dimension: approx. 100x55cm, exhaust air volume: 12m3/min, Air flow rate: approx. 0.5m/s	Yard provided
F-13	cut off saw (small type)	2	Maruto (Japanese): MC-110	Small type of cut off saw	Supplemental budget FYJ2003
F-13	cut off saw	1	Struers: Discotom-5	Automatic and manual cut-off machine	Supplemental budget FYJ2003
F-14	Thin section equip.	1	Struers: Discoplan-TS	precision cutting and grinding machine, Left side, diamond cut-off wheel and holders for initial cutting, right side, diamond cup wheel and vacuum holder for grinding specimens with accuracy of 2micrometer.	Supplemental budget FYJ2003
F-15	Vacuum Impregnation	1	Struers: Epovac	Simultaneous impregnation or embedding of several specimens.	Supplemental budget FYJ2003
F-16	Polishing system	2	Struers: RotoPol-35/Pdm-Force-20	grinding and polishing machine for 300mm dia. Discs. Variable speed from 40-600rpm. Exchangeable specimen mover plate for 4 or 8 specimen	Supplemental budget FYJ2003
F-17	Ultrasonic bath	1	Branson: 8510J-DTH	Digital control variable temperature: 560W, 44KHz, Tank: 20.1L	FYJ2003
F-18	Hot Plate	2	Advantec: TP-320	Temp control: 50~250C, plate size: 350mmx250mm	FYJ2003
F-50	PC(win)	1			
F-51	CATV monitor	1			
	ET SHOP (Lab. Street Deck)				
T-1	Anti electrostatic desk	1	Ship yard		Yard Provided
T-50	PC(win)	1			

	OFF-TIME SPACE (Lab. Street Deck)				
O-50	WS	1			
O-51	PC(win)	1			
O-52	PC(mac)	1			
O-60	printer (color)	1			
O-61	CATV monitor	1			
	STORAGE/ GAS BOTTLE RM (Lab. Street Deck)				
L-1	N2 generator	1	KURASEP (Japanese): MY-9S	99.999% 3m2/hr, 99.99% 6m2/hr	FYJ2003
L-3	Liquid Nitrogen generator	1	Iwatani (Japanese): NL-100A-S	15 litter/day, 80 litter tank	FYJ2003
	COMPUTER/ USER/ LIBRARY (Lab. Management Deck)				
M-50	Servers	1set			
M-51	WS	1			
M-52	PC(win)	1			
M-53	PC(mac)	1			
M-54	Printer (color)	1			
M-60	PC(win)	4			
M-61	PC(mac)	4			
M-62	Printer (mono)	1			
M-63	Printer (color)	1			
M-64	Plotter	1			
M-65	Scanner	1			
M-66	CD-RW	1			
M-67	MO	1			
M-68	ZIP	1			
M-69	DAT	1			
M-70	EXBYTE	1			
M-80	WS(only for data integration software)	1			
M-81	WS	3			
M-82	Plotter (A0)	1			
	LOUNGE (Lab. Management Deck)				
MM-50	CATV monitor	1			
	CONFERENCE ROOM (Lab. Management Deck)				
N-1	Copy machine	1			
N-2	Ceiling projector	1			
N-3	VTR	1			
N-4	Audio system	1			
N-5	White board	1			
N-6	CATV monitor	1			
	LAB OFFICER'S OFFICE (Lab. Management Deck)				
Z-50	PC(win)	1			
Z-51	PC(mac)	1			
Z-52	CATV monitor	1			
	YEOPERSON'S OFFICE (Lab. Management Deck)				
Y-50	PC(win)	2			
Y-51	PC(mac)	2			
Y-52	CATV monitor	1			

Report of the Paleomagnetism WG for the iSciMP meeting of July 14-16, 2003

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Samples

It is recommended that u-channels will constitute the standard paleomagnetic sample in all cases when it will be feasible to perform u-channel sampling of the cores (i.e in favourable lithologies, like unconsolidated fine-grained sediments), and they should be routinely collected both on the riser and non-riser vessels to be employed in IODP. U-channels have become increasingly popular since the advent of narrow-access long-core superconducting rock magnetometers, in 1991, because of the large amount of detailed data that can be obtained in a minimum amount of time at highest resolution. In the framework of ODP, u-channels were first used during Leg 138 and more than 4800 u-channel samples have been collected since. U-channels are sampled by pushing rigid U-shaped plastic liners (2 x 2 cm cross section, up to 1.5 m in length) into the split core sections. The high resolution data essential for several paleomagnetic study require that u-channel will be collected as a continuous strip from the centre of the cores, since this will ensure the minimum physical disturbance and will minimize the effect of drilling-induced remagnetization (see the recent specific publication by Acton et al., JGR, 107, 10.1029/2001JB000518, 2002). Since (paleo)magnetic measurements are typically not-destructive (apart from paleomagnetic properties themselves), after the paleomagnetic study the u-channels can be either stored as undisturbed permanent archives of the cores or made available for further scientific sampling.
In all cases where u-channel sampling will not be feasible (i.e. hard rock cores), continuous paleomagnetic measurements should be carried out on split cores (archive halves of cores).
For both soft sediment and hard rock cores it is also recommended to perform additional paleomagnetic measurements on discrete samples (i.e. standard paleomagnetic plastic boxes in the case of soft sediments or drilled cylinders in the case of lithified rocks), that will ensure independent checks for short-lived paleomagnetic features and will greatly help in the evaluation of deconvolution techniques applied to data from continuous measurements of u-channels or split cores.
Drilling facilities (drill press, drill bits, rock saws) should be provided in all IODP legs.

Measurements and instrumentation

All paleomagnetic and rock magnetic measurements should be carried out in dedicated, specific, paleomagnetic laboratories, with an appropriate number of scientists and supporting technicians.
Measurements and analysis should be carried out during drilling in the large oceanographic vessels (riser and non-riser ships). Measurements and analysis should be carried out in shore-based paleomagnetic laboratories for Mission Specific Platforms (MSP), as soon as possible during the Leg. For MSP, in which paleomagnetic properties are very important, a "basic" dedicated paleomagnetic van/lab may be considered for measurement and analyses directly "at sea" (i.e. on the model adopted for the Cape Roberts Project in Antarctica, where a temporary paleomagnetic lab was installed during all the three drilling seasons).
The software running the instruments should be continuously updated, possibly taking into account comments and suggestions by IODP users. A sort of active interaction between users and the software designers by instrument companies is highly advisable.

Basic magnetic properties (required)

1- Magnetic susceptibility

Magnetic susceptibility of all paleomagnetic samples should be routinely measured soon after collection of the samples and, during progressive thermal demagnetization of discrete paleomagnetic samples (see below), as an indicator of thermal alteration.
Instruments recommended are the Kappabridges manufactured by AGICO (KLY-3 or KLY-4) for discrete samples and the magnetic susceptibility system MS2 manufactured by Bartington with the loop (MS2 C) of point (MS2 F) sensors for continuous measurements on u-channels or half cores.

2- Natural remanent magnetization

The natural remanent magnetization (NRM) of all paleomagnetic samples should be routinely measured soon after collection of the samples.
Instruments recommended are the 2G Enterprises pass-through rock magnetometer with DC SQUID sensors and in-line alternating field (AF) coils with anhysteretic remanent magnetization capability and pulse magnetizer.
The diameter of the instrument is critical, but sample-dependent. The small diameter will ensure the high-resolution required for u-channel measurements, but half-cores will not fit in it. On the other hand, the large diameter will allow the passage of half-cores through the magnetometer but will significantly decrease the resolution (i.e. it will be poorly suited for u-channels and discrete samples). The 2G Enterprises pass-through superconducting rock magnetometer installed on the Joides Resolution is a large diameter instrument (standard access diameter of 7.6 cm), whose SQUID's response functions, with half-peak widths of ca. 8 cm, span nearly 20 cm. Each measurement averages the signal of a region of 100-150 cm^3. Conversely, the small diameter (standard access diameter of 4.2 cm) version of the same instrument, designed for u-channels and discrete samples, has half-peak widths of the pick up coils response functions comprised between 4 and 6 cm (referred to the two transverse and the axial coils, respectively). Each measurement averages the signal of a region of 15-25 cm^3.
Ideal configuration for IODP paleomagnetic labs will be to have two pass-through rock magnetometer systems, one with small access – high resolution, the other with large access – low resolution. Practical consideration concerning space limitations on board of IODP vessels may prevent the installation of two pass-through rock magnetometer systems, moreover time constraints will also prevent the routine detailed measurement and stepwise demagnetisation of u-channels on board. Such limitations will not apply to shore-based paleomagnetic laboratories (i.e. like those that could operate for MSPs). A practical solution could be to measure split cores onboard, and to measure u-channels in shore-based laboratories. Under such setting, a safe transportation system to shore-based laboratories should be established to prevent magnetic alteration of paleomagnetic samples.
An additional spinner magnetometer for discrete samples (i.e the DSPIN spinner magnetometer manufactured by Natsuhara-Giken Inc., or the JR6 spinner magnetometer manufactured by AGICO) may be useful in several cases (i.e. in all cases when the magnetization of samples is too high for the dynamics of the SQUID sensors).

Magnetic cleaning and Paleomagnetism (required)

A paleomagnetic study relies on the stepwise demagnetization of the NRM for all samples, to be carried out soon after the collection of the samples. Stepwise demagnetization is needed to identify the NRM components, to define their stability and orientation and to isolate a characteristic remanent magnetization (ChRM). Demagnetization treatment can only be by AF for continuous

samples (u-channel or half cores), while it could either AF or thermal for discrete samples. It is recommended to carry out a complete stepwise demagnetization for u-channels and discrete samples, whereas the stepwise demagnetization treatment should be limited to low AF (i.e. AF peak values up to 20 mT) for half cores.
Instruments required are an AF demagnetizer for continuous samples, installed in-line with the pass-through rock magnetometer, and a paleomagnetic oven (i.e. like the ASC Scientific TD48 thermal demagnetizer). It is recommended to have an additional AF demagnetizer for discrete samples, with ARM capabilities, like the D-2000 DTech Inc. or the AGICO LDA-3A AF demagnetizer and AMU-1A anhysteretic magnetizer.
It is advisable to have in each IODP paleomagnetic lab a Three-Axis Fluxgate Magnetometer for the measurement of small ambient magnetic fields (of the order of a few nT) in the sensing/demagnetizing regions of each instrument.

Rock Magnetic Measurements (highly recommended)

The characterization of the magnetic particles in paleomagnetic samples is necessary for a proper interpretation of the paleomagnetic signal and is the main target for studies on environmental magnetism. For such studies it is essential to measure the stepwise acquisition and demagnetization of artificial remanence (ARM and IRM), the hysteresis properties and the thermomagnetic behaviour of selected samples and powders. Such measurements are time consuming and practical considerations imply that during the Legs such measurements should be limited to selected representative samples only. It is recommended that such measurements will be extended to larger sample collections in the post-cruise measurements, whenever they could be important for the scientific objectives of the Leg. In some cases it could be also important to study the magnetic anisotropy (either of the magnetic susceptibility or of the remanence) of the paleomagnetic samples.
Instruments required are, partly, those used for the paleomagnetic study (i.e AF demagnetizer with ARM capabilities and pulse magnetizers, kappabridges), with the addition of a vibrating sample magnetometer for hysteresis measurements (i.e. the VSM manufactured by the Princeton Measurement Corporation), and some additional devices for the AGICO kappabridge (i.e. the CS-3 for the KLY-3 or KLY-4).

Sequence for the measurements

The order of measurements on discrete samples and/or u-channels is as follows:
1) Magnetic susceptibility
2) Natural Remanent Magnetization (NRM)
3) Stepwise demagnetization of the NRM
4) (Stepwise) Acquisition and demagnetization of an ARM
5) (Stepwise) Acquisition and demagnetization of an IRM

Hysteresis loops and thermomagnetic curves should be measured on powders or chips, independently from the cycle of measurements listed above.
Magnetic anisotropy can also be studied on selected discrete standard paleomagnetic specimens.

Calibration and Units

It is necessary to indicate:
- Description of the instruments (system specifications, i.e. in terms of response functions, resolution, range, accuracy….) and calibration standards/procedures.

Paramagnetic Rare Earth oxides (i.e. Gd_2O_3), are recommended for calibration of susceptibility meters, permanent magnets for calibration of magnetometers. Calibration standards should be measured before the routine work to produce reliable data. The results of standard measurement should be saved into JANUS.
- SI units for each parameter. Paleomagnetic data need to be expressed by declination, inclination and intensity at each demagnetization step.

It is also recommended to produce a web based equipment history sheet for all the equipment in each P-Mag lab. The idea being that anyone having problems with a particular piece of equipment could look in the history of that tool to see if it has happened before and how to fix it. It should be a sort of dynamic online manual that would be continuously updated.

Summary Table

Data	Riser	Non-riser	MSPs	Notes
Magnetic susceptibility	b, d	b, d	b, d	
Natural Remanent Magnetization (NRM)	b	b	b	Practical considerations imply NRM to be measured as soon as possible in shore-based laboratories for MSPs
Stepwise demagnetization of the NRM	b, c, d	b, c, d	b, c, d	Practical considerations imply NRM to be measured as soon as possible in shore-based laboratories for MSPs
Stepwise acquisition and demagnetization of artificial remanences (ARM, IRM)	d	d	d	Practical considerations imply rock magnetic properties to be analyzed on representative selected samples only during the Leg
Hysteresis properties	d	d	d	Practical considerations imply rock magnetic properties to be analyzed on representative selected samples only during the Leg
Thermomagnetic runs	d	d	d	Practical considerations imply rock magnetic properties to be analyzed on representative selected samples only during the Leg
Magnetic anisotropy	d	d	d	Practical considerations imply rock magnetic properties to be analyzed on representative selected samples only during the Leg
Magnetic ambient field				Necessary to monitor small ambient magnetic fields in each paleomag lab

Codes:
a. needed for safety,
b. needed to be made on the ship because it is an ephemeral property,

c. needed because it can affect drilling decisions on the cruise or expedition,
d. needed because making the measurements on the ship results in the best science overall (for example, if not made on the ship, it is unlikely that the measurements will ever get made at all, or, having the capabiliity on the ships will deliver better science more rapidly).

Standardization of procedures in IODP:

Guidelines for routine procedures in paleontology

June 3, 2003

Summarized by Paleontology Working Group[*1] under iSciMP

and Japanese Paleontology Database Subworking Group[*2]

Summary

Routine paleontological procedures during IODP drilling cruises will have most of the same goals and utilize many of the same procedures as have been used on ODP cruises. Thus, most guidelines for "shipboard" paleontology are similar to those currently employed. However, the broader scope of drilling anticipated with IODP require some additions. We suggest 1) that higher biostratigraphic resolution than has previously been attempted will often be needed and achieving this goal will require additional personnel in the paleontology lab, 2) that on the riser vessel there will need to be an ability to recover paleolontological data from cuttings, and 3) that new protocols must be developed to efficiently process highly indurated samples anticipated from very deep holes.

Introduction

Currently, shipboard procedures are based on the guidelines in the "*Handbook for shipboard paleontologists*" (*ODP Technical Note* No. 12, 1989). According to this handbook, paleontologists are responsible for making biostratigraphic age and general paleoenvironmental interpretations of each core. Descriptions/outlines of sampling schemes, microscope study and data handling procedures are included in the handbook. According to the handbook, routine shipboard paleontological observations are usually based on core-catcher (CC) samples, although they may be supplemented by additional samples. In the case of nannofossils, commonly toothpick samples are added.

We believe that the ODP guidelines are generally appropriate for IODP cruises, regardless of the type of drilling vessel (i.e. riser drilling and non-riser drilling and mission-specific platform). However, the ODP guidelines require some modification to accommodate some types of mission-specific drilling and the new instruments that will be developed for the riser-drilling vessel. The following proposals include procedures for common non-Leg-specific cases and for special cases. In recognition that it is very difficult to write general guidelines for mission-specific platforms, we recommend that chief scientists of mission specific legs review paleontology sampling policies.

Proposal 1: Core sampling

1-1. Overview

During current ODP cruises with emphasis on biostratigraphy/paleoceanography, routine micropaleontological observations on non- or little indurated sediments are mainly based on core-catcher samples for some fossil groups, and for second and higher-numbered APC holes. For calcareous nannofossils in non- or little indurated sediments additional toothpick samples are studied from the first (or deepest) APC hole, with the highest resolution (at least 1 sample/section) around critical intervals. For planktonic foraminifera, diatoms and radiolarians, usually samples from within cores are studied in addition to core catcher samples in the first (or deepest) APC hole at a site; in most cases between 1 and 6 additional samples are studied around critical intervals. For benthic foraminifera in non- or little indurated sediments, usually the core catcher samples from the first (or deepest) APC hole only are studied, with additional samples from within the cores and core catcher samples from additional holes around critical intervals. In more indurated sediments the number of samples studied depends on the degree to which samples can be processed in the limited time available.

Legs with an emphasis on biostratigraphy/paleoceanography commonly have two micropaleontologists per common fossil group, and the sample resolution obtained in recent ODP legs is possible only if work proceeds 24 hour per day. On legs which are not primarily aimed at paleoceanographic/stratigraphic objectives, there usually is only one micropaleontologist per fossil group staffed, and a much lower resolution is possible.

We recommend that shipboard paleontologists be required to discuss shipboard study policies at the beginning of each leg, and that they consider taking at least two samples per core, at least in critical intervals.

1-2. Circumstances

As a general rule for every sediment core, we recommend that at least two samples be taken per core for paleontological analysis: a CC sample and a sample near the middle of each core. If deemed necessary after consultation with staff scientists and paleontologists, Co-chief scientists may permit (or request) additional paleontological sampling.

1-3. Methods

The general procedures are based on "*Handbook for shipboard paleontologists*".

1-4. Requirements

It will take more time and effort for paleontologists to analyze two samples per core . We recommend that the paleontology team consist of two paleontologists for each key fossil group, one paleontologist for other groups (importance varying according to the nature of the leg or mission), and at least two paleontology technicians, i.e,at least one per shift. Given past difficulties in obtaining funding or suitably trained personnel for technical support, it is recommended that on legs where sediments requiring intensive processing are expected, the chief scientists make a formal request for paleontology technical support at an early stage in planning.

Proposal 2: Utilization of core cuttings

2-1. Overview

The study of core cuttings obtained from riser-drilling will potentially support that of CC samples. We propose new routine analysis using cuttings for medium-resolution paleontological studies of low recovery or fossil-poor cores.

2-2. Circumstances

Collection of core cuttings is recommended where recovery of sediments is expected to be less than 50% and lithofacies of the important sections are expected to yield poorly preserved fossils (*e.g.*, chert, diamictite). If these situations are expected, chief scientists should decide to use core cuttings at the beginning of a leg. If these or similar situations arise during drilling, the chief scientists should decide on the collection of cuttings after discussion with staff scientists.

2-3. Methods

1) At sites where core cuttings are to be used, mud-logging technicians or other qualified persons should collect cuttings at each 10 m drilling depth interval.
2) Cutting materials should be water-washed through the adequate size mesh (63-125 μm) to prevent contamination with recycled drilling mud.
3) Washed cuttings are stored in labeled 1000 cc resin cases.
4) The general procedures for the study of cutting materials are based on those of core materials.
5) Cuttings samples should have a unique label (as in "H" for piston core) so that the data from cuttings can be clearly distinguished from those of core samples.

2-4. Requirements

1) Specialist personnel and facilities are required for collection of core cuttings, i.e., there must be a protected cuttings collections area.
2) Special resin cases and storage areas are needed for handling cuttings. Before a leg, co-chief scientists should discuss how many of the cuttings containers they expect to fill.

3) The new paleontological database system (PAL system) should require the new data type for cuttings independent of that of core samples.
4) Testing the procedures for routine collecting and processing of cuttings should be conductive during the training cruise.
5) We recommend that IODP consider sponsoring a workshop (at ISCIMP?) for ODP-experienced paleontologists to meet with oil-well paleontologists to discuss the specific opportunities and problems of dealing with cuttings, with the aim to produce a white paper in which the expertise of those who have worked with core cuttings is made available.

Proposal 3: New Preparation routines for indurated sedimentary rocks

3-1. Overview

The initial science plan of the riser-drilling vessel operations forecasts extra-deep drilling of accretionary complexes. In such cases, extremely hard rocks that have been rarely encountered in previous conventional ocean drilling will be penetrated. It will take more time and effort to process such hard rocks for paleontological study, especially so with the increasing demand for high-resolution analysis.

Here we propose two strategies to improve efficiency and routines to process sediment samples including extremely hard rocks:

1) The sodium tetraphenylborate method for breakdown of very hard shale be introduced to complement existing methods for the disaggregation of indurated rocks.
2) Integrated processing of two or more microfossil groups, i.e. foraminifera, radiolarians, diatoms, and palynomorphs.

An integrated method will reduce risks associated with use of hazardous chemicals and promote consistent quality of slide samples. In addition, it will enable paleontologists to spend more time examining fossil assemblages and less time processing samples.

We recommend a workshop to outline and discuss methods for paleontological processing of highly indurated sedimentary rocks, and to explore opportunities for integrated processing. The end result should be a handbook containing descriptions of recommended methods of sample processing.

3-2. Circumstances

These processing methods will be useful for a many drilling operations where indurated lithologies are encountered and have particular value for foraminifera, radiolarians and palynomorphs. Chief scientists can make a decision in the leg-specific strategy about whether the leg would use these new methods.

3-3. Methods

1) Paleontologists and technical support personnel should consult the handbook on new processing methods prior to a cruise and discuss methods and modifications to methods as appropriate for the lithologies expected to be recovered.
2) Paleontologists and technical support personnel will need to work together to determine best processing methods for recovered lithologies
3) Integrated processing may be aided by development of a processing flow chart (e.g. Fig. 1).

3-4. Requirements

1) These new procedures reinforce the need for paleontology technicians, at least one per 12 hours shift. These technicians should be knowledgeable in the use of different chemicals for sample processing of a variety of sediment types.
2) Detailed description of the sodium tetraphenylborate method is given by Hanken (1979, *Journal of Paleontology*, vol. 53, 738-740).

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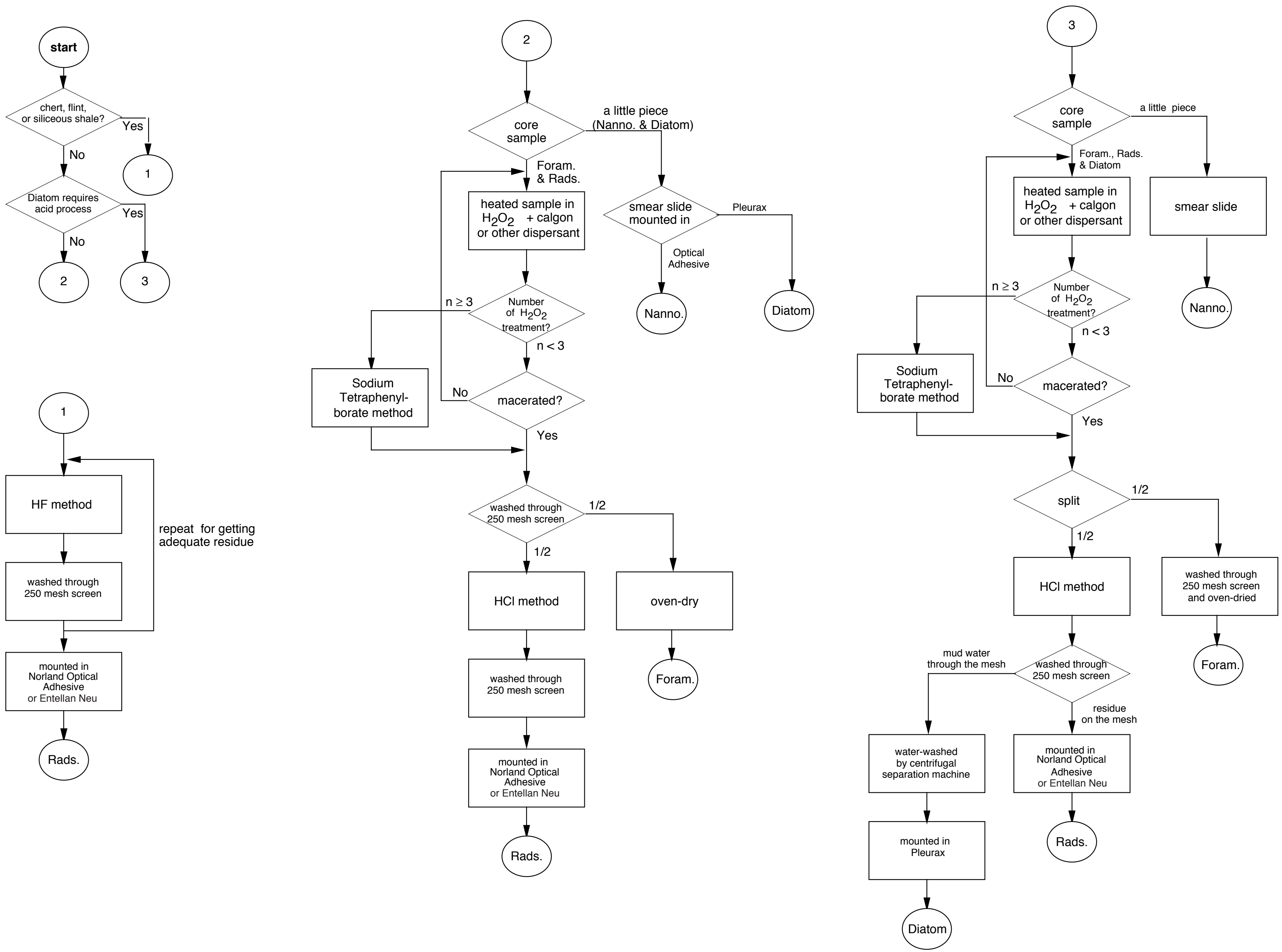

start
chert, flint, or siliceous shale?
Yes
No
1
Diatom requires acid process
Yes
No
2
3
1
HF method
washed through 250 mesh screen
repeat for getting adequate residue
mounted in Norland Optical Adhesive or Entellan Neu
Rads.
2
core sample
a little piece (Nanno. & Diatom)
Foram. & Rads.
heated sample in H_2O_2 + calgon or other dispersant
smear slide mounted in
Pleurax
Optical Adhesive
Nanno.
Diatom
$n \geq 3$
Number of H_2O_2 treatment?
$n < 3$
Sodium Tetraphenyl-borate method
No
macerated?
Yes
washed through 250 mesh screen
1/2
1/2
HCl method
oven-dry
washed through 250 mesh screen
Foram.
mounted in Norland Optical Adhesive or Entellan Neu
Rads.
3
core sample
a little piece
Foram., Rads. & Diatom
heated sample in H_2O_2 + calgon or other dispersant
smear slide
Nanno.
$n \geq 3$
Number of H_2O_2 treatment?
$n < 3$
Sodium Tetraphenyl-borate method
No
macerated?
Yes
split
1/2
1/2
HCl method
washed through 250 mesh screen and oven-dried
Foram.
mud water through the mesh
washed through 250 mesh screen
residue on the mesh
water-washed by centrifugal separation machine
mounted in Norland Optical Adhesive or Entellan Neu
mounted in Pleurax
Rads.
Diatom

Underway Geophysics WG Report

David Divins, Sean Gulick, Mike Lovell

Platform Considerations:

- MSPs: Moving target in terms of logistics so recommendations should include little in the "must have" category and most in the "nice to have" category.
- Chikyu: Little underway time and far more time spent on station. Some time will still be spent in the non-riser mode and therefore transiting between sites. An underway geophysics program therefore should be included in the Chikyu plans. However, deck height suggests towed geophysical equipment may be unrealistic and the geophysics may be limited to sources for VSPs, GPS, and bathymetric data.
- Non-riser Platform: Need to consider what worked well and what did not work well in ODP and revise for IODP. Quite a bit of underway time occurs and certain measurements/equipment are important wheras other measurements are too expensive in terms of personnel and time to warrant use on a platform that is first and foremost a drilling vessel.

Measurements (in order of priority):

- Bathymetric Data: All platforms should routinely collect bathymetric data. It is expected this will usually be accomplished with 12 kHz echosounders and should be collected both at a drill site as well as underway.
- Navigation Data: All platforms should routinely collect GPS navigation data to determine exact drill site position and to plot trackline positions during transits in order to render the underway geophysics data useful.

Note: Effectively on all platforms we need to know where we are and how deep the water is!

- Seismic capabilities:
  - Non-riser Platform: While it may be important for non-riser ship to have the capability to shoot small single channel to low fold seismic surveys, these surveys should only be done in the case of very shallow target depths or for "at sea" requirements. The non-riser ship is in no way a seismic vessel and for all but the most basic situations a bonified seismic survey should be collected using multichannel seismic acquisition systems. The airgun capability for a single or low-fold seismic system for the non-riser platform should be capable of serving as the source for zero offset VSPs as well.
  - Chikyu: Very unlikely to need seismic capabilities at sea. Further, the deck height of the Chikyu may make all underway geophysics that require towed instruments untenable. However, VSPs are of greater importantance for riser legs due to greater target depths. Therefore, airgun/GI gun capability for the Chikyu should exist that is suitable to collect VSPs/checkshots to the maximum drilling depth of the Chikyu.
  - MSPs: No routine seismic capabilities can reasonably be discussed. The operator will have had to commission any specific site requirements,

including geophysics, before the operation. This means for full approval to use a particular platform the geophysical survey(s) would have to already be collected. The only time that any site specific work is likely to be conducted from the drilling vessel is if a jack-up is used. In that case it is quite common to do the geotechnical evaluation for the spud cans from the jack-up itself and this is purely for insurance regarding the stability of the jack-up. If VSPs are required for the science plan then either the MSP ship will need to have the capabilities to be the source or a separate ship will be required.

- Additional Underway Geophysics Data:
  - Non-riser Platform: In order to maximize the science done at sea it is recommended that the non-riser ship collect magnetics data while underway. This is seen as important due to the non-riser drillship venturing into waters that are not frequently traversed by other research vessels but should never be placed in priority over drilling objectives.
  - Chikyu: The deck height and infrequent transits of the Chikyu suggest that it would be unnecessary for the Chikyu to have an underway geophysics facility beyond the capabilities of bathymetric measurements, navigation, and seismic sources.
  - MSPs: When MSPs are completed using drilling ships of opportunity or modified research vessels we would recommend the collection of whatever suite of underway geophysics data is available on the platform during transits. Clearly in some cases such as jack-up rigs there will be no underway component.
  - Gravity Data: Due to the difficulties of maintaining a high-quality gravimeter on board the non-riser platform or other vessels, it is not recommended that an underway capability in gravity be continued in IODP.
  - Swath Mapping Data: Due to the expense of acquiring and maintaining swath mapping systems we not recommend the use of the riser or non-riser platforms for swath mapping (ie SeaBeam). For MSPs, in the unfortunate case where drilling is unable to continue and the platform being used has swath mapping capabilities then the use of such a system is of course warranted.

X-ray Scanner for ODP Leg 204: Drilling Gas Hydrates On Hydrate Ridge, Cascadia Continental Margin

July 31, 2002 Progress Report

Barry Freifeld, Tim Kneafsey, Jacob Pruess, Paul Reiter, Liviu Tomutsa

Abstract

An x-ray scanner was designed and fabricated at Lawrence Berkeley National Laboratory to provide high speed acquisition of x-ray images of sediment cores collected on the Ocean Drilling Program (ODP) Leg 204: Drilling Gas Hydrates On Hydrate Ridge, Cascadia Continental Margin. This report discusses the design and fabrication of the instrument, detailing novel features that help reduce the weight and increase the portability of the instrument. Sample x-ray images are included. The x-ray scanner was transferred to scientific drilling vessel, the JOIDES Resolution, by the resupply ship Mauna Loa, out of Coos Bay, Oregon on July 25. ODP technicians were trained in the instruments operation. The availability of the x-ray scanner at the drilling site allows real-time imaging of cores containing methane hydrate immediately after retrieval. Thus, imaging experiments on cores can yield information on the distribution and quantity of methane hydrates. Performing these measurements at the location of core collection eliminates the need for high pressures or low temperature core handling while the cores are stored and transported to a remote imaging laboratory.

1. Introduction

Calibrating estimates of hydrate and underlying free gas concentrations in submarine formations determined with geophysical remote sensing techniques is one of the major objectives of the Ocean Drilling Program (ODP) Leg 204: Drilling Gas Hydrates On Hydrate Ridge, Cascadia Continental Margin [ODP, 2002]. The ODP has deployed the JOIDES Resolution, a 143-meter long scientific drilling vessel owned by Overseas Drilling Limited to drill a transect of sites through the gas hydrate stability zone on the southern part of Hydrate Ridge on the Cascadia accretionary margin, offshore Oregon. To assist in the quantification of hydrates and determine hydrate-bearing sediment textural properties in recovered core, a shipboard x-ray imaging system was developed at Lawrence Berkeley National Laboratory (LBNL). The basis for using x-ray imaging to quantify methane hydrate abundance and distribution has been previously established by Tomutsa et al. [2002] and Freifeld et al [2002]. The x-ray core scanner provides state-of-the-art x-ray imaging capability in a field-deployable package. The system was designed to be light and compact, operating within the space constraints of the core laboratory on the JOIDES Resolution, Bridge Deck/Level 6.

2. Instrument Details

Our goal in fabricating a transportable x-ray imaging system was to match the capabilities of laboratory based systems in a portable package that is practical to operate at remote locations. The x-ray scanner occupies a rectangular box, 1.37 m wide, 0.61 m deep, and 2.03 m high. Figures 1 and 2 show a schematic and a photograph of the x-ray system, respectively. The total weight of the x-ray core scanner, excluding the remote personal computer and x-ray power supply, is approximately 170 kg. The scanner has two axes of motion: a linear axis that moves the x-ray imaging gantry along the vertical core axis, and a rotary axis that controls the core angle to the x-ray optical path. Motion on both axes is actuated by computer-controlled servo motors operating through reduction planetary gears to achieve high torque and positioning accuracy. The maximum core length that can be inserted into the x-ray scanner is 165 cm, although only 150 cm of available linear travel exists. As currently configured, the maximum core diameter is fixed at 7.5 cm. The core size can be easily changed by installing appropriately sized shielding.

The x-ray source is a Picker Hot-Shot 110 KV x-ray source with a 0.3 mm focal spot size. The imaging unit consists of a monochrome CCD mounted behind a Precise Optics cesium iodide image intensifier with a 6-inch input window. The CCD is a Sony XC-75 with a resolution of 768 × 494 pixels and a signal to noise ratio of 56 dB. A high-resolution monochrome monitor provides real-time viewing of the x-ray images. Any camera or VCR that has an NTSC format input can be used to record the output for later review although resolution equal to the CCD is required to avoid image degradation. Digital processing of the images is performed with a National Instruments PCI-1409 10-bit frame grabber installed on a personal computer.

Because x-rays passing through the center of the core are more attenuated than those passing through the edges (a consequence of the circular cross section), an aluminum compensator (Figure 3) designed to flatten the image intensity was installed in front of the image intensifier. The compensator permits better use of the dynamic range available in the x-ray imaging system. On the sides of the compensator are areas of constant thickness that serve as calibration points to permit normalization of the image intensity between images.

Figure 4 presents a view of the x-ray source, imager, and shielding. The three-piece shielding represents a novel arrangement that provides flexibility in the optical path, as well as a high degree of radiation safety. The shielding consists of a fixed half clamshell mounted on the x-ray imager, and concentric telescoping pieces mounted between the core barrel and the x-ray source. The shielding is fabricated from a sandwich of two 1.6 mm thick stainless steel layers encapsulating a 1.6 mm thick layer of lead. The stainless steel layers protect the user from touching the lead and maintain the structural integrity of the lead. The 1.6 mm lead provides sufficient attenuation of scattered x-ray radiation to eliminate the need for additional shielding away from the x-ray path. This arrangement of shielding has significantly reduced the amount of lead that is typically used to encapsulate x-ray imaging systems. The reduced shielding affords the operator a clear view of the x-ray system through a polycarbonate door, permitting viewing of the core angle and gantry position.

The ability to change the distance between the x-ray source and the image intensifier permits the system to accommodate different diameter cores. This flexibility in the x-ray path arises from the telescoping nature of the shielding mounted between the x-ray source and the core, permitting changes in the x-ray path length. The path length change is easily performed in the field by loosening mounting screws on the gantry track and sliding either the x-ray source, imager, or both. Similarly, changing the compensator to one optimized for a new diameter core is performed by removing the six set screws that attach it to the front of the image intensifier and replacing it.

The clamshell shielding arrangement uses alignment pins and two safety interlock switches that prevent operation of the x-ray source if the shielding is not properly closed. Each of the two interlock switches opens independent circuits, providing for redundancy in the event of a single component failure. The first interlock switch prevents the computer control system from turning on the x-ray source. The second interlock switch prevents the x-ray power supply from energizing the high voltage windings in the x-ray power supply. To further prevent users from getting near the shielding when the x-ray unit is activated, the shielding interlock switches are wired in series with interlock switches mounted on the polycarbonate door. This arrangement prevents the x-ray source from being energized when either the door is open or when the shielding is not properly closed.

The linear and rotary axes of motion provide flexibility in core imaging. The scanning software operates in two distinct modes: a linear scanning mode and a computed tomography (CT) mode. The linear scanning mode starts imaging at the top of the core. An initial image is acquired and then the core is rotated 90 degrees and a second image is acquired. The gantry holding the x-ray optics is then lowered 10 cm and two more images are acquired with a 90-degree separation between images. This process is repeated until a total of 24 images of the core are collected. The entire process takes about two minutes. A CT scan can be conducted to acquire images for later 3-D reconstruction. The user enters into the computer the linear location along the core at which a series of x-ray images is desired and the number of partial rotations that a full rotation of the core is to be subdivided into. A typical number of images would be 360, yielding an image for every degree of rotation. Implementation of the 3-D reconstruction of the images in real time is being planned.

3. Instrument Deployment

The x-ray scanner was packed for shipment on July 22, and was trucked to Coos Bay, Oregon, for transfer to the JOIDES Resolution. The tugboat Mauna Loa, carrying the x-ray scanner and personnel, departed Coos Bay at 6 PM, July 23, and arrived at the JOIDES Resolution at daybreak on July 24. Barry Freifeld and Jacob Pruess from LBNL with assistance from Frank Rack (Staff Scientist, Joint Oceanographic Institutions), Brad Julson (Supervisor of Shipboard Laboratories), as well as several staff ODP technicians installed and set up the instrument, with these activities concluded by 11 AM on the same day. Figure 5 shows a picture of the x-ray scanner as installed in the JOIDES Resolution core laboratory. At 1 PM a training session was held to teach the ODP technicians how to use the instrument, with time for several technicians to perform scans on sample core. At 6 PM Barry Freifeld and Jacob Pruess were transferred to the Mauna Loa for transportation back to Coos Bay.

4. Sample Images

Sample images collected using the x-ray scanner include miscellaneous metallic objects, a core holder containing coarse sand and a test core containing oceanic sediments. Figure 6 shows a cross section of ¼-20 bolts and washers in a core holder surrounded by water-saturated Ottawa sand. The lower detail image in Figure 6 reveals the 1.27 mm pitch threads of a ¼-20 bolt. A very close inspection of the threads shows that each thread face is sub-divided into four or five distinct pixels with strong contrast into the surrounding media. This image shows that the instrument is achieving the 0.3 mm resolution spot size, as specified by the x-ray source manufacturer.

Figure 7 is an image taken of the PVC coreholder (originally shown in Figure 6) at a location containing water-saturated sand. Two fine fractures are revealed, highlighting the ability of the core scanner to discern structural details that represent minute changes in sample density. These fractures represent planar features with similar orientation likely due to the orientation of the coreholder as it was loaded with small batches of loosely poured sand and water. Apparently, the moderate shaking applied by hand to the cylinder did not fully compact the sand into a uniform mass.

Figure 8 shows a test core used aboard the JOIDES Resolution that consists of a silty-clay oceanic sediment containing open fractures. Although the three dimensional topology of the fracture is not clearly shown by viewing a single two dimensional image, by watching the x-ray image of the core as it is scanned and rotated on the monitor, one can get a very good sense of the fractures 3-D features. Similarly, a digital 3-D CT reconstruction made from a series of rotational images can provide an accurate representation of the features morphology.

5. Discussion

The x-ray core scanner has met the objective of implementing a transportable imaging system for the ODP Leg 204 Drilling Gas Hydrates On Hydrate Ridge, Cascadia Continental Margin. The x-ray scanner imaging system has achieved the 0.3 mm limiting resolution of the x-ray source. The motion control system has proven to operate reliably with excellent repeatability. Initial operation of the system indicates that performance can meet or exceed that of much larger laboratory based x-ray systems. Since the x-ray scanner is optimized to image geologic core, fine-tuning of the system is expected to provide sensitivity superior to that of large medical imaging systems.

Since preservation of the core for later study requires elevated pressure or reduced temperature during transit and storage and thus poses a formidable challenge, establishing a drill-site-based laboratory is crucial for measuring representative properties of sediments containing methane hydrates. On-site analysis thereby eliminates the concerns associated with sample degradation and alteration that accompany transportation and preservation. An on-site x-ray scanner will permit a range of both passive and active imaging studies on hydrate-bearing cores. Passive studies include textural characterization and phase saturation estimation. Active core testing represents a wide open area of research, and may include relative permeability measurements, progressive dissociation studies and hydrate/sediment mixture phase stability in relationship to controlled parameters, such as temperature, pressure, and inhibitor concentration.

The x-ray scanner as described herein was constrained in the amount of initial testing by the fixed deliverable date required for fielding the instrument on ODP Leg 204 on the JOIDES Resolution. A complete investigation of the instruments sensitivity and resolution through its entire dynamic range of operation will be carried out when it returns to LBNL. Initial testing has shown that the compensator design that was implemented can be further improved. The tight schedule required for system production precluded complete engineering of x-ray beam path lengths and material attenuations. A compensator optimized for the anticipated geologic samples would improve image quality and system sensitivity. It is expected that by adding software for real-time 3D CT image reconstruction, the value of the system will be further increased for on-site core characterization and active testing.

6. Acknowledgments

This work was supported by the Assistant Secretary for Fossil Energy, Office of Natural Gas and Petroleum Technology, through the National Energy Technology Laboratory, under the U.S. Department of Energy, Contract No. DE-AC03-76SF00098. The authors acknowledge the careful reviews of this report by George Moridis and Curt Oldenburg.

7. References

Freifeld, B.M., Kneafsey, T.J., Tomutsa, L., Stern, L.A., and Kirby, S.H., 2002, Use of Computed X-Ray Tomographic Data for Analyzing the Thermodynamics of a Dissociating Porous Sand/Hydrate Mixture, *4th International Conference of Gas Hydrates*, Yokohama, Japan.

ODP, 2002. Leg 204 Scientific Prospectus, Drilling Gas Hydrates On Hydrate Ridge, Cascadia Continental Margin.

Tomutsa, L., Freifeld, B.M., Kneafsey, T.J., & Stern, L.A., 2002. X-ray computed tomography observation of methane hydrate dissociation, *Proceedings of the SPE 2002 Gas Technology Symposium*, Calgary, Alberta, Canada.

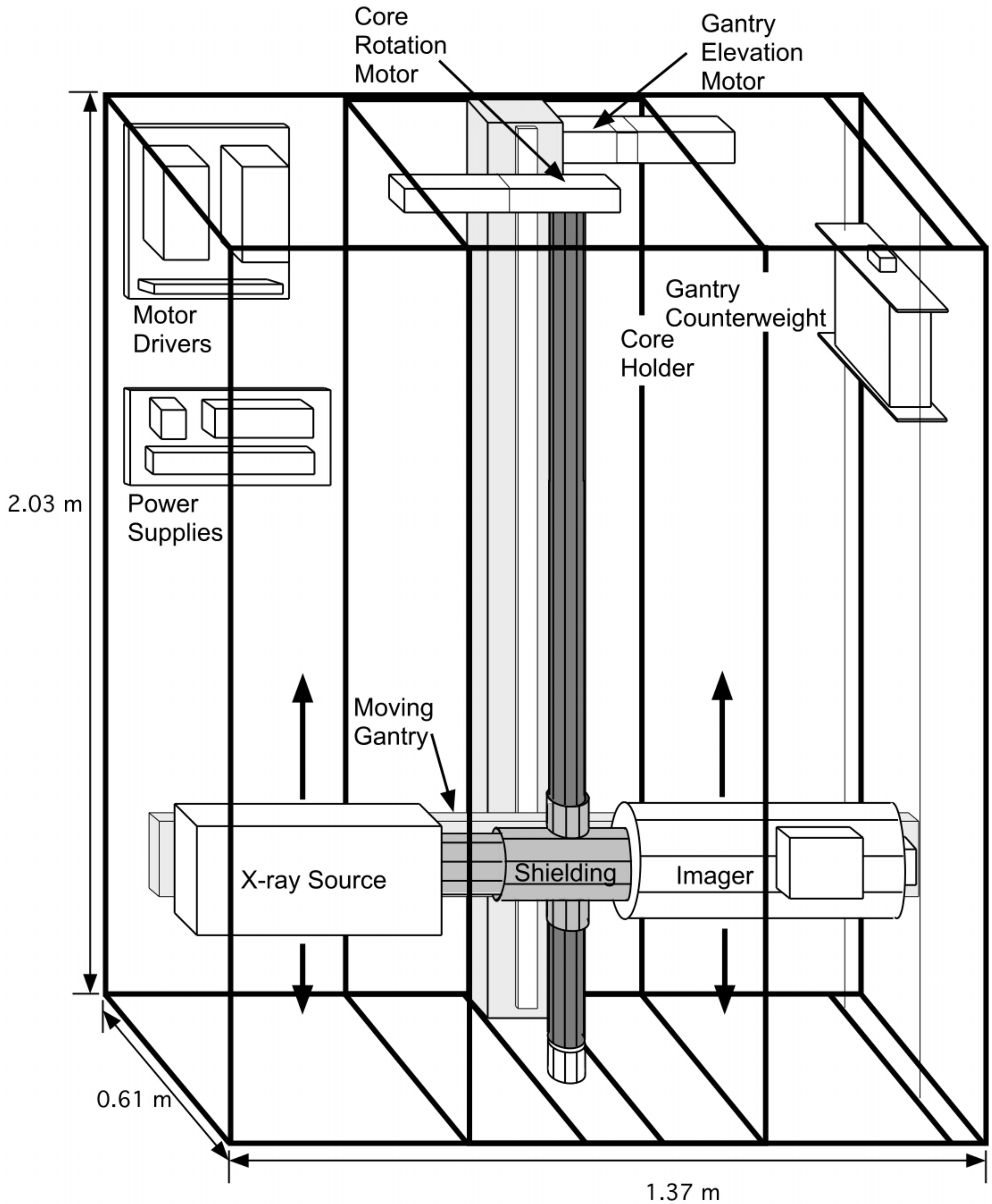

Figure 1. Schematic of the x-ray scanner showing the placement of major system components.

Figure 2. Picture of the x-ray scanner during testing at the LBNL.

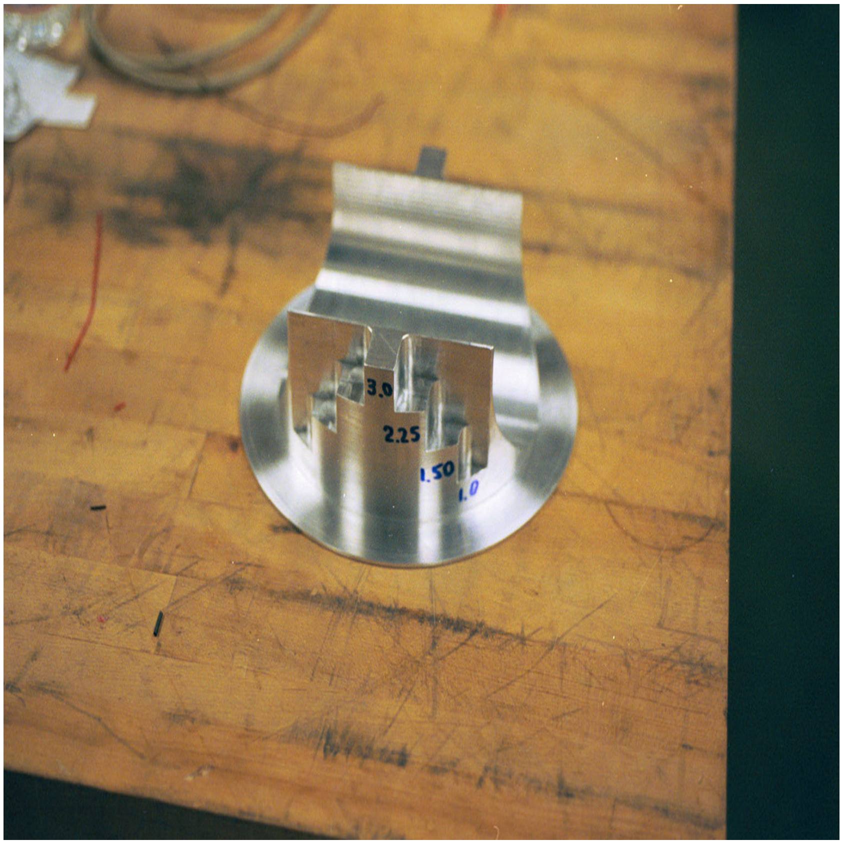

Figure 3. Aluminum x-ray compensator mounted in the front of the image intensifier. The curvature flattens the image intensity to account for the circular core cross section. The outer machined flats provide for calibration and normalization of x-ray beam intensity.

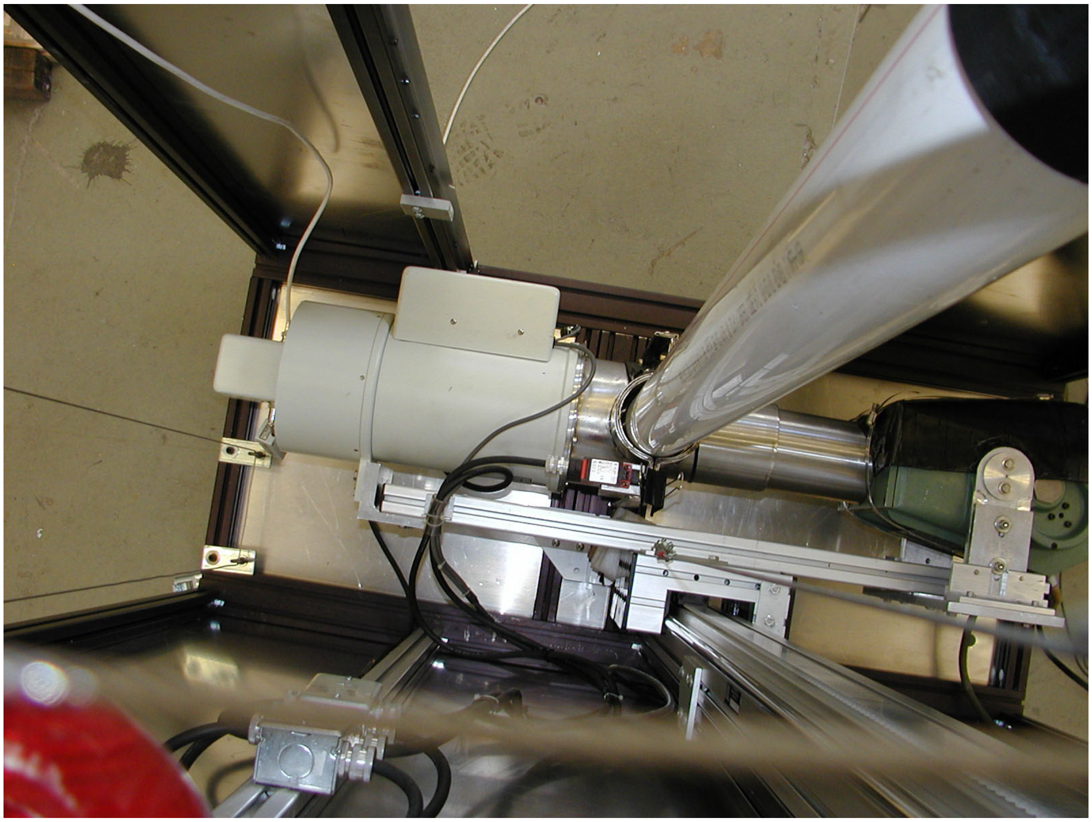

Figure 4. The x-ray beam path showing from left to right: CCD and image intensifier, x-ray shielding surrounding a PVC core holder, and the x-ray source. This picture was taken from the top of the x-ray scanner.

Figure 5. X-ray scanner being installed in the JOIDES Resolution core laboratory. From left to right is Jacob Pruess of LBNL and Brad Julson of ODP.

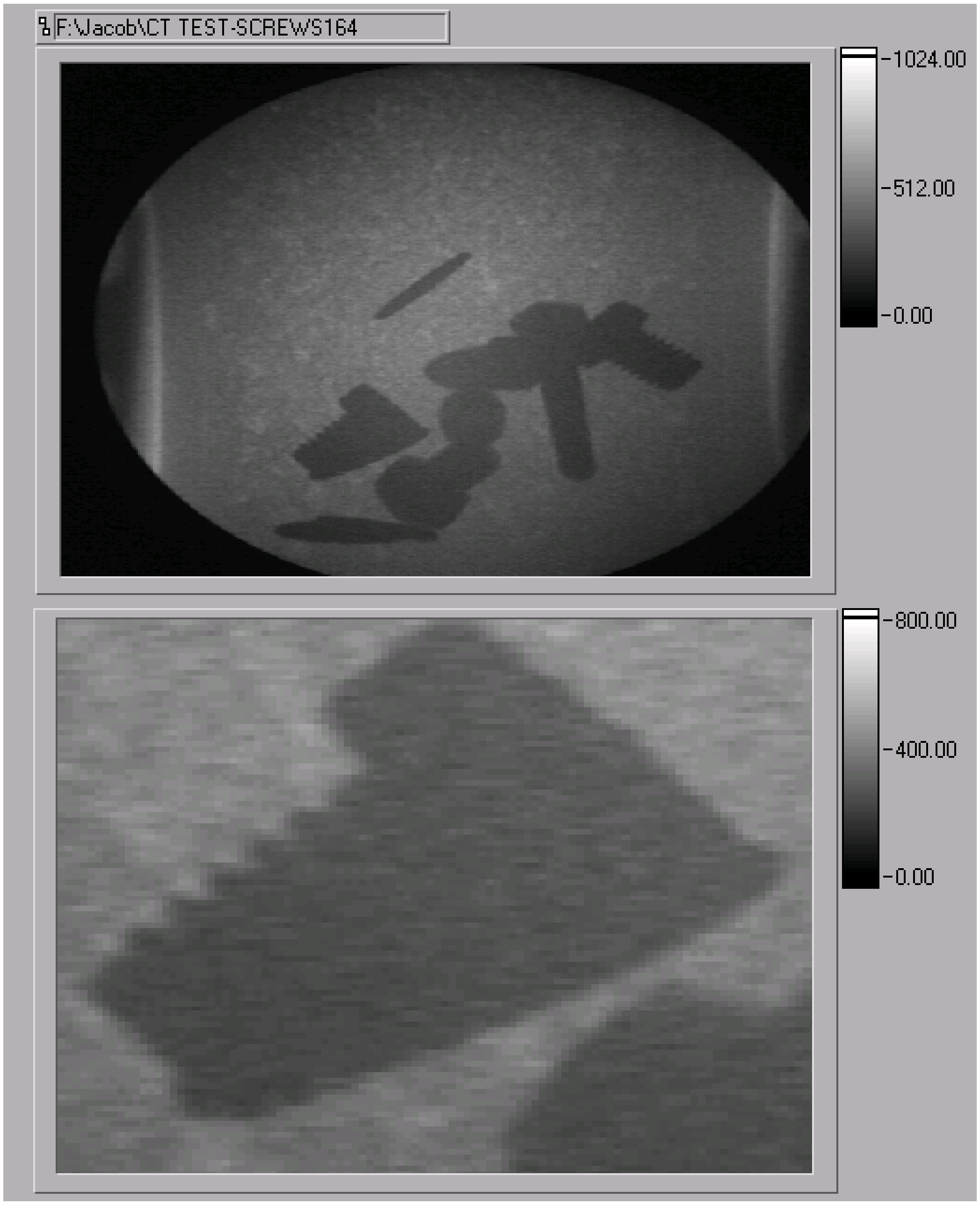

Figure 6. X-ray image of metallic screws and washers in a water saturated sand filled PVC core holder. The lower image has a close-up of a ¼-20 bolt (1.27 mm pitch). The clarity of the threads indicate that the x-ray system attains a resolution equal to the 0.3mm focal spot size of the x-ray source.

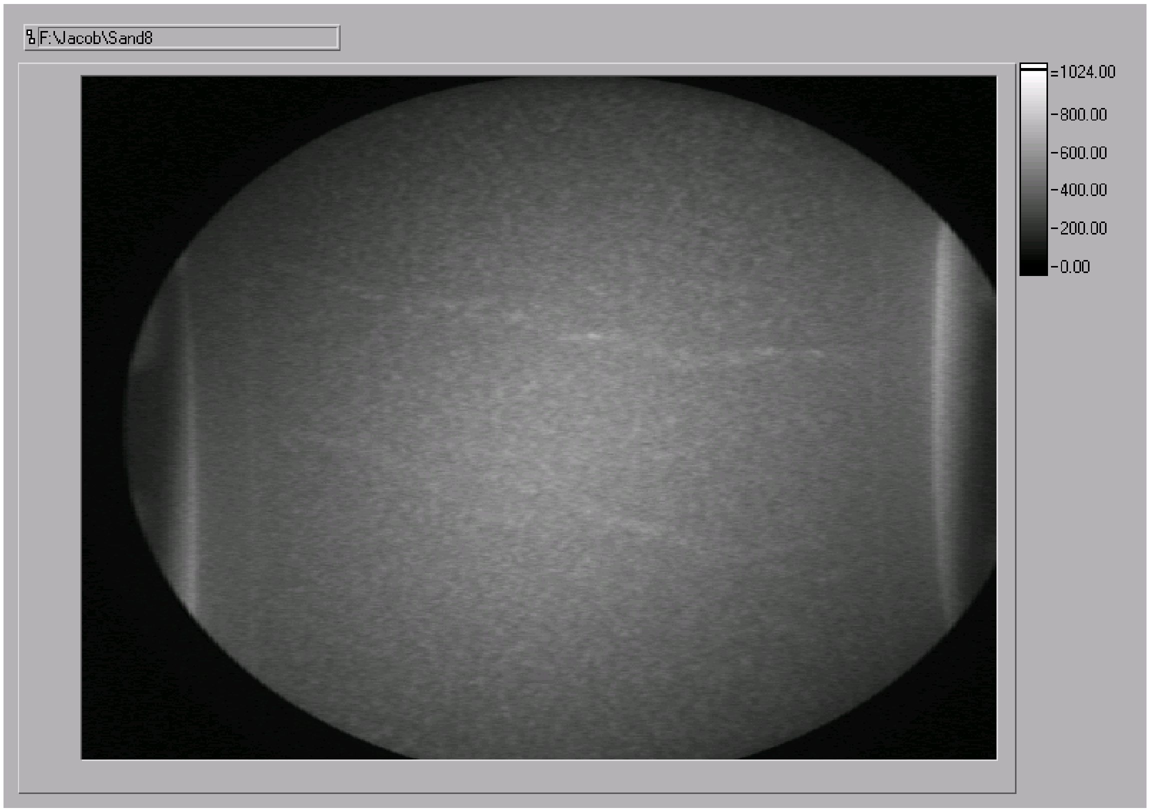

Figure 7. X-ray image of a core holder containing water-saturated Ottawa sand. The light sub-horizontal features are fractures in the otherwise homogeneous column.

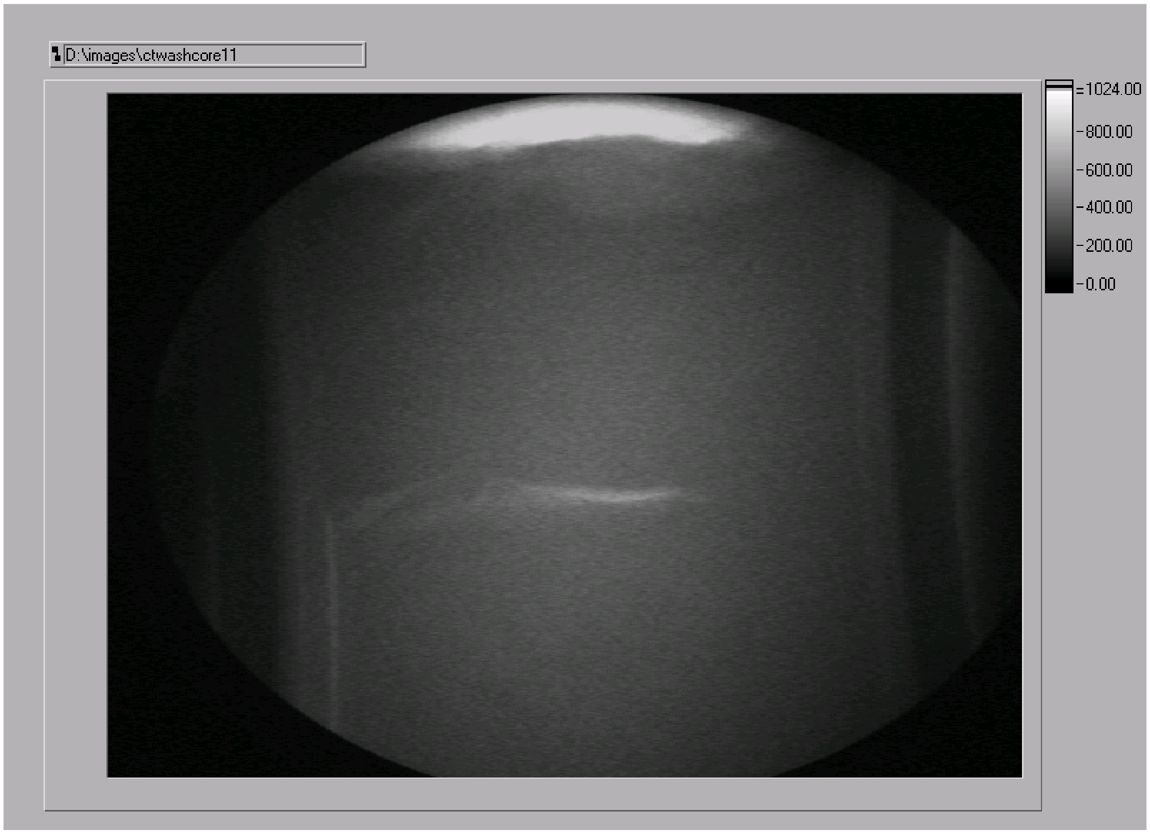

Figure 8. X-ray image taken aboard the JOIDES Resolution of silty-clay oceanic sediment showing a distinct horizontal fracture.

8. interim Technology Advice Panel (iTAP)

8.1 General Purpose: The interim Technology Advice Panel (iTAP) will advise the iPC and, through the iPC, the IWG (and the management office) on matters related to the technological developments necessary to meet the scientific objectives of the IODP Initial Science Plan.

8.2 Mandate: The iTAP will identify long-term (2-5 year lead time) technical needs and recommend ways to meet those needs. Appropriate topics of concern may include:

1. Advice and recommendations on performance requirements for specific technological needs.
2. Assessment of whether commercial “off-the-shelf” technology can most optimally meet those needs or whether they require research and development within IODP.
3. Recommendations concerning the appropriate mode for pursuing such research and development (i.e., through IODP, universities, industry, or joint ventures).
4. Advice and recommendations on the process and procedures for developing and evaluating program contracts in support of technical design and innovation.
5. Regular review of the progress made by iSAS and the science community in planning for the technological needs of IODP.

8.3 Meetings: The iTAP should meet twice per year or as required and approved by the iPC co-chairs. The iTAP may hold its meetings separately or in conjunction with the iSciMP when appropriate.

8.4 Membership: The iTAP will consist of fifteen to eighteen members, with a nominal term of three to five years for individual members. Each IWG member may name one representative to the iTAP and nominate other candidates for membership. The iPC will select and approve all other iTAP members from the additional nominees based on the expertise needed on the panel. Members of iTAP should specialize in the fields of marine operations on a variety of platforms, down-hole logging and instrumentation, drilling technology (including mining technology and drilling under extreme conditions), geotechnics and other disciplines as necessary. To meet the need for added breadth of expertise and the receipt of technical advice in a timely manner, the iTAP may recommend the establishment of working groups to address specific technological issues.

8.5 Liaisons: To ensure that iTAP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific program, the iPC Co-chairs or their designates will brief the iTAP at least once per year on the status of the science program. In addition, liaisons from the operators, the management office, the interim Industrial Liaison Panel, the data centers and other cooperating scientific programs may regularly attend iTAP meetings. The iTAP Chair should attend iSSEPs meetings as a liaison.

8.6 Chair: The iPC will appoint the iTAP Chair.

Proposed Agendas for the
Joint Meeting of iSCIMP and iTAP
July 13 - 16 2003

University of Rhode Island
Graduate School of Oceanography
Narragansett Bay Campus, Narragansett Rhode Island

Overview

July 13th (Afternoon – starts at 13:00) Joint iTAP/iSCIMP Logging Subcommittee Meeting
July 14th (Full Day) Joint iTAP/iSCIMP Meeting
July 15th (Full Day) Separate Meetings of iTAP and iSCIMP
July 16th (Morning) Separate Meetings of iTAP and iSCIMP
July 16th (Afternoon) Joint iTAP/iSCIMP Meeting

July 13th Afternoon

Meeting of the Joint iTAP/iSCIMP Logging Subcommittee (Subcommittee Members are: Buecker, Schmitt, Gulick, Kamata, Arai, Gearhart, Becker)

July 14th Morning (Joint iTAP/iSCIMP)

1. Welcome
2. Introductions
3. Review and Approval of Joint Agenda
4. IODP Overview (Austin, Interim Director)
5. Reports
    a. iSSEPs (Escartin & Masuda)
    b. iPC (Moore & Ito)
    c. iILP (TBN)
    d. OD21 / CDEX (Kuroki & Ikehara)
    e. OD21 / J-DESC (Ito & Saito)
    f. ECORD (Skinner)
    g. US Report (TBN)
    h. Leg 209 Report (Kikawa)
    i. Report on Pipe Diameter

July 14th Afternoon (Joint iTAP/iSCIMP)

6. Joint Panel Issues
    a. Overview (Murray)
    b. Procedures for Technology Development & Implementation (Masuda)
    c. Discussions on IODP Standard on Drillpipe and Core Diameter (Moran)
    d. Logging Subcommittee Report/ IODP Logging Standard (Buecker)
    e. Measurement While Drilling and Coring (Huey)
    f. CDP Planning
7. Project Management for IODP (Becker)

July 15th Morning & Afternoon

Proposed ITAP Agenda

1. Review, changes & approval of iTAP Meeting #2 minutes and iTAP agenda
2. Business arising from iTAP meeting #2
    a. Project Task Group Status (Moran)
    b. Legacy Project Report (TBN)
3. Prioritize & Recommend Technical Challenges from ISP:
    a. Climate history challenges (Taylor)
    b. Gas Hydrates (Masuda/)
    c. Hydrogeology (Becker)
    d. Zero-age Crust (Huey)
4. Other Important Technical Challenges
    a. TAGII Presentation (Rona)
    b. Difficulties in Deep Drilling (Arai)
    c. Long-term Monitoring under High Temperature (Kamata)
    d. MSP Technical Needs (Skinner)

Proposed iSCIMP Agenda

1. Review & approval of Alberta minutes
2. Review & approval of iSciMP agenda
3. Report of Microbio WG (Smith)
4. Report of Database WG (Divins)
5. Remaining Lab WG Summary Reports
6. Micropaleo Ref Centers (Thomas)
7. Drill Cuttings: Acquisition, Curation, etc.
8. X-Ray CT System (Friefeld)
9. Publications (Murray)

July 16th Morning

Proposed ITAP Agenda (continued)

5. Role of iTAP for the IODP proponent community & iSAS
    a. Discussion on relationship among SSP/SSEPs
    b. Clarify iTAP's role in iSAS
    c. Identify iTAP members to work on technical briefs
6. Cross-platform technical issues
    a. Logging tools
    b. LWD for detecting hydrocarbons
    c. Other Issues
7. Future Structure & Membership in IODP
8. Review of Recommendations and Action Items

Proposed iSCIMP Agenda (continued)

10. Technician Support (Murray)
11. Scientific Staffing (Murray)
12. Membership Rotation (Murray)
13. iSciMP/iTAP Future (Murray)
14. Review of iSciMP Recommendations

July 16th Afternoon (Joint iTAP/iSCIMP)

Science & Technology Panel Structure in IODP

8. Review of Recommendations
9. SciMP/iTAP future (Murray, Kikawa, Moran, Masuda)
10. Any Other Business
11. Next Meeting(s) and Hosts

9. interim Industrial Liaison Panel (iILP)

9.1 General Purpose: To facilitate ongoing communication and cooperative scientific activities between IODP and selected industries, with the goal of benefiting IODP science and technology and maximizing economic benefits from sharing resources, such as drilling of sites for shared scientific and technical goals, development of joint drilling and sampling technologies, and the development of improved downhole measurement and observatory capabilities. Industrial sectors of interest include oil & gas companies (e.g., offshore deepwater technology, petroleum geology, and engineering), mining (e.g., understanding potential economic targets), microbiology (e.g, development of new enzymes, etc.), insurance industry (e.g., hazards and climate predictions) and research and development organizations in these fields.

9.2 Mandate: The iILP will:

- Develop effective links between academic and industry scientists with mutual research, technical, and engineering interests,
- Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers,
- Develop mechanisms for sharing industry data, expertise, and resources between IODP and industry scientists**,**
- Act as the liaison group for IODP to industry and selected industry associations, and promote IODP educational and outreach activities within selected industry professional organizations,
- Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP,
- Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities between IODP and industry,
- Assist iPC in the establishment of interim Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programs and/or interim Program Planning Groups as needed.

9.3 Meetings: The iILP should meet twice per year. The iILP may hold its meetings separately or in conjunction with other iSAS panels or professional societies as appropriate.

9.4 Membership: The iILP will consist of 15 members representing as many IWG member nations as possible to maintain reasonable size and balance of expertise and research interests, with an ideal goal of about two thirds of the members from industry and one third from academia. Nominations will be solicited from the JOIDES and OD21 science advisory structures, industry colleagues, and national ODP offices. The iPC Co-chairs will consult the iILP Chair and recommend candidates for membership as needed. Academic iILP members should have experience in scientific ocean drilling and scientific expertise related to industry interests or else an active involvement in academic/industrial collaborations. The iPC will approve the iILP membership.

9.5 Liaisons: To ensure that iILP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific programs, the iPC Co-chairs or their designates will brief the iILP at least once per year on the status of the science program. In addition, the iILP should establish liaisons with the iSSEPs and the iPC.

9.6 Chair: The iPC will appoint the iILP Chair.

IODP Interim Industry Liaison Panel

Final minutes of first meeting, 20 – 22 February 2003

Vrije Universiteit, Amsterdam

Present:

iILP:

Hiroyuki Arato, Philippe de Clarens, Harry Doust*, Ryosuke Fudou, George Grabowski, Masao Hayashi, John Hogg*, Garry Karner, Hiroto Kanno, Isabelle Moretti, Heiko Moller, Martin Perlmutter, Carlos Pirmez, Weilin Zhu.

Guests (some part-time)

Jamie Allen, Nobu Eguchi, Michael Enachescu, Jimmy Kinoshita, Ted Moore, Kate Moran, Jeff Schuffert, Brian Taylor,

Absent (with apologies):

Alan Hoffman, David Roberts.

***iILP co-chairs**

AGENDA:

1. **Welcome and introduction of iILP members to each other.**
   - Areas of individual expertise and ODP experience were noted
   - Panel members are overwhelmingly energy industry-related, with relatively little representation from academia or the microbiology sector. There are no representatives from the mining or insurance industries. Expansion of the panel to redress this imbalance may be required in due course

2. **Presentation on opportunities for industry-academic cooperation in IODP by Harry Doust, prepared for lecture to the Geological Society, London, in April 2003.**
   - Harry will update this presentation and make it available to all iILP members as soon as possible, for their use in publicising iILP activities.

3. **Presentation by Jeroen Kenter on status of European Consortium for Ocean Research Drilling (ECORD)**
   - ECORD will forge the way to European membership of IODP. There are 4 members, UK, France, Germany and a consortium of 12 countries (including The Netherlands, Sweden, Norway, Spain, etc.)

- ECORD aims to fund Mission Specific Platform (MSP) operations such as the planned Arctic Lomonosov Ridge drilling in 2004 (but may not be the only sponsor of MSP’s)
- A full report on ECORD status will be made at the iPC meeting in Austin, Texas (March 2003)

4. Presentation by Harry Doust on the history and current status of iILP, past initiatives in identifying areas of potential industry interest in relation to the IODP Initial Science Plan (ISP), reports on recent iPC and iSSEPs meetings, and some important and urgent issues/concerns for panel consideration

5. Brainstorming of some of the main issues to be addressed by iILP in the next couple of years. The following are in no ranked order:

1. The average 5 year period between proposal submission and programme execution has been a discouragement to industry participation in ODP, as has been the relatively low acceptance rate of proposals.
2. How can the iILP provide effective support to industry proponents, such that the evaluation procedure can be streamlined?

In the discussion and breakout sessions that followed, the following points were made or raised

3. The 5 years from Proposal to Drilling may be excessive (Leg 147, 182, drilling has been done in less than three years), and is perhaps no longer than some industry projects. ODP normally commits to a leg 2 years ahead of execution. It would be prudent to plan on a minimum of 3 years. Wherever possible industry should seek to piggy-back on existing proposals or aim to submit proposals at operationally favourable times. W.r.t. MSP’s there is in principle no scheduling issue – if a budget exists the programme can be carried out.

4. iILP needs to establish clear links with the other IODP planning panels and understand their precise mandates and methods of working. Strong and active championship of industry-parented proposals will be needed.

5. In order to streamline the process, academic help will be needed with preparation and writing of proposals, especially multi-disciplinary ones. The minimum time for approval is 1.5 years, each revision adds about 0.5yr. Typical reasons for revision requests are that the scientific argument has not been fully articulated or formulated properly. So far only one fully industry-sourced research hole has been drilled (DSDP 96) so industry experience is small.

6. Industry objectives will have to be translated effectively into strong scientific objectives. It is anticipated that manner of presentation will be crucial, so close links to SSEPs panels must be established and maintained. The potential advantages of industry participation must be made clear to the academic community (possibly through some case-histories).

7. Cooperation between industry and academic IODP scientists will be essential in order to identify mutual areas of benefit and deliver the science plan. In the beginning, industry could consider small experimental add-on projects to already-planned legs
8. IILP must advertise its role to industry, for example in AAPG, AGU, GSA, EAGE, SEG, OGJ through presentations, publications and posters.

9. Industry can potentially contribute its experience in risk-assessment to IODP (both planning and operational).

10. The industry-dominated nature of iILP is beneficial to the urgent need to raise the profile of IODP science in industry, but in the longer-term the panel must avoid being seen as a pressure group.

11. Industry access to high quality 2D and 3D seismic data should be used to enhance IODP scientific objectives, but liaison with the site-survey panel will be crucial to separate scientific and safety aspects. Ideally, industry panel representatives should be in a position to decide whether their companies can release data or not. This will likely be on a case-by-case basis, whereby iILP will assume a liaison role. Scope is seen for involving geophysical service companies/vendors in the iILP (owners of much seismic data).

12. Industry could profitably consider convening (a)workshop(s) to identify the most urgent themes, objectives or key fundamental questions to answer in order to get maximum involvement, for instance in the context of Source-to-sink (S2S) proposals. Essential here is that such workshops are not funded by IODP (could be NSF, JOI, companies, national committees, etc).

13. Some concerns were expressed that IODP may seek funding from industry. While not encouraged, in special cases industry priorities may be addressed through such financial support.

14. The iILP panel composition is overwhelmingly oil/gas industry, with one from microbiology and none from mining/insurance. The mining industry should be approached, initially via academia.

15. iILP should make a recommendation to IODP on the scope for repackaging of ODP thematic data, assuming industry interest.

16. If set up, an ODP data base group would benefit from iILP participation. iILP might assist IODP in the creation of a meta-database of seismic/well data if requested – a recommendation should go forward to SSP to initiate such a meta-db.

6. Establishment of contacts. IILP needs to establish the manner of contacts with the industry groups. First thoughts are as follows:

- Energy / Microbiology. Where relevant objectives are seen in proposals that justify contact with these groups, iILP members will ensure that appropriate staff are informed

- iILP will develop a coordinated outreach plan to encourage participation of the above industries
- Energy service companies, as owners of considerable data sets, will be approached on a case-by-case basis for release of seismic to specific proposals as appropriate
- Contacts with insurance companies are likely to be in the areas of hazards and climate change (eg if sea-level research is involved). Exploratory contacts to be made in due course, as the extent of proposals covering these themes becomes clearer
- Mining – a possible champion may be identified in Canada. In addition, the AGI (to be contacted) has identified mining people involved in education
- Other parties – governments etc. are to be contacted as required (eg for permission to release data

7. Facilitation of academic/industry cooperation. Among iILP responsibilities will be

- Advice to other IODP panels (scientific, technological, organizational) on industry staff, funding, testing industry equipment, etc.
- Facilitation of industry data identification and availability, advice on confidentiality issues, and help with access. In general it is expected that locating appropriate data, establishing legal constraints to release and allocating/charging time to handling data transfer may represent the main challenges for iILP
- Help IODP with advice on complex operations and logistics (probably via DPG's).
- Working on scientific objectives together with IODP academics will require considerable mutual commitment. Perhaps a high-level IODP industry policy is needed to get this going? iILP will identify which projects could be enhanced through accessible industry seismic data and propose where the objectives could be enhanced
- Training plans. The widespread shortage of earth-science students makes attracting new staff imperative to industry. IODP may represent an opportunity for young staff to obtain training? This possibility will be explored. Further action will be contemplated later. Staffing of 3 platforms is likely to be a challenge, so there may be mutual value here. The programme offers of opportunities and greater flexibility time-wise than previously, so advertise!

8. Promotional material: requirements and preparation

- IILP panel members will commit to oral presentations at conferences – These should be identified and a tentative roster prepared. Preferably, a single story should be prepared, though flexibility will be needed to account for variations in place, emphasis and time of presentation. Perhaps need two talks, one for industry, one for academia
- Press releases, trade journals/newsletters
- iILP panel members should volunteer to chair dedicated IODP sessions at AAPG conferences – this could be an opportunity to present proposals of possible industry interest? Another option would be a booth at AGI, GSA (this is often a better means to bring the message over)

9. Examination of the current list of active IODP proposals

See http://www.isas-office.jp/active.html. Summary sheets of the 97 active proposals were examined and categorized as below. 28 were not seen, and those not mentioned were considered to be of no interest to industry.

- **S** = Clear interest to industry. **A/B** = no direct industry interest, but industry may be able to enhance proposal with data or experience. **C/D** = potential industry interest if industry objectives could be incorporated. **E** = general interest to industry scientists, but unlikely to attract direct industry participation
- **S**: 533 (Arctic), 547 (Biosphere), 552 (Bengal Fan), 554 (GOM hydrate), 564 (N.Jersey Shelf), 589 (GOM Overpr.), 595 (Indus), 600 (New Zealand), 601 (Microbiology),606 (Somalia), 607 (N.Jersey slope) (total 11)
- **A/B**: 455, 477, 549, 593, 596, 602, 608, 617, 618 (total 9)
- **C/D**: 505, 515, 519, 537, 553, 570, 573, 581, 584, 591 (total 10, includes some of potential mining/microbiology industry interest)
- **E**: 489, 555, 557, 564, 576, 578, 603, 604, 605, 609 (total 10)

It was agreed that proponents of S-category proposals would be requested to allow iILP to examine them for possible industry collaboration. After iILP panel members have read them, one or two will be nominated "active readers" to make recommendations on action at the next iILP meeting.

10. Discussion of the draft iILP Mandate and proposed modifications

See attached sheet

11. Joint meeting with iTAP: Discussion of respective areas of responsibility

Both iTAP and iILP provide links from IODP to industry. SSPPs may recommend to all proponents of proposals that they consult one or both panels.

- **iILP** will concern itself with promoting IODP in industry and providing advice on industry participation. It will also have in an advice liaison function to identify appropriate data, staff, etc. to provide advice on specific elements of the programme. It will primarily concern itself with scientific and data issues.
- **iTAP** will provide advice to IODP on the technical challenges that will need to be met in order to realize the medium to long-term scientific programme. This may involve R & D programmes and establishment of engineering teams, collaborative projects or commercial contacts. Technical challenges are likely to include deep water/penetration well design, HPT wells, gas-hydrate penetration and deep biosphere sampling.

Presentations were made by iTAP and iILP co-chairs, and on NanTroSEIZE (Harold Tobin – see full proposal at ees.nmt.edu/nantroseize) and CRISP (Roland von Huene).

Operations planning advice: For Chikyu operations, planning needs to commence in 2003, although there is as yet no defined programme in place. Two detailed planning groups (DPGs) are needed:

- A Drilling Operations Group, to carry out well planning (define hole design and experimental programme, etc.)
- A Complex Drilling Programme Group, to provide practical scheduling, logistic and planning advice

Both iTAP and iILP are requested urgently to identify industry staff potentially able and willing to serve as advisers to operators on these groups, and to provide nominations prior to the mid-March iPC meeting in Austin. In discussion it was suggested that participation in IODP planning could be in one of two ways:

- through membership of these DPGs, implying a longer-term commitment by individuals to specialist provision of advice. The manner of working and the likely time commitment need to be urgently addressed before industry staff could be approached
- through participation in peer reviews at critical phases in the project planning cycle. This would imply less time commitment by individuals and may, for many companies, be a more acceptable alternative

iTAP and iILP will prepare a project planning road-map, similar to those used in industry, for consideration by IODP.

ITAP/iILP liaison: From the above it is clear that iTAP and iILP need to keep close links with each other. This could be achieved either by

- regular joint meetings, as on this occasion. This would be beneficial but would be logistically difficult to maintain, especially when one or other panel may need to jointly meet with other iSAS panels
- ensuring that at all iTAP and iILP meetings, at least one, and preferably two members of the other panel are present. This option was preferred, being considered adequate and cost effective.

12. Plan for coming year and action items

The focus in coming year is likely to be on the following elements of the mandate:

- reviewing existing proposals for potential industry participation
- update of list of industry "burning questions"
- promotion of IODP in industry
- identification of barriers to industry participation and possible solutions

13. **NEXT MEETING**.

At the meeting, it was proposed to hold the next meeting on the occasion of the AAPG International Conference/Exhibition in **Barcelona, Spain, 21-24 September 2003**. The iILP meeting would then probably take place on Saturday and/or Sunday 21 September. Panel members will investigate a possible venue (AAPG, university, CSIC, hotel). **Subsequently, it appeared that the timing is difficult to accommodate with that of the September iPC. IILP co-chairs are investigating alternatives (eg October 9-11, London PESGB, October 25-26, Dallas SEG, November 1-3, Seattle GSA),**

Please note that proposals for additions or modifications are welcome. They will be discussed at the second iILP meeting.

Interim Industrial Liaison Panel (iILP)
– Draft mandate –
Version following first meeting (February 2003)

9.1 General purpose: As in the final draft document. No change proposed.

Possible addition for the future (after, say, 5-10yr): Identification of major scientific objectives to contribute to IODP. This would follow the identification, in the first few years, of specific projects of industry interest.

Italics are additions to original mandate

9.2 Mandate: The iILP will:

1. Develop effective links between academic and industry scientists with mutual research and technical/engineering interests.

2. Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers.

3. Develop mechanisms for sharing industry data/expertise/resources between IODP and industry scientists *and provide advice to IODP scientists where appropriate.*

4. Act as the liaison group for IODP to industry and selected industry associations, and promote IODP educational and outreach activities within selected industry professional organizations.

5. Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP as needed. These might include Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programmes and/or interim Programme Planning Groups.

6. Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities between IODP and industry.

(Note: item 7 has been incorporated in item 5)

9.3 Meetings: The iILP should meet twice per year, separately or in conjunction with other iSAS panels or professional societies as appropriate. *Representatives from iILP will attend all iTAP meetings.*

9.4 Membership: The iILP comprises16 members, representing a broad range of IWG member nations, with a balance of expertise and research interests. It has an ideal goal of about two thirds of the members from industry, one third from academia. …Remainder as in the final draft

9.5 Liaisons: as in final draft

9.6 Chair: as in final draft

9.10 Housekeeping:
Contacts: Through twice yearly meetings and e-mail. Documents will be stored under the iSAS web-site. Action: request iSAS office to open a protected document environment.

Communication of decisions and nominations: Co-chairs will contact panel members as appropriate.

Individual responsibilities: Liaisons for proposal review will be nominated when the proposals are in – they will then be distributed.

Work plan: An iILP work-plan will be prepared and circulated.

Common story-line, material and plans for update: HD will update the existing story and circulate to members. Following comments from all, a common story will be prepared by end March. This should be updated each 6 months.

Conference representation: iILLP to be represented at AGU (December), preferably in a booth (also AAPG, GSA, EAGE, JAPT, etc).

9.11 GOALS OF IILP

- Achieve 5 industry-linked proposals or proposals with significant industry input in IODP, either with highly-ranked status or in a schedule phase within 5 years.
- Maintain a short list of the most relevant proposals for industry, and proactively offer advice in improving them/adding industry-related objectives.
- An as yet to be defined number of new project proponents come to iILP for advice per year.
- Maintain an evergreen list of industry scientific objectives, including longer-term (10yrs+) areas of interest.
- Achieve placement of industry representatives on all iSAS advice panels, including SSEPs.

- Achieve increased industry support for IODP, for instance including representatives on DPG's, through active promotion.
- Aim to get at least one industry representative as co chief-scientist on an IODP leg within 7 years.

CURRENT iILP ACTION PLAN

Review proposals submitted to IODP for interest to industry and:

1. **identify data, analyses, etc that could apply**
2. **suggest enhancements and advice for proposals**
3. **meet with proponent(s) when and where requested**

Identify areas of interest for joint industry/academic studies and coordination

1. **identify topics on list of industry interests**
2. **identify workers in industry and academia that share these interests**
3. **conduct workshops for planning of new proposals**
4. **make new proposals**

Promote IODP and its benefits to industry

1. **develop advertisement materials**
2. **present to companies, meetings**

Liaise between industry and academia on IODP issues

1. **make connections where requested**
2. **nominate for committees and panels**

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iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB5

iSAS Working Group Reports

Report of the iSciMP DatabaseWorking Group

2-3 June 2003

Introduction

As the Ocean Drilling Program comes to an end and a new era of ocean drilling begins with the Integrated Ocean Drilling Program (IODP) new opportunities to explore our Earth will arise. The "I" in IODP will present the most challenges especially for the data management and the integration of database services throughout the new program. The task of the interim Scientific Measurements Panel's (iSciMP) Database Working Group (DBWG, hereafter called the Group) was to present a possible model for database services, which the Group refers to as the IODP Information Services (IIS). The model comprises the management of the data collected onboard the various platforms (including downhole logging, site survey information), legacy data from DSDP and ODP, and "landborn" data, derived from post-cruise research and publications. The model includes the integration of those data and other IODP relevant information types into a common, program-wide IODP information system accessible by IODP researchers and the public. This report presents the results of a meeting held 2-3 June at which the Group discussed future IODP database and data management activities. We begin the report with a preliminary "Mission Statement", or "Mandate", for an envisioned IODP Information Services Center (ISC), which will play a key role in the successful function of the IIS. This is followed by a set of recommendations for the functions and structure of the proposed ISC, including expectations for each of the IODP Implementing Organizations (IOs), their relation to the ISC, and a number of database management issues.

The DBWG Report makes specific recommendations, however it does not specify exactly how the recommendations should be implemented. This is done intentionally. There are many possible configurations and designs that will include all of the Group's recommendations, but the Group felt it was not its charge to define the specifics. Rather, the Group would present concepts that it believes will make for a successful IODP database management structure.

The proposed model for database management for IODP is highly flexible. This report encompasses the data collected by the various operational platforms with respect to cores (e.g. data currently collected by ODP), ODP and DSDP legacy data, post-cruise data, publications information, downhole measurements, seismic images, engineering data, and much more. However, the system is versatile and should include links to the Site Survey Data Bank and downhole logging database

Participants in DBWG meeting (members of Working Group unless otherwise indicated):
Jennifer Anziano (JOI), David Becker, Michael Diepenbroek, David Divins, Colin Graham, Hisao Ito (iPC), Shin'ichi Kuramoto, Kate Moran, Saneatsu Saito, and Kyoma Takahashi.

IODP Information Services Center Mandate

The IODP Information Services Center provides for the ready access of all IODP data to IODP researchers, the international science community, industry, educators, media, and the public in a timely manner. This is achieved through the coordinated actions of the Center and the Implementing Organizations in the development and implementation of common program policies, standards, and effective mechanisms for the collection and distribution of IODP data.

Recommendations:

1) Structure of IODP Information Services

The Group recommends that an IODP Information Services Center (ISC) be established to provide database services within a distributed networked system and not within a centralized system. The system, termed the IODP Information Services, is composed of the database management activities of each of the IOs, a database of legacy data (DSDP and ODP, where these data will be maintained is not specified), and, at its heart, the Information Services Center operating directly under the IMI (Figure 1).

The primary functions of the ISC should include:

- *a **clearinghouse function** provided by ISC management, technical, and communications staff with appropriate network and computer infrastructure to provide integrated access to the program-wide information; and*
- *a **coordination function** provided by an assemblage of information services staff from each of the IOs as well as the ISC, site survey data bank services staff, and scientific drilling legacy data staff.*

Discussion:

The Group envisions two major challenges to the new ISC. First, providing integrated access to all IODP data, ODP legacy data and DSDP legacy data. Second, working with the information services staffs of the IOs and those of other data providers to ensure that data structure and access standards are in place and followed.

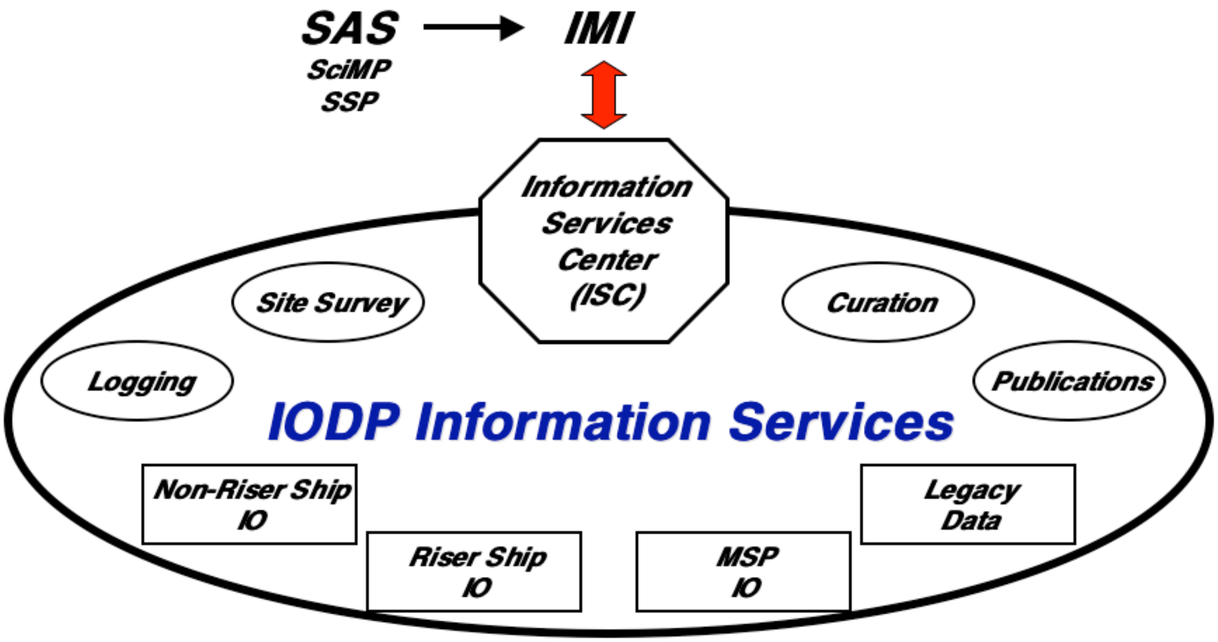

Figure 1. Proposed structure of IODP Information Services (IIS).

In a distributed environment, data resides on multiple computer systems in multiple formats at multiple locations. The challenge to the ISC will be to provide any data user a single point of entry into the myriad of IODP databases, text libraries, and catalogs (one stop shopping). In such a situation, the user relies on the **clearinghouse** to provide the access using simple point and click routines and a minimum of passwords. Thus, special computer programs (routines) need to be in place in order to access files, databases, catalogs, text libraries, etc. located on disparate computers around the world. This is a nontrivial task, to say the least. The Group felt that by identifying a **clearinghouse function** for the ISC specific tasks could be identified that would be the sole responsibility of the ISC, to which audits and performance measures could be made.

Since no contractual arrangements are envisioned between the ISC and IOs, the success of the ISC would rest, in part, on its ability to work in a cooperative sense with the IOs in order to successfully deliver information services to the scientific community. As such, the Group felt that a "dictatorial" (top down) management approach between the ISC and the IOs would not succeed. Rather, a **coordination function** for the ISC was envisioned as having a higher probability of success. To that end, the Group recommends the ISC take a proactive approach to establish data collection, storage, retrieval, and access standards with the complete involvement of the IOs. A SciMP subcommittee could be used to oversee this interaction.

2) IODP Information Services Center Responsibilities

The Group recommends that the ISC have the following specific responsibilities:

- *provide integrated access to all IODP data (e.g. shipboard and shore-based)*
- *develop & maintain:*

   - *the central program-wide web-based portal to stakeholders (scientists, educators, industry, policy-makers, public). Note: this portal should be dynamic & open to other international information systems & communities (e.g. physical oceanograph)*
   - *portal user interfaces that are scalable for different stakeholders*
- *following SAS advice, adopt & maintain standards to:*
   - *capture, storage, and distribution of data and metadata on each platform and of shore-based data. Required developments and implementations should be largely based on ISO, OGC, W3C standards and recommendations (for more information see http://www.fgdc.gov/standards/related_activities.html)*
   - *foster publication of data within IODP information services, e.g., using Digital Object Identifiers (DOI, http://www.doi.org)*
- *perform regular (360 degree) evaluations of the performance of the clearinghouse and the IOs in the delivery of IODP information services*
- *oversee the archiving of IODP legacy data (e.g, in partnership with recognized data centers)*
- *maintain and provide access to the program's publications database and integrate IODP information/data with IODP publications, e.g., using DOIs*
- *provide access to IODP curatorial information*
- *coordinate the development of data capture interfaces for specific platforms on an as-needed basis*
- *coordinate communications among the platform operator's IT/IS managers to share new ideas, resolve problems, and to adopt new information technologies.*
- *maintain links with other data groups (e.g. WDC, NGDC, ICDP, DEOS) and disseminate relevant information among IOs.*

Discussion:

The ISC should be the central location through which all publicly available IODP data and information are made available to IODP stakeholders. This is best accomplished through a portal that is both flexible and dynamic. The user interface should be scalable, that is, it should be able to accommodate both the novice and the experienced users, and most importantly, the user should always be able to find something related to their search. The portal will be based on levels of metadata, middleware, and user interface hardware and software. Implementation should be based on international standards (such as the ISO/TC 211 family of standards - http://www.isotc211.org/), which specify all necessary components for an effective geospatial data infrastructure, including "discovery", access, and exchange of IODP related data. Construction and maintenance of an IODP thesaurus, derived from metadata contents and related information inventories, will be one of the key elements to facilitate data and information access for the different stakeholders. By implementing such a design for its database management system IODP will be consistent with other oceanographic information systems, thus increasing the versatility and usefulness of IODP data for our understanding of the earth's systems and history.

The ISC should be tasked to follow the advice of the Science Advisory Structure (SAS) for the approval and adoption of metadata and data capture formats to be used on each of the operational platforms, as well as those formats used for upload of data sets into the IOs systems and distribution via the ISC portal. This The ISC will maintain these standards and make sure that all data are accessible in the proper format. It is the adherence to agreed-to-standards that makes a distributed database management system work.

Regular performance evaluations should be carried out to determine how well the clearinghouse is meeting the needs of the IODP stakeholders and responding to their requests. The Group believes that this is an extremely important responsibility of the ISC. The ISC is a service organization and as such is responsible for providing information and data to the public in a form and manner that meets the needs of the public. Regular evaluations and reviews are essential to providing the best service possible.

IODP has spent time preparing for the beginning of drilling operations. The Group believes that now is the time to begin thinking about the end of drilling operations and providing for the legacy of IODP. There are many lessons to be learned regarding the preservation of legacy materials from the previous ocean drilling activities. Regular transfer of data to the appropriate archiving agencies during IODP should be the practice of the ISC in cooperation with the archiving agencies.

The data generated by IODP will include more than the data collected on the operational platforms. The data include “prime data” to be collected by IODP and then processed on shore, data published in the scientific literature, and publications that will be based on IODP data. The ISC should be charged with the responsibility to implement an information service that includes links to the publication information as well as access to the actual data. The Group recommends including Digital Object Identifiers to reference all IODP-related data publications. The DOI system would make data publications citable and thus provide credit to both IODP and the individual researcher, which would be mutually beneficial (The International DOI Foundation (IDF) and ISCU World Data Centers are currently piloting a project to investigate the premises for this procedure).

In addition to information describing the core material and the downhole environment, curatorial information should also be included in the information services system. Information regarding who has what samples, where those samples are from, and other similar information need to be included. The ISC could also be tasked to provide database support services to the IODP core repositories as would be appropriate.

Another specific ISC responsibility should be to coordinate database management activities of the ISC and the IOs. This coordination should include routine meetings between the IOs and the ISC to discuss system operation issues, new technologies, and new ideas. The ISC will also be responsible for interacting with the IOs to assure that all the necessary metadata are generated according to the agreed upon standards.

3) IODP Information Services Standard Practice

The Group recommends that IODP Information Services include the following standard practices:

- *The ISC should be regularly evaluated following IODP project management standards to ensure that it meets the data and information needs of the IODP stakeholders as defined by the SAS*
- *An annual review of the ISC by external IT/IS experts to ensure that IODP is utilizing the best technology possible (e.g. in terms of cost, applicability or efficiency)*
- *IOs should ensure that the standard (as defined by SAS) shipboard IODP data are captured electronically by the end of the moratorium period for each project*
- *IOs will work together with the ISC to provide consistent data collected on all platforms with particular attention given to common units, calibration information, and standardization of measurements (e. g. depth, age models, etc.)*
- *IOs are responsible for performing quality control and consistency checks on all data and metadata generated on their platform for each project*
- *The ISC will provide feedback to the IOs on the quality and consistency of the metadata supplied*

Discussion:

The ISC is, as its name implies, a service organization. Its primary function is to be the public image of IODP. It is where the public will go to receive information about the program, data from the program, and publications related to the program. These are very significant responsibilities. To maintain the high standards required to make IODP a premier science and world class research program, the ISC must successfully carry out its mission. In order to meet these responsibilities a minimum set of standard practices is recommended.

The Group's recommended standard practices involve both the ISC and the IOs. IODP will only be as successful as each of its individual components. The key is to measure or monitor the level of service to the public and the stakeholders. Regular evaluation of the service provided by the ISC should be performed by the IMI, with input from the SAS. This is essential to maintain high standards and expectations for the ISC. Additionally, a review of the ISC's technical capabilities by non-IODP technical experts is recommended. This review will address issues related to efficiency and technical operations of the Center. Both of these reviews will provide the ISC with the feedback it will need to assure that IODP is represented to its stakeholders in the best manner possible.

4) IODP Information Services Standards

Standards are essential to the success of the ISC clearinghouse. The Group recommends that:

- *Based on advice from the SAS, the ISC will adopt data standards for IODP consistent with international and emerging standards such as ISO and FGDC*
- *IOs provide the ISC with access to IODP data using consistent, standard metadata catalogues (e.g. in XML following adopted IODP standards)*

Discussion:

The SAS has a very important role in the design and operation of the ISC. The distributed system design should be built on accepted standards. This is valuable for two reasons; first, IODP is more likely to be interoperable with other large global oceanographic programs, and second and more importantly, legacy data are more likely to be compliant with search mechanisms and national archiving requirements. Adoption of standards thus fosters integration, widespread dissemination, and usage of IODP related data.

5) IODP Information Services Definition of Information

Information includes, but is not limited to:

- Shipboard and shore based collected data (ODP Janus data and microbiology, drilling parameters, downhole measurements, site-specific survey, paleontology, visual core description, XRF, CT data)
- Engineering data
- Citations that include IODP information
- Curation information
- Observatory data links
- Ship schedules
- Applications
- Project description information
- Policies
- Publications…..

Integrated Ocean Drilling Program
Microbiology Working Group

Members

Heribert Cypionka, Institut für Chemie und Biologie Des Meeres
Katrina Edwards, Woods Hole Oceanographic Institution
Fumio Inagaki, JAMSTEC
Kenji Kato, Shizuoka University
Craig Moyer, Western Washington University
Kenji Nanba, University of Tokyo
David C. Smith, University of Rhode Island (co-chair)
Ken Takai, JAMSTEC (co-chair)
Peter Wellsbury, University of Bristol

Our Charge:

iPC Consensus 3-17: The iPC requests that iSciMP form a microbiology working group to examine issues related to the conditions and duration of sample storage, to make recommendations about the importance of patent rights, to formulate requirements for data reporting and publications, and to identify ways to attract more microbiologists to the program.

Note from Microbiology Working Group co-chairs: Prior to assembling the Microbiology Working Group, a Memorandum of Cooperation between the U.S. (NSF) and Japan (MEXT) was signed. The memorandum addresses issues concerning intellectual property and data rights and therefore discussions of these topics were not considered by this working group. The relevant sections of the memorandum signed on 22 April 2003 are below.

> **Section VII. Data, Information, Intellectual Property Rights**
> The Agencies take necessary measures to assure that all data, samples, and scientific and technical results of the Program's scientific and engineering activities are made widely available to the international scientific community and to the public through customary channels and in accordance with the normal procedures of the Agencies, or an identified by the SAS. Such measures should be taken in accordance with the respective laws and regulations of Japan and the United States.
>
> Information transmitted by one Agency to the other under this Memorandum is expected to be accurate to the best knowledge and belief of the transmitting Agency which may not be liable for the content or issue of such information.
>
> Protection of intellectual property and rights thereto resulting from

scientific research activities conducted under the auspices of this Memorandum will be addressed as set forth in Annex IV to the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology, signed at Toronto on June 20, 1988, and extended by the Protocols done at Washington on June 16, 1993, on June 16, 1998, on March 19, 1999, and on May 19, 1999, and extended and amended by the Protocol done at Washington on July 16, 1999.

ANNEX IV Annual Member Contributions and Rights (final two paragraphs)

An IODP member with at least one participation unit may maintain the same rights in data as the Agencies for activities conducted using the IODP science operations funds.

An IODP member with at least one participation unit is to have the right to a royalty free license for all patents resulting from developments supported by the IODP science operations funds.

1) Introduction

Interest in microbes inhabiting the marine deep subsurface has increased dramatically towards the end of the Ocean Drilling Program. As a result of this interest, microbiology became better integrated into the program. This culminated in the establishment of a well equipped microbiology laboratory onboard the JOIDES Resolution and the participation of more and more microbiologists. The purpose of this document is to lay out how IODP can capitalize on the knowledge gained during ODP and further integrate microbiology into the new program.

In response to iPC Consensus Statement 3-17, a Working Group of microbiologists was formed. This group is co-chaired by the two microbiologists that serve on iSciMP (Smith and Takai). The other members are expert in various aspects of environmental microbiology and have previous experience with the Ocean Drilling Program. The working group did not meet in person but rather worked on this document via email. Many of the issues described in the request from iPC have evolved independently, and this WG Report helps consolidate and formalize these practices, as well as make new recommendations to help ensure that the scientific goals articulated in the Initial Science Plan of the IODP ("Earth, Oceans, and Life") are able to be realized.

While the WG appreciates the significant progress the ODP has made in microbiological studies, they also feel that it is the IODP's responsibility to ensure that the microbiological measurements are continually made, and not on an ad hoc basis. Tremendous amounts of knowledge have been gained in other shipboard laboratories (e.g., the interstitial water program) even on legs for which those measurements are not fully associated with the leg objectives. It will only be after 5-10 years of continual and routine microbiological sampling and analysis that benefits will begin to become apparent. The implementation of the following recommendations will help us to reach this goal.

2) Sample Collection

A wide variety of analyses in support of the study of microbes in the deep subsurface have been employed on subsamples of recovered cores. Specific handling procedures are required for the various downstream procedures. In all cases, avoiding contamination of the cores with non-indigenous microbes, either during the drilling process or the subsequent subsampling is of paramount importance. Subsamples used for DNA and biomarker analyses should be frozen (preferably in liquid nitrogen, -196°C) as soon as possible after their isolation from the core. Subsamples that are used for subculturing must be protected from dramatic increases in temperature or from exposure to oxygen.

Subsampling Strategies:

. Subcore with sterile syringe. Ideally, a subcore is taken directly from the end of a core section on the catwalk. To reduce the potential for introducing contamination, the core is broken after the core liner is cut. If the core is cut with a blade or wire, the exposed end of the core must be scraped with a sterile blade prior to inserting the syringe. The ends of syringes (1, 3, 5, 10, or 50 mL) are cut off and used to take mini-cores from the uncontaminated interior of the cores. For indurated sediments, the syringes are pounded in to the center of the core using an adaptor developed at Bristol University. This method has been used extensively for the direct cell count samples. It is also very useful for samples for subculturing or molecular biology. This method yields an uncontaminated subcore that can be assayed directly or stored for later analysis.

. Whole round cores. Whole round samples (typically 5 or 10 cm in length) are cut on the catwalk, in the lab or in a cold room. The core liner is cut using the standard cutter and the core itself is broken or cut using a spatula or a wire. The whole rounds require additional work to remove the outer edge which is contaminated by drilling fluid.

. Hard rock samples. Individual rock pieces are sampled by paring away the contaminated outer edge using sterilized (flame or autoclave) chisels. The clean interior can be further processed by crushing using a stainless steel percussion mortar.

2) Sample Storage

Requirements for sample storage conditions are dependent upon the downstream assay. The following considerations are pertinent to samples that will be used in a more immediate manner (i.e. shipboard sample request) as well as those that will be shipped to shore-based laboratories or repositories for future analyses. It must be noted that even samples that are stored properly are not useful indefinitely and these samples are not a long term archive.

a. Frozen samples. Frozen samples are used for nucleic acids, lipid biomarkers, amino acids etc. These samples should be collected as soon as possible and immediately frozen, ideally in liquid nitrogen. This works best with subsamples taken in syringes as the core liners crack during freezing and increase the potential for contamination. The samples can be stored in liquid nitrogen or transferred to ultra low freezers (- 80°C). It is critical that the samples remain frozen until analysis. This includes shipping on dry ice (- 78°C). It is essential that the materials not thaw during transport, even briefly. Samples stored in ultra-low freezers can be maintained in an anaerobic environment by adapting the method of Cragg, *et al.*, 1992).

b. Anaerobic samples. Samples that will be used for subculturing should be stored in an anaerobic environment until used. This can be achieved using oxygen scrubbers and gas impermeable trilaminate bags (Cragg, *et al.*, 1992).

c. Chemically fixed samples. Samples used for microscopy (e.g. direct cell counts, fluorescent in situ hybridization, microautoradiography) are chemically stabilized in aldehyde solutions (formaldehyde, glutaraldehyde) and stored at 4 °C. Again, the particular downstream assay dictates the particular details necessary in the fixation process.

Because maintaining the proper temperature for the particular downstream analysis is essential, a temperature logger included in the shipping container can provide the researcher with the thermal history of the samples during transit.

The above discussion leads to the following Recommendation addressing the routine collection and storage of samples for microbiological analyses.

Recommendation 1: IODP should establish a repository for samples routinely collected and stored appropriately for subsequent microbiological analysis. The samples should be taken in sterile syringes (50 cm^3 capacity) as soon as the core arrives and stored as described below depending on the subsequent analysis.

a. Samples for nucleic acid analysis should be placed immediately in liquid nitrogen and transferred to ultra-low freezer or liquid nitrogen on board for storage. Alternatively, whole round samples used for this purpose should be placed directly in an ultra-low as soon a possible.

b. Samples taken for culturing work should be transferred to gas-tight trilaminate bags containing an oxygen scrubber, heat-sealed and stored at 4 °C.

c. Samples for microscopy should be preserved with an aldehyde solution (electron microscopy grade glutaraldehyde or paraformaldehyde) and stored at 4 °C.

3) Drilling Methods

Some analyses are most likely compromised by the depressurization upon ascent. To date, all microbiological samples have undergone depressurization prior to subsampling. Therefore, by default, all microorganisms that have been cultured from recovered cores can withstand exposure to a pressure of 1 atmosphere. The currently unavoidable depressurization precludes us from culturing microorganisms that are sensitive to the reduced pressure. The continued development of pressure retaining core barrels, with the ability to subsample at the in situ pressure (e.g. HYACE/HYACINTH) is extremely valuable for microbiological studies and should be supported.

Even more critical than changes in pressure are increases in temperature. This can be minimized by expediting the removal of the core from the core barrel and giving high priority to subsampling for microbiological samples. Core processing on board should be optimized to recover the core as quickly as possible in order to minimize increases in temperature. IODP should also explore the methods for insulating the core after removal from the core barrel. Because all temperature considerations are relative to the in situ temperature, better measurements of the downhole temperatures are essential.

Quality control issues have been addressed by introducing methods for quantifying the intrusion of drilling fluid (Smith, *et al*., 2000a). The judicious use of these methods are essential to maintaining scientific integrity of our observations. Overuse of the perfluorocarbon tracer results in yielding excessively high background levels in the laboratories which results in lowering the sensitivity of the method. As with interstitial waters samples, experience has shown that the use of the extended core barrel (XCB) produces cores of inferior quality (Smith, *et al*., 2000b) for microbiological study. Extending the range of the more desirable hydraulic piston core (APC) by “drilling over” should be used whenever possible. While this comes at the expense of time and equipment, it yields samples that are of sufficiently high quality for microbiological analyses. Hard rock samples collected with the rotary core barrel (RCB) are more problematic with respect to contamination issues. In practice, the fluorescent microspheres appear to be a more appropriate tracer for hard rock samples. The single test using the diamond core barrel system (DCB) yielded a clean sample. To date, the motor driven core barrel (MDCB) has not been tested. In general, for all drilling tools, larger diameter cores will yield more uncontaminated material for a given length of core and is more desirable. This will also yield more material from a specific horizon and allow for more the analysis of samples at higher vertical resolution.

Recommendation 2: Drilling methods that yield cores of optimal quality for microbiological studies should become standard.

a. Optimization of core processing with the goal of minimizing increases in temperature and exposure to oxygen should be implemented.

b. Continued performance, and further improvements to the methods for contamination testing (House*, et al*., 2003) while coring.

c. Routine use of the drill over method extends the useful range of the APC method and provides superior results for microbiological studies and should be implemented.

d. The continued development of the pressure retaining core barrel, and subsequent handing under in situ pressures is highly valuable to the microbiology research and must be given highest priority.

4) Data Reporting and Publications

Microbiologists are required to follow the IODP Sample and Data Policy as any other group. Because microbiologists generate some types of samples and data that are unique to their field, however, some additional issues need to be addressed.

a. Sequence data. The sequencing of nucleic acids has become the standard method for identifying microorganisms. The usefulness of the data resides in the ability to compare sequences. This is accomplished by submission of sequences to internationally recognized, publicly accessible, databases (below). In general, microbiological journals require submission of sequence data to one of these databases prior to publication. These requirements are specifically stated in the 'advice to authors'. These statements from FEMS Microbiology Ecology[1] and Applied and Environmental Microbiology[2], two pertinent journals, are included in the footnotes.

DDBJ
Center for Information Biology and DNA Data Bank of Japan
National Institute of Genetics
111 Yata, Mishima, Shizuoka 411-8540, Japan;
telephone, 81-559-81-6853
fax, 81-559-81-6849
e-mail, ddbj@ddbj.nig.ac.jp
URL, http://www.ddbj.nig.ac.jp

EMBL
EMBL Nucleotide Sequence Submissions, European Bioinformatics Institute
Wellcome Trust Genome Campus
Hinxton, Cambridge CB10 1SD, United Kingdom
telephone, 44-1223-494499
fax, 44-1223-494472

e-mail, datasubs@ebi.ac.uk
URL, http://www.ebi.ac.uk.

GenBank
National Center for Biotechnology Information
National Library of Medicine, Bldg. 38A, Rm. 8N- 803
Bethesda, MD 20894
telephone, 301-496-2475
fax 301-480-9241
e-mail, info@ncbi.nlm.nih.gov
URL, http://www.ncbi.nlm.nih.gov.

b) Culture isolates. A common goal for many microbiologists is to obtain pure cultures of microorganisms in order to perform detailed studies on their physiological capabilities, produce specific enzymes or metabolic byproducts etc. It is common practice to place subsamples of the cultures into publicly accessible culture collections. The leading journals in the field advocate this practice[2]. In keeping with the open, international cooperation established during the previous decades of scientific ocean drilling, IODP should require that cultures of microorganisms isolated from cores be deposited in a publicly accessible culture collection (e.g. Takai, *et al*., 2003).

American Type Culture Collection
P.O. Box 1549
Manassas, VA 20108 USA
(703) 365-2700
E-mail news@atcc.org
http://www.atcc.org

Japan Collection of Microorganisms
RIKEN (The Institute of Physical and Chemical Research)
2-1 Hirosawa, Wako, Saitama 351-0198, Japan
Phone: +81 48 467 9560
Fax: +81 48 462 4617
E-mail: curator@jcm.riken.go.jp
http://www.jcm.riken.go.jp/

German Collection of Microorganisms and Cell Cultures (DSMZ)
Mascheroder Weg 1b
38124 Braunschweig
GERMANY
Phone:+49 (0) 531-2616-0
Fax:+49 (0) 531-2616-418
http://www.dsmz.de

Recommendation 3: IODP should adopt policies to those that are already firmly established within the international community of microbiologists for the exchange of culture and sequence data.

a. Unique nucleic acid sequence data derived from cores and published in IODP publications or scientific journals must be submitted to an internationally recognized, publicly accessible database (e.g. DDBJ, EMBL and GenBank).

b. Subcultures of organisms derived from cores and published in IODP publications or scientific journals must be deposited in at least two internationally recognized, publicly accessible culture collections (e.g. ATCC, JCM and DSMZ).

5. Increasing Participation

Microbiologists increased their participation towards the end of ODP. Further increasing the participation of microbiologists in IODP will lead to a more rapid understanding of the role of microorganisms in the marine subseafloor. Efforts to recruit microbiologists should therefore be emphasized. In order to reach this goal it is necessary to:

- Firmly establish that microbiologists working within IODP operate within the same general guidelines as the larger community of microbiologists with respect to common practices. (e.g. sequence submission, culture collections etc.).

- Expand scope of biological research in IODP by incorporating fields not traditionally related to ocean drilling (e.g. biotechnology, evolutionary science, bioremediation, astrobiology etc.).

- Sponsor sessions on ocean drilling at international microbiology meetings

- Establish a microbiological core repository for post-expedition sampling

6. Routine Measurements

A great strength of the scientific drilling program is the database of routine measurements that is openly accessible. This allows for continued analysis of the data using whether it is using new techniques or global syntheses of data (e.g. Parkes, *et al.*, 2000; D'Hondt, *et al.*, 2002). Therefore, it is necessary to institute routine measurements that can be realistically obtained during IODP drilling projects and provide useful data to assist in the study of subsurface microbiology.

a. <u>Biomass</u>. There are many methods for determining biomass, each with strengths and weaknesses. After comparing the methods on samples from cores, one should be instituted as a routine measurement. The possible candidates are:

i. *Direct cell counts*. By far, the largest microbiological dataset is biomass estimated by direct cell counts of microorganisms fluorescently labeled with acridine orange (Fry, 1988). Newer fluorochromes (e.g. SYBR Green) and flow cytometry should be examined for use within the program.

ii. *Vital stains*. There are several reagents available that indicate the level of metabolic activity by generating a fluorescent product (e.g. 5-cyano-2,3-ditolyl tetrazolium chloride; Proctor and Souza, 2001) that have been applied to sediments.

iii. *Phospholipids*. Intact phospholipids can be used to estimate the total microbial biomass in sediment samples (White*, et al*., 1979; Zink*, et al*., 2003).

iv. *ATP*. Adenosine-5'-triphosphate if found in a relatively constant proportion in all living cells. Quantification of this molecule to estimate total biomass has been used successfully in cores (Egeberg, 2000).

b. <u>Metabolic Rates</u>. The addition of the radioisotope isolation van into the program greatly extends the capabilities of the microbiologists. Because these measurements should be considered in the category of 'ephemeral properties' they must be initiated on board. While labor intensive, measurements that yield rates of metabolic processes (e.g. sulfate reduction, anaerobic methane oxidation, methanogensis, DNA and protein synthesis) can substantially change our view of the activities of microorganisms in the marine subsurface. These facilities should be available and the assays should be encouraged.

7) Additional Assays

a. <u>Nucleic Acids.</u> The analysis of nucleic acids has matured to the point where they can become routine. Initially, work has been focused on genes useful for phylogenetic analysis (e.g. small subunit ribosomal RNA), it has now expanded to include metabolic genes (e.g. dissimilatory sulfite reductase (dsr), Teske*, et al*., 2003). These analyses can be conducted in shore-based laboratories so emphasis should be placed on routinely collecting and preserving samples on board the drilling platforms to later analysis.

b. <u>Biomarkers.</u> Similar to nucleic acid analysis, lipid biomarkers, especially when coupled to stable isotope analysis (e.g. Hinrichs*, et al*., 1999) are extremely useful for characterizing the subsurface community. Samples for these analyses should be routinely collected onboard and preserved for shore-based analysis.

Recommendation 4. IODP institute a routine measurement program that will be performed in support of an ongoing study of microorganisms in the marine subsurface. The data produced from these assays will be submitted to the general

IODP database and be subject to the same stipulations as other data. IODP should routinely sail a technician dedicated to the microbiology laboratory. This technician will be responsible for training sailing microbiologists in the sampling procedures and sample analysis, maintaining the equipment in the microbiology laboratory, and ensuring that an adequate inventory of supplies are on hand prior to sailing. The technician should be specifically trained in microbiological techniques and procedures, including the use of radioisotopes, for the microbiology laboratory.

Summary

Through the efforts of the Ocean Drilling Program, much has been learned about microorganisms inhabiting the marine subsurface. In order to capitalize on this knowledge and advance the field during the Integrated Ocean Drilling Program, this working group provides the following recommendations.

Recommendation 1: IODP should establish a repository for samples routinely collected and stored appropriately for subsequent microbiological analysis. The samples should be taken in sterile syringes (50 cm^3 capacity) as soon as the core arrives and stored as described below depending on the subsequent analysis.

a. Samples for nucleic acid analysis should be placed immediately in liquid nitrogen and transferred to ultra-low freezer or liquid nitrogen on board for storage. Alternatively, whole round samples used for this purpose should be placed directly in an ultra-low freezer or liquid nitrogen as soon a possible. Because these samples are not useful for nucleic acid analysis after long term storage (> 1 year) they should be made available for other types of analyses (e.g. chemical) if appropriate.

b. Samples taken for culturing work should be transferred to gas-tight trilaminate bags containing an oxygen scrubber, heat-sealed and stored at 4 °C.

c. Samples for microscopy should be preserved with an aldehyde solution (electron microscopy grade glutaraldehyde or paraformaldehyde) and stored at 4 °C.

Recommendation 2: Drilling methods that yield cores of optimal quality for microbiological studies should become standard.

a. Routine use of the drill over method extends the useful range of the APC method and provides superior results for microbiological studies and should be implemented.

b. The continued development of the pressure retaining core barrel, and subsequent handing under in situ pressures is highly valuable to the microbiology research and must be given highest priority.

c. Optimization of core processing with the goal of minimizing increases in temperature and exposure to oxygen should be implemented.

d. Continued performance, and further improvements to the methods for contamination testing (House*, et al*., 2003) while coring.

Recommendation 3: IODP should adopt similar policies that are established within the international community of microbiologists for the exchange of culture and sequence data

a. Unique nucleic acid sequence data derived from cores and published in IODP publications or scientific journals must be submitted to one of the internationally recognized, publicly accessible databases (e.g. DDBJ, EMBL and GenBank).

b. Subcultures of organisms derived from cores and published in IODP publications or scientific journals must be deposited in at least two internationally recognized, publicly accessible culture collections (e.g. ATCC, JCM, DSMZ, and CCUG).

Recommendation 4. IODP institute routine measurements that will be performed in support of an ongoing study of microorganisms in the marine subsurface. The data produced from these assays will be submitted to the general IODP database and be subject to the same stipulations as other data. IODP should routinely sail a technician in the microbiology laboratory. This technician will be responsible for training sailing microbiologists in the sampling procedures and sample analysis, maintaining the equipment in the microbiology laboratory, and ensuring that an adequate inventory of supplies are on hand prior to sailing. The technician should be specifically trained in microbiological techniques and procedures, including the use of radioisotopes, for the microbiology laboratory.

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[1]Journal statements on submission of sequence data:

FEMS Microbiology Ecology
Nucleotide sequences should be fully determined in both senses of the DNA. Sequence information will be accepted for publication only if: (a) it is relevant to a question of more general interest, (b) there is additional, complementary information, or (c) there is some particular, explicit reason for publication. All nucleotide and amino acid sequences must be deposited in an appropriate data bank. An accession number must be obtained before submission to the Editors and this fact should be mentioned in the covering letter. Authors are encouraged to use the EMBL Data Library but can also use other archives, such as GenBank. Authors should include the accession number in the appropriate Figure legend.

Applied Environmental Microbiology
It is expected that newly determined nucleotide and/or amino acid sequence data will be deposited and GenBank/EMBL/DDBJ accession numbers will be included in the manuscript no later than the modification stage of the review process. It is also expected that the sequence data will be released to the public no later than the publication date of the article. The accession number should be included in a separate paragraph at the end of the Materials and Methods section for long-form papers or at the end of the text for short-form papers. If conclusions in a manuscript are based on the analysis of sequences and a GenBank/EMBL/DDBJ accession number is not provided at the time of the review, authors may be required to provide the sequence data as a file on a floppy disk.
It is expected that when previously published sequence accession numbers are cited in a manuscript, the original citations (e.g., journal articles) will be included in the References section when possible or reasonable. Authors are also expected to do elementary searches and comparisons of nucleotide and amino acid sequences against the sequences in standard databases (e.g., GenBank) immediately before manuscripts are submitted and again at the proof stage.

[2]Journal statements on deposition of cultures in culture collections:

FEMS Microbiology Ecology. The editors expect that new and variant organisms, viruses and vectors described in FEMS journals will be made available, under written request and for their own use, to all qualified members of the scientific community. If delays in strain or vector distribution are anticipated or if they are available from sources other than the authors this should be indicated. The Editors encourage authors to deposit important strains in publicly accessible culture collections and to refer to the collections and strain numbers in the text. In the case of materials that have been distributed by individuals, authors should indicate the laboratory strain designations and name and address of the donor as well as the original culture collection identification number, if any.

Applied Environmental Microbiology. AEM encourages authors to deposit important strains in publicly accessible culture collections and to refer to the collections and strain numbers in the text. Since the authenticity of subcultures of culture collection specimens that are distributed by individuals cannot be ensured, authors should indicate laboratory strain designations and donor sources as well as original culture collection identification numbers.

Matrix Working Group: Summary sheet

	Information/data (common data)	Special requirements	When needed
Basic needs	Lat/Long Water depth Depth of penetration Tectonic/depositional setting Nearby wells	***Man-made hazards** ***HC shows** ***Environmental ristrictions**	
Surface	3.5KHz	Video/photography	"Hard" irregular rock outcrop
		Side-scan	***Suspect gas seep, Bottom founded***
		Swath bathymetry	Active margin, bare rock, tectonic window, All riser
		Surface samples	Paleo (sed), bare rock and tectonic window (rock), re-entry sites ***Surface slope >10°***
		Geotechnical properties	***Bottom-founded rig (MSP)*** ***Anchored-suspected hard bottom (MSP)***
Sub-surface	Lithologic projection Structural configuration (Seismic types be defined: see below)	***Shallow drilling hazard assessment***	***PPSP TO REVIEW***
		Heat flow	***Suspected HC provinces, suspected high heat flow***
		High resolution magnetic (hazard)	***Bottom-founded rigs, anchored rigs (pipeline?)***
		Velocity profile (time-depth control)	All riser, only passive & active margin >200m non-riser, ***Case by case***
		Gravity/Magnetic	All riser(influenced by basement), non-riser tectonic window

Other		*Currents *Ice *Weather window *Tidal	
		Pour pressure ***Fracture gradient*** ***Pressure prediction***	***Riser, suspected over-pressure***
		Maturity	***Potential HC provinces*** ***>2km sediment***
		Well program	***Riser, over-pressure w/o riser***
		Waste disposal	***Returns to sea floor*** ***EEZ drilling as required***
		Abandonment	***Riser***
		Environmental survey	***EEZ drilling as required***

Seismic: (soft rock: sediment)
based on penetration depth

less than 100m	2D SC high resolution (including Boomer) or 3.5kHz if it images the objective or 3.5kHz/low resolution if images the objective ***Cross lines***
101 – 1000m	2D grid MCS (passive and active margins), X-line SCS (away from margins penetration <400m), >400m with grid MCS
more than 1001m	2D grid MCS, Spacing and 3D (case by case), ***3D (horizontal riser)***

Project Management System Working Group (PMSG)

Draft document 03, 4 June 2003

Recommendations for the Integrated Ocean Drilling Program (IODP)

Prepared for
Ted Moore and Jimmy Kinoshita,
Co-chairs IODP Planning Committee (iPC)

June, 2003

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Executive Summary

A tentative Project Management System (PMS) has been prepared for use in IODP projects (normally drilling legs). It consists of a phased approach, with reviews at specified intervals providing the assurance that the proponents are ready to proceed further with planning. It makes maximum use of current (ODP) practices and allows for flexibility in application, depending on the platform selected for specific projects (Riser, Riser-less or Mission-specific) and the complexity of the planned activities.
The main objective of the PMS is to provide IODP management and its funding bodies with assurance that minimum acceptable standards are met with at all stages of project

planning, that value for money is achieved and that all aspects related to the operations are considered, including health, safety and environmental issues.
It is recommended that the PMS document presented here should be used as a basis for pilot application for one of the first IODP projects (eg Nantroseize). The proposal is founded to a large extent on standard industry project management practices developed in recent years, and the extent to which it can be implemented in practice in IODP needs to be confirmed with a "road-test". After a relatively short interval (say, 18 months) the PMS performance should be evaluated, and modifications proposed as appropriate.

Introduction

Over the past 35 years, DSDP and ODP have proved to be hugely successful international research programs based on worldwide ocean drilling, and have made major contributions to the scientific understanding of planet Earth. This success has been in large part due to the enthusiastic participation in the program of the scientific community in many countries and the responsiveness of the DSDP/ODP programs to their various needs. We assume that in the framework provided by the Initial Science Plan, the paramount objective of IODP will be to continue to serve the scientific needs of the international community, as prioritised by SPC.

In contrast to ODP, IODP will involve multiple platforms operating concurrently, comprising a riser and non-riser drilling ship as permanent program elements, and a variety of "mission-specific" platforms (MSPs) to be chartered according to the needs of the scientific objectives. Many IODP programs will involve issues dissimilar to those for which ODP has built up an enviable expertise, for instance drilling in pressured/potentially petroliferous environments, in shallow waters, in extreme climates, etc. This means that IODP will be much more challenging from an operational management point of view than either DSDP or ODP have been. During the past decades, the energy exploration industry has developed and made use of processes for the efficient execution of complex operations in difficult environments, and it was widely felt that (i) their expertise in this area should be accessed and (ii) a project management system (PMS), making use of experience built-in to those currently employed in industry, should be prepared for and modified for use in IODP.

With this in mind, a proposal was submitted to iPC at the meeting held in Austin, Texas in March 2003. This proposal, iTAP recommendation 03-04, was passed on 20 March 3003 as iPC Motion 4-13 (by 15 votes with 1 abstention), and mandated a small working group to prepare a proposed PMS for consideration by the IODP Central Management Organization by early June 2003. The motion, which establishes the terms of reference for the group, reads as follows:

> "The iPC accepts iTAP recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iPC or SPC, the OPCOM working group, CDEX and industry project managers. The system should be developed by June 2003."

The working group sees its main objective to prepare a PMS that will enable IODP, and particularly OPCOM, to assure delivery of the scientific objectives, to the greatest extent possible given operational and fiscal constraints. We thus see the PMS as a procedure guideline to ensure safe and efficient execution of the scientific program, primarily for use by project teams, as well as by OPCOM and other IODP management groups in their supervisory roles, for the benefit of the international scientific community.

Composition of PMSG

Jamie Austin	SCICOM/iPC	University of Texas, Austin, USA
Tim Byrne	iSSEPs	University of Connecticut, USA
Keir Becker	SCICOM (ODP)	RSMAS, University of Miami, USA
Harry Doust*	iILP	Free University of Amsterdam, Neth.
Hisao Ito	iPC	Geological survey of Japan
Barry Katz	iPPSP	ChevronTexaco, Bellaire, Tx, USA
Yoshihisa Kawamura	CDEX	Jamstec, Yokosuka, Japan
Kate Moran	iTAP	University of Rhode Island, USA
John Thoroughgood	iTAP	British Petroleum, Aberdeen, UK

* = chair

Philosophy

The working group made the assumption that a PMS for IODP should accommodate the following criteria:

- It should satisfy a paramount requirement to deliver IODP science objectives as set out in the ISP, as much as possible according to SPC priorities and in a safe, cost efficient and environmentally-friendly manner
- The resulting document should be thorough, but simple, concise and intuitive.
- It should not be too prescriptive, rather sticking to “minimum acceptable needs” and allowing for flexibility in application for different platforms and by the various national authorities.
- It should satisfy the needs of (i) overall planning for synchronous operations with multiple platforms and (ii) the needs of individual well plans/design.
- It should model itself on current project management systems, as developed in industry, to the degree that such systems can be adapted to meet IODP needs.
- As much as possible, it should follow existing (ODP) processes and incorporate existing procedures (or those currently in development).
- It should include a clear process map, indicating the steps needed to be followed, including the stages at which support / review and approval should be sought.

Needs for a Project Management System in IODP

An IODP PMS is needed to ensure that all defined procedures are followed and that very close coordination between proponents, SAS and contractors is assured. As noted above, the activities of IODP will be extended to marine environments in which ODP have not operated, but where the energy industry has carried out extensive operations. Access to industry experience is likely to be crucial, both in terms of this experience, but also in terms of management and planning of complex operations. However, as the primary goal of IODP is to pursue pure scientific objectives, industry experience must be adapted to IODP needs.

In view of the up-coming operational schedule for the multiple drilling platforms of IODP, an urgent need is seen to establish terms of reference for complex project planning. Such a foundation is needed to enable detailed planning groups (DPG's) or project groups, to define the needs for the various activities (leading to riser, non-riser and MSP legs) and commence planning for drilling. Currently, IODP needs processes to underpin:

(i) Design and maintenance of a schedule for the up-coming complex drilling programs, including the provision of advice on efficient scheduling, logistics and planning.

(ii) Design and planning for individual projects (legs or wells), including well engineering, sampling requirements and down-hole program, etc.

Some programs, especially those for the riser vessel, but also some MSP and non-riser programs, which may be part of complex drilling programs or CDPs, will require more and longer planning steps than others. The current PMS initiative is intended to provide a management framework in support of planning for all of these initiatives, and must therefore be flexible enough to accommodate all such situations.

Existing elements of the process

Existing processes have evolved during more than 2 decades of DSDP and ODP activity and work well for planning of the single, non-riser platform operations. As much as possible, the existing procedures developed by, or being developed by, each group should be integrated into the proposed IODP PMS. These procedures are as follows and, unless stated otherwise, we recommend that they continue unchanged in the PMS, each group being responsible for carrying out and reporting on its task at regular and defined intervals:

- **SAS (Science Advisory Structure) Office**: Unsolicited pre-proposals and proposals are submitted to SAS, who forward them to SSEPs panels for evaluation of their scientific objectives and merits. When ready, **SAS EA** incorporates them in the overall IODP science plan. In the future, the SPC Chair and Vice-Chair, working with the SAS panels and OPCOM, could coordinate the evaluations and advice received.
- **SSEPs (Science Steering and Evaluation panels)**: SSEPs are responsible for the scientific evaluation of submitted proposals and their evolution to a stage at which they can be incorporated in the program plan. In many cases, this involves an iterative process of concept and documentation improvement. Prior to submission to SPC, projects are grouped according to the following criteria:
    1. consistency with the Initial Science Plan
    2. quality of the scientific hypothesis or objectives
    3. breadth of scientific impact
    4. probability of success (i.e., of achieving the scientific objectives).

  When a full proposal stage has been reached, and it is considered by SSEPs to be mature and ready for operational planning, it is sent out for external review, grouped and forwarded to SPC. Eternal review must taken place, at least once, before a proposal can be sent to SPC for ranking. Timing may vary from about 1.5 years to 3 years, but in some cases may be longer.

- **SPC (Science Planning Committee)**: Proposals forwarded from SSEPs are ranked at bi-annual SPC meetings, and forwarded to advice panels, such as PPSP and SSP for evaluation of operational requirements, e.g., safety and site-preparation.
- **PPSP (Pollution Prevention and Safety Panel)**: PPSP currently maintains a 3-tier risk-ranking framework:
  1. low risk – young ocean crust with sedimentary cover < 1 km - handled by e-mail
  2. moderate risk – handled as for current ODP legs
  3. high risk – areas of thick sediments, where subsurface fluid flow or hydrocarbons can be expected - requiring the route proposed for riser drilling (see below)

  For each expedition, PPSP nominates a "watchdog" to facilitate the evaluation process. To satisfy requirements, PPSP requests general location data, a summary of potential hazards, a detailed well prognosis, well drilling and evaluation program, planned discharges (if any), special metocean data (if appropriate), etc.

  A special process is proposed for riser sites: 3D seismic is recommended and a 3-step review process is proposed: (i) **detailed planning workshop** with broad representation from scientific and planning groups, to be held within 6 months of SPC project approval (ii) **preview by PPSP** to identify issues that may need to be addressed, to be held 6 – 18 months following (i) – the deliverable is a list of further work/data required (iii) **formal safety review by PPSP**, to be held 6 months to a year after (ii), at which a final recommendation on drill site(s) and depth(s) of penetration is given. In total, a three-year period will probably elapse between SPC approval and completion of the safety review. A **post-drilling review** is also recommended. As part of this process and at any time, PPSP may recommend adjustments to the final location or well total depth.
- **SSP (Site Survey Panel)**: Upon receipt of a proposal, SSP evaluates the readiness of the seismic and other site data for adequate scientific characterization (NOT SAFETY) of the objectives (note that SSP has a chance to look at proposals for site-survey readiness BEFORE they go to SPC for ranking). They classify the data into three categories:
  1. most or all of the required data in the IODP data bank – ready to proceed
  2. data exists, but is not yet in the data bank – probably ready for operations within 2 years
  3. essential data not accessed – probably not ready for drilling for at least 2 years
- **SciMP (Scientific Measurements Panel), TAP (Technology Advice Panel), ILP (Industry Liaison Panel):** These panels provide advice to IODP and project proponents on short term (project-specific) and longer-term (approximately 5 - 10 years) needs, primarily for scientific measurement and drilling/operations technology (down-hole services, completion techniques, etc). Technical challenges associated with anticipated future science objectives form a major area of concern. The ILP provides a link to developments in Industry
- **SPC/EA/SAS Office**: These are responsible for the development of and success of the annual science plan, which is then transmitted to the Science Planning and Policy Oversight Committee (SPPOC) for approval and finally to the CMO for

implementation. They trigger commencement of operational planning by the IOs and centralized management, through OPCOM (see below).

- **PPGs (Project Planning Groups):** These are convened on an *ad-hoc* basis to study and report on scientific or operational themes as needed
- **OPCOM:** OPCOM is responsible for recommending the optimal means to implement IODP drilling projects. Following SPC ranking, OPCOM will
  1. consider which platform(s) is(are) most suitable to execute the project
  2. indicate budgetary and logistical constraints
  3. coordinate advice from the various SAS panels on safety, environmental and technological factors
  4. develop options for the drilling schedule in the currently planned year(s) and for future years, as necessary for CDPs.
  5. monitor and, as necessary, modify the short- and long-term drilling programs.
  OPCOM thus acts as the bridge between science planning and operator and management implementation, responsible for deciding which platform(s) will carry out the project and initial scheduling recommendations based on SPC prioritisation. OPCOM plays a central role in operational planning.
- **IOs (Implementing Organizations):** These carry out the actual drilling operations and should supervise any other operational needs (e.g., sub-contracts for site-specific seismic surveys necessary for either engineering concerns or safety) during the project life. To be considered, IOs have to satisfy IODP selection criteria. IOs carry full responsibility and accountability for operational performance, and will do so according to their internal procedures. In IODP, these will include extra safety and environmental standards (however, each IO will have its own safety panel, for instance). In IODP, we recommend that the formal links between IOs and SAS panels should be strengthened (e.g., through membership of Project Management Teams and/or DPGs). In exceptional cases, for example when considering safety and pollution prevention, IOs may override recommendations from IODP advisory panels.

Recently, **CDEX** has prepared an operational planning framework for *Chikyu* (riser-drilling) operations: The component steps essentially follow the above process, but the operational planning activities have been clustered into planning phases with specific timing (total approximately 4 years), as follows:

- “pre-planning”: proposal submission, consideration by SSEPs and ranking by SAS.
- Phase 0: 17 months: Planning and preparation for seismic data acquisition, followed by data acquisition, processing and interpretation/evaluation
- Phase 1: 13 months: A second and final phase of seismic data acquisition, processing and interpretation
- Phase 2: 22 months: Drilling planning and budget preparation (including project review), material/supply ordering, selection of contractors, permit acquisition, establishment of local supply base. Final HSE (health, safety and environment) audit.
- Phase 3: Drilling operations.

The above process explicitly recognizes the enhanced science and safety requirements needed to support riser-ship drilling, and the seismic acquisition that underpins it. It is

supported by a decision-making tree for operational planning, which is broken down into six phases, as follows:
(i) Pre-survey, essentially definition of objectives and desk study of existing data
(ii) Survey planning, where further seismic, seabed or Metocean data are required
(iii) Survey operations, during which such surveys are carried out
(iv) Onshore data processing
(v) Interpretation and reporting, when results are presented to operators
(vi) Drilling and post-drilling operations
The extent to which the above is proponent responsibility and how much of it is borne by the IOs may vary. Currently, only site-specific engineering and safety-related seismic surveys are IO responsibilities and a POC program expense.

Industry project management

Industry project management standard practice is designed to ensure confidence in both decisions supporting an activity and subsequent execution of a project, so that the stakeholders (including the funding bodies) are assured that risks and uncertainties are understood and acceptable and that objectives an be achieved within budget. The processes used provide a simple, but thorough means to ensure that all of the important issues that could impact a project are considered at appropriate stages, satisfactorily addressed and included in the operational plan. Movement from one phase to the next depends on approval from a review panel convened to specifically endorse "readiness to proceed". Some of the issues that need to be addressed at each stage are noted below

- Concept-building and appraisal
  - Is the project worth carrying out and is it feasible?
  - Have all reasonable alternatives been considered and evaluated?
- Selection of project (selecting the concept)
  - Are the steps in the process defined?
  - Are the data needs (e.g., for site preparation/safe drilling) adequate?
  - Are the staff needed to realize the project available and ready?
  - Are reporting relationships understood and unambiguous?
- Definition of project
  - What is the basis for design and the project specification?
  - Does the operational plan look realistic and achievable?
  - Have all the collateral issues been considered and understood?
  - Are contingency plans in place?
- Execution of planning
  - Finalize design and prepare for operations
  - Individual well and multi-well/platform operations
- Operation of the project activity
- Evaluation of the operational performance
  - Is there a context for operational learning?
  - Were the scientific objectives met, etc.?

Naturally, IODP will not be involved with several aspects of this process, as industry projects cover all aspects of E & P activities from initiation to commencement of production. Nevertheless, these generic project stages are equally applicable to IODP's areas of concern, from idea creation to successful completion of an ocean drilling expedition or project. One important element is that, in industry, the responsibility and accountability for a project will typically remain with one group throughout its history. We recommend that as much as possible this is replicated in IODP, so that although responsibilities are spread across number of organizational groups, a single project coordination group exists (often comprising proponents and others in a DPG). This means that a high degree of clarity will be needed in an IODP PMS.

Need for independent review

In industry, the various phases of a project are separated by "milestone reviews" or "tollgates", during which objective and independent groups evaluate the actions taken by the project team and their plans for the next phase(s). The deliverable of such reviews is a statement of "Permission to proceed" (or not). The release of funds to execute the next phase depends on and follows such reviews.

The topics covered in milestone reviews are typically those specified in the previous section, comprising elements of "look-back" (what has been achieved, are the objectives clearly stated?) and "look-forward" (are you ready and prepared to accomplish the next phase efficiently?). Some review types that would be relevant to IODP are listed below:

- **Milestone reviews**: at the end of each phase, "permission to proceed" is sought to
  - ensure that elements of the project planning are fully addressed and balanced (checklists could be prepared for this)
  - define risks to the IODP community (IODP integrity, cultural, natural, operational, technical) and identify their possible mitigation
  - identify areas for improved planning / execution
- **Peer assists and workshops**
  - peer assists form essential bases for performance improvement in industry and are widely used, for instance to facilitate efficiency in well delivery
  - project kick-off workshop meetings with all staff to be involved (scientific staff, operators, contractors, etc); intensive structured workshops with expert help, to identify most efficient way to achieve objectives, optimise planning, etc.
  - the involvement of industry advisers should be considered (this is a task for ILP)
- **Ongoing advice**, *ad-hoc* or continuous, is used for
  - help in planning complex, multi-platform sequences
  - evaluation of the consequences of delays in planning/execution
  - identification of efficiency improvements

Among some of the more prominent shortcomings in project management that have been identified in industry reviews are several that could be expected to arise in IODP:

- Technical definition is often not adequate for the decisions being taken
- Contingency plans for critical areas are frequently lacking
- Cost estimates are often incomplete and/or not integrated fully
- Staff skills involved may not be sufficient to guarantee success
- Some elements of the project plan may be overworked in comparison to other, equally important, elements
- Cooperation and communication may suffer if responsibilities, reporting relationships and documentation requirements are not clear.

Initially, OPCOM should be responsible for defining the terms of reference (ToR) for reviews. In the longer term, the ToR should become standard.

Recommended process

We are convinced that the complex nature of IODP planning, involving multiple, perhaps partially dependent platforms operating concurrently, with the lead-times that this implies, means that consideration of operational feasibility should be introduced into project planning as early as possible. In order to shorten the planning process and achieve greater flexibility, we believe that at least partially this should overlap with and be integrated with the science evaluation process. This applies particularly to projects that require extra seismic data and/or technology development needs.

The Project Management System (PMS) road map we propose is enclosed as a Powerpoint file, accompanied by the objectives at each step. Up to seven distinct phases are defined, as follows:

(I) **Initiation**, during which science project proposals are received and matured
(II) **Appraisal and evaluation**, during which mature proposals are accepted and ranked
(III) **Selection**, during which the scientific proposal becomes an IODP project and operational planning commences
(IV) **Survey definition**, a phase largely contingent on the need to acquire more data
(V) **Survey execution and incorporation**, a follow-up phase to (IV), also largely contingent on the need to acquire more data
(VI) **Operation**, during which the drilling activities are carried out
(VII) **Post-operation**, during which a review of the activity is carried out

It is envisaged that at stage (III), a **project team** will be formed by SPC to manage all further activities specific to the individual project. This will form the **Drilling Planning Group** (project DPG), and may include representatives from the scientific proponents, the SAS advisory structure and the implementing organization(s). The DPG will nominate a project leader to oversee the project, and will report directly to OPCOM, who coordinate the full IODP program and the activities of the individual DPGs.
The phases indicated above include all those needed for complex, riser-type projects. For many projects (e.g., non-riser expeditions), it will be possible to pass through phases IV and V more rapidly, while phase VII may be very short if the project is routine.

At a number of stages, milestone **reviews** will be held to assess progress and approve (or not) progress to the next phase. Such reviews will be held with the following objectives:
End phase I: decide if the proposal is mature and ready for ranking. Review by SSEPs, with external review.
Phase II: ranking of proposals, review and prioritisation by SPC.
End Phase III: project / well-concept peer review by independent review body. The formation of this review body will be the responsibility of OPCOM: At the discretion of the latter, it may be OPCOM itself, with or without ex officio members as appropriate, or a largely independent group (with OPCOM representation). This will probably depend on OPCOM workload. The review team recommends whether a full or reduced project path should be followed

End phase V: Final, pre-operational review, assuming a full project path has been followed, or if further work not reviewed at end phase III is recommended. Ideally carried out by same review body.
Phase VII: post-operational review by SAS, SPC, OPCOM, TAP, IOs, etc. to capture lessons from project execution

DPGs should be fully responsible for progress of the project, and are answerable to the IODP science and operations management (SPC and OPCOM) through the review process. They must provide the review body with all relevant supporting material, including that from advice panels. As noted above, the **review panel** may be OPCOM, but may include scientific, advice panel and operation peers from within IODP and external to it. The panel should include sufficient expertise to cover the important aspects of the project. It is essential that review panel participants have no direct interest in the project(s) being reviewed.
As OPCOM is responsible for monitoring of the project schedule(s), it is responsible for ensuring that regular reviews take place.

Deliverables: Each of the advice panels will provide a simple and short written report indicating the status of project conformity with the criteria stipulated in the mandate of each panel. A status report on all active proposals should be submitted to OPCOM twice yearly and will be used as input to the end-of-phase reviews (as specified below).

Reviews, ToR and timing: It is recommended that project reviews should be convened on a regular rather than *ad-hoc* project-by-project basis. At such reviews, all active projects should be considered, irrespective of the stage they have reached. Statements per project of "permission to proceed" to the next phase (for each individual project), or instructions to carry out specified further study/work will constitute the review outcome. The review will also authorise the release of funds for study or further activity as appropriate. The project team will therefore present budgets for the anticipated expenditures in the following phase.
Reviews should be scheduled every 6 months, preferably immediately prior to SPC meetings. This is likely to minimise the review burden, to be easier to organize and cheaper to implement. Dealing with all active proposals in one review should also facilitate a formal link between project planning and the annual program plan (and therefore overall coordination of the IODP operational plan) as well as participation of external (e.g., industry) representatives on review panels, since plans for attendance can be made well in advance.

Participation of industry and other external advice: From initial contacts with industry representatives, it can be anticipated that participation in milestone and peer reviews as well as provision of specialist technical and other advice to IODP will be looked at sympathetically. ILP will act as liaison with industry in this respect, as plans are clearer. Consideration should be given to developing a standard MOU (Memorandum of Understanding) with participating companies, defining the terms of reference for IODP consultancy. If requested, ILP will prepare such a standard MOU.

References

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CDEX: "Chikyu" IODP Operation time-tables, 2003.2.18/2002.3.4
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iPPSP: Working document on review process, 2003, (Meeting 1 Minutes – Partial.doc)
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OPCOM WG members: Report of IODP OPCOM Working Group to Interim Planning Committee, 18-20 March, 2003, Austin TX (iPC_OPCOMrevised.ppt, OPCOMWGReport.Rev.doc)
Technical Advice Working Group (TAWG): Recommendations for the Integrated Ocean Drilling Program (IODP), 15.08.2001

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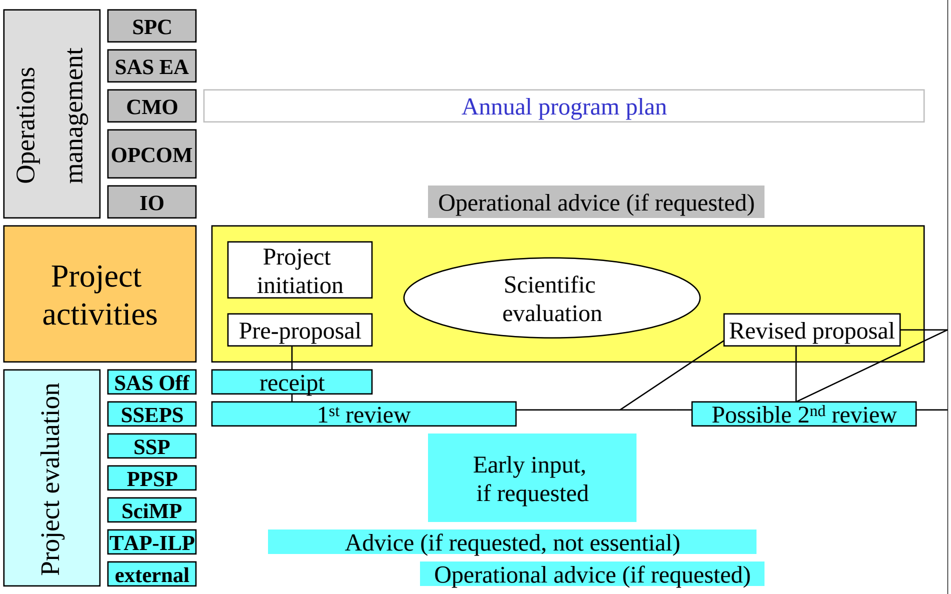
IODP Project Management System: Features

- Up to 7 distinct phases/activities, most separated by OPCOM or OPCOM-sponsored reviews to assure readiness to proceed to the next phase, with specific requirements for
  - Riser projects and Complex Drilling Programs (CDPs)
  - Possibility for Riser-less and simple MSPs to move directly from Selection to Operation phases with OPCOM review and IODP management approval
  - Detailed Planning Groups (DPGs) will be formed for all projects (especially Riser and CDP) and will carry responsibility for project maturation
- Reviews provide approval for release of funds for next phase and value assurance to funding bodies
- Limited minimum acceptable requirements
- Assurance of safety and success at regular intervals
- Uses existing ODP review and approval processes as much as possible

Objectives - Project Planning Phase I: Initiation

- To receive unsolicited scientific proposals for scientific ocean drilling from the international community, then to evaluate them such that they satisfy basic requirements and can be forwarded to SPC for ranking
- Actions involve iteration between SSEPs and proponents in terms of scientific objectives, identification of drilling location and adequate supporting data (SSEPs involve service panels as needed)
- Typical progress from (pre-)proposal to final proposal status
- Advice from TAP and ILP may be requested by proponents at any time on a voluntary basis, but this will not bias progress
- Review activities: SSEPs review of science objectives, possibly iterative.Where appropriate, SSEPs to invite TAP/IOs/industry contacts to comment on operational do-ability, potential show-stoppers, etc.
- Expected total time for phase: 6 months – 2 years (but possibly longer)

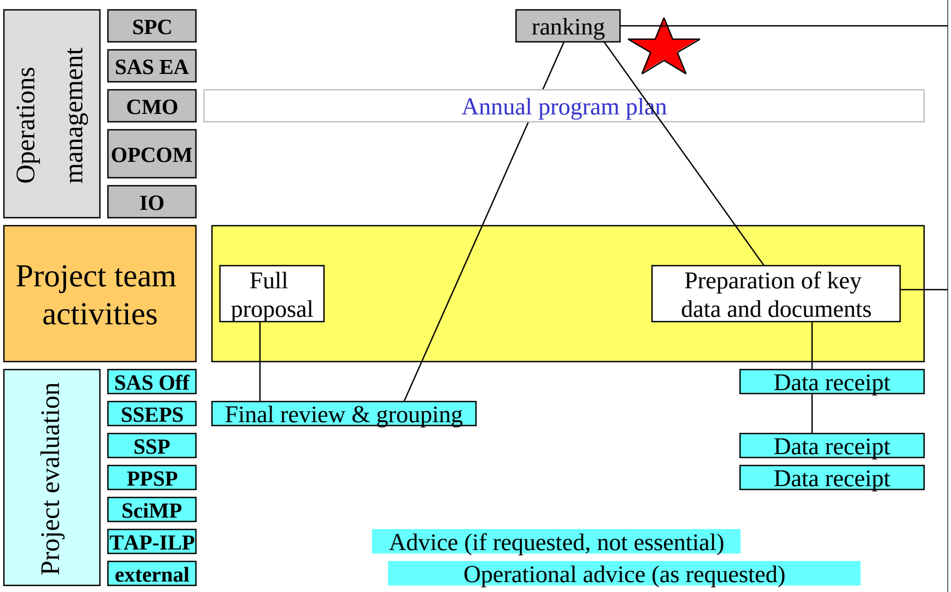
Project Planning Phase I: Initiation



Objectives - Project Planning Phase II: Appraisal and evaluation

- To move to phase II, proponents must satisfy SSEPs that the proposal is mature and ready for ranking.
- SSEPs submit it for external review. If evaluation is positive, proposal is forwarded to SPC, where it is ranked
- By this stage, proponents should have prepared preliminary seismic and other data for PPSP and SSP, and have preliminary plans for the acquisition of any missing data
- Proponents to evaluate site constraints (regulatory requirements, shipping, fishing, etc.), as needed in consultation with operational advisers (as in phase I) and, preferably, IOs
- Review activities: (I) SSEPs acceptance that proposal is final, followed by grouping (ii) External reviewers comments (iii) SPC ranking
- Expected total time for phase: <6 months

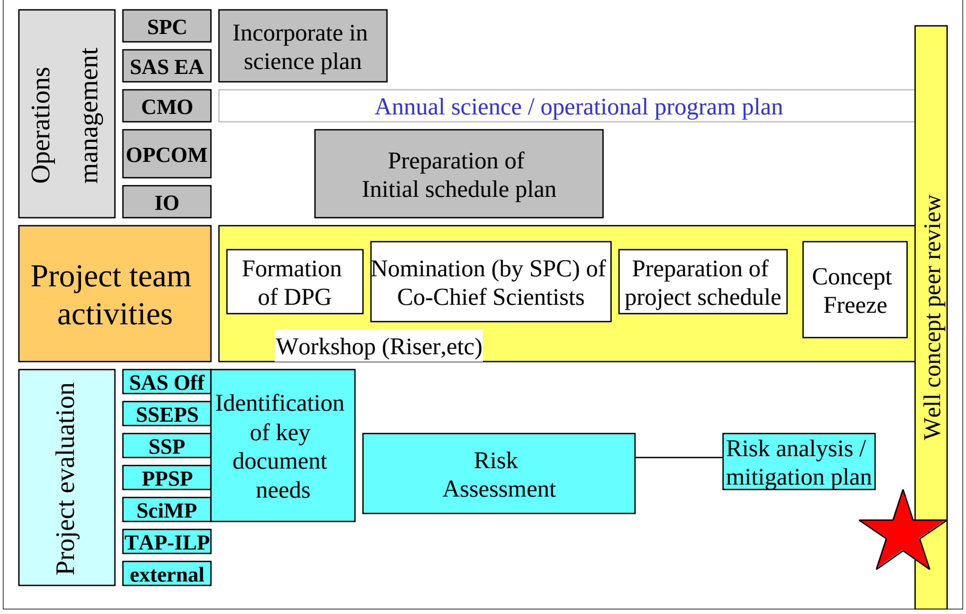
Project Planning Phase II: Appraisal and evaluation



Objectives - Project Planning Phase III: Selection

- Proposal moves to a project, involving formation of a Detailed Planning Group (DPG) to prepare a preliminary operational drilling plan, addressing science, operational and timing/cost aspects for consideration by SPC (via OPCOM).
  - The plan should define the schedule for all subsequent project phases
  - A workshop is desirable for Riser/MSP/CDP projects, on recommendation from SPC. Special needs for drilling are identified prior to workshop and detailed in outcome document
  - Scientific and operational concepts are accepted, but contingency plans are drawn up by OPCOM for possible modification of science objectives and project scheduling, dependent on potential operational constraints
- Evaluation of impact of key risks identified on project execution plan (costs, schedule). These are assessed and plans for mitigation are made.
- Identification of further survey / data acquisition requirements finalized
- Phase closes with a project/well concept peer review
- Expected total time for phase: <1 year

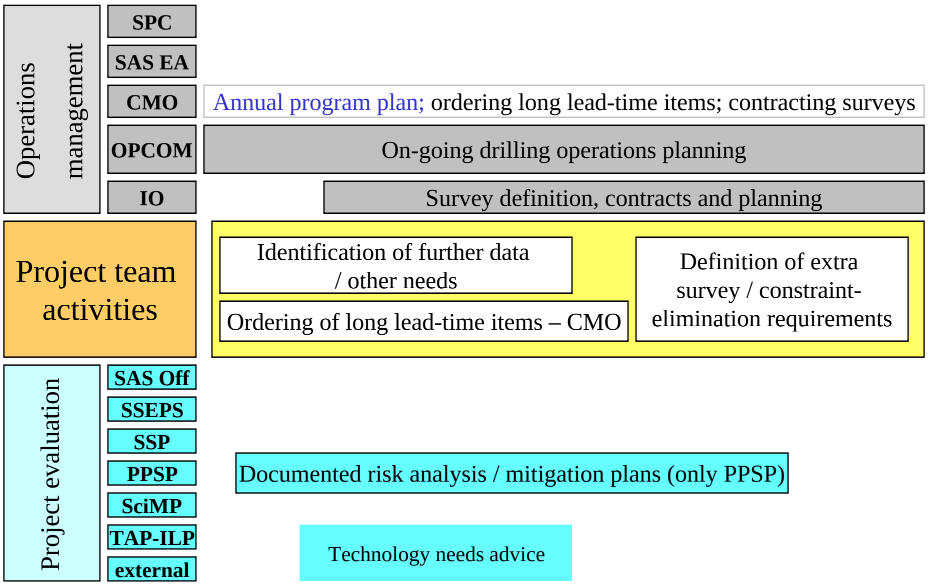
Project Planning Phase III: Selection



Objectives – Project Planning Phase IV: Survey definition

- Phase is largely contingent on need for further data acquisition and/or investigation of other constraints.
  - Data needs may be seismic, sea-bed samples, hydrographic or Met/ocean
  - Other constraints may include regulatory/license requirements, hazards, environmental/fishing issues and other cultural or strategic issues
- Final survey requirements may involve new acquisition: if so –
  - IO's and CMO to tender for/award contracts and plan survey operations
  - OPCOM requests external advice on technical & operational limits
- Mitigation plans prepared by IOs/DPG in consultation with service groups for the major risks identified in previous phases
- Long lead-time items of equipment are designed, procured and tested
- Expected total time of phase: depends on survey/other requirements. If few or none, phase can be short (~1 year).

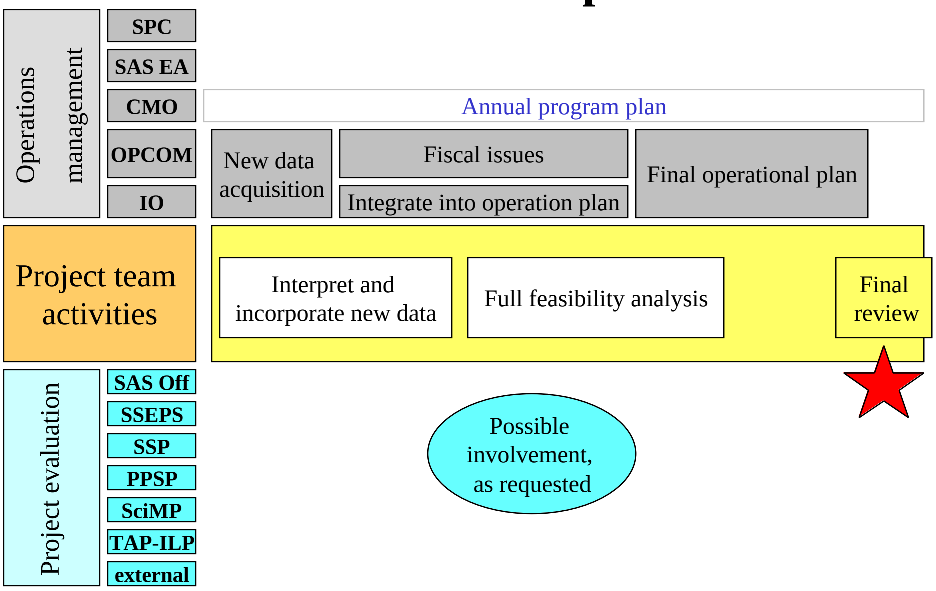
Project Planning Phase IV: Survey definition



Objectives – Project Planning Phase V: Survey execution and incorporation

- IO's to execute any final site-specific survey operations, including
  - Acquisition, processing and interpretation
  - Integration into proposal and necessary modifications to plan
- All new data to be evaluated by project group for implications on science plan and incorporated in final document
- Final pre-operational review / workshop to review readiness to proceed.
- Draw-up and finalise the project operational execution plan (DPG and IO platform operator) and freeze
  - Define the operational *modus vivendi* – command structure, reporting process etc., and rehearse scenarios and major decisions
- Timing: This phase should last 3 – 6 months depending on operational complexity (if workshop involved – 1 year)

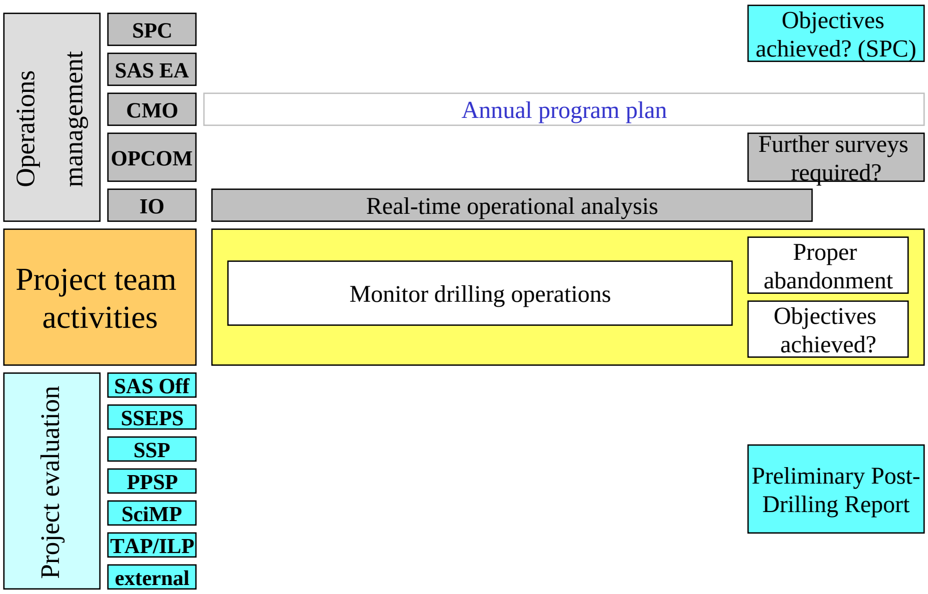
Project Planning Phase V: Survey execution and incorporation



Objectives - Project Planning Phase VI: Operation

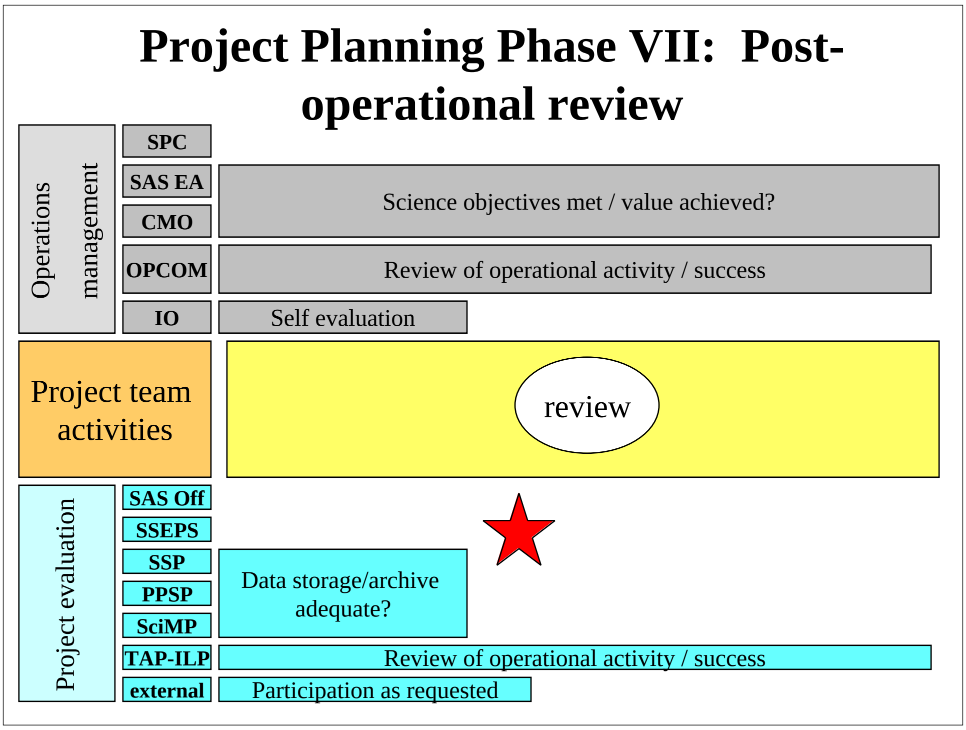
- Real-time operational analysis by IO's, reporting to OPCOM at agreed intervals (preferably weekly)
  - Urgent issues with possible consequences to IODP reputation to be reported immediately
  - OPCOM has the right to ask IOs critical questions, but carries no operational responsibility.
  - OPCOM will liaise between Co-Chief scientists and operators in case of conflicts (e.g., on well total depths)
- Carry out frequent after-action reviews at each key stage of the operation as input to post project review
- Initiation of observatory-based activities by DPG and IO
- Proper abandonment
- Post-drilling environmental review/report
- Any post-drilling operations required?
  - E.g., extra surveys

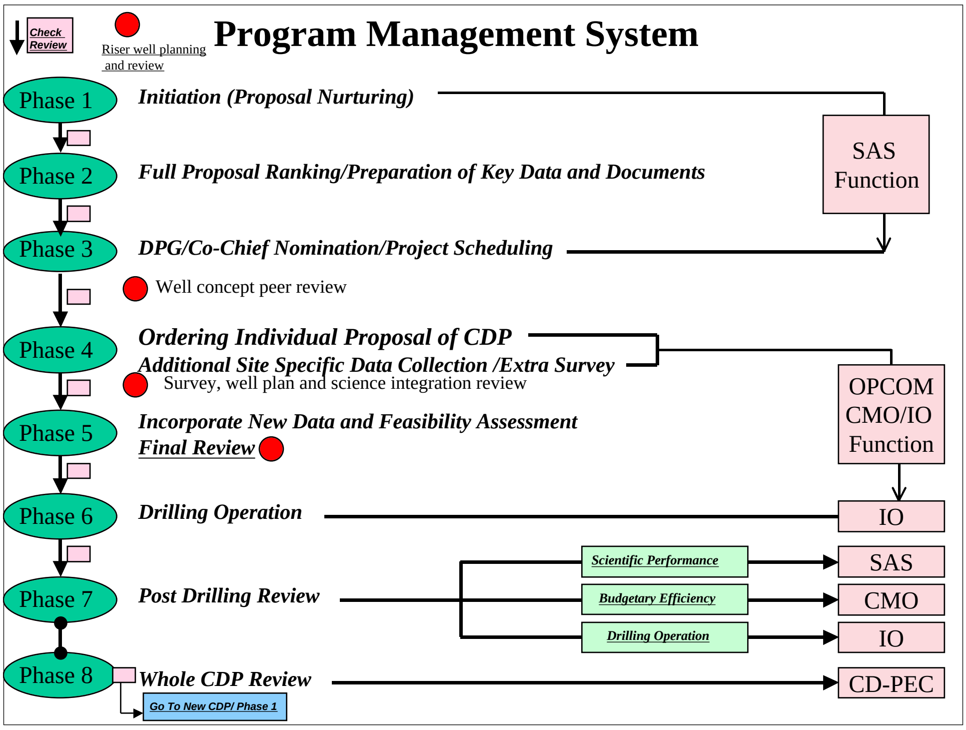
Project Planning Phase VI: Operation

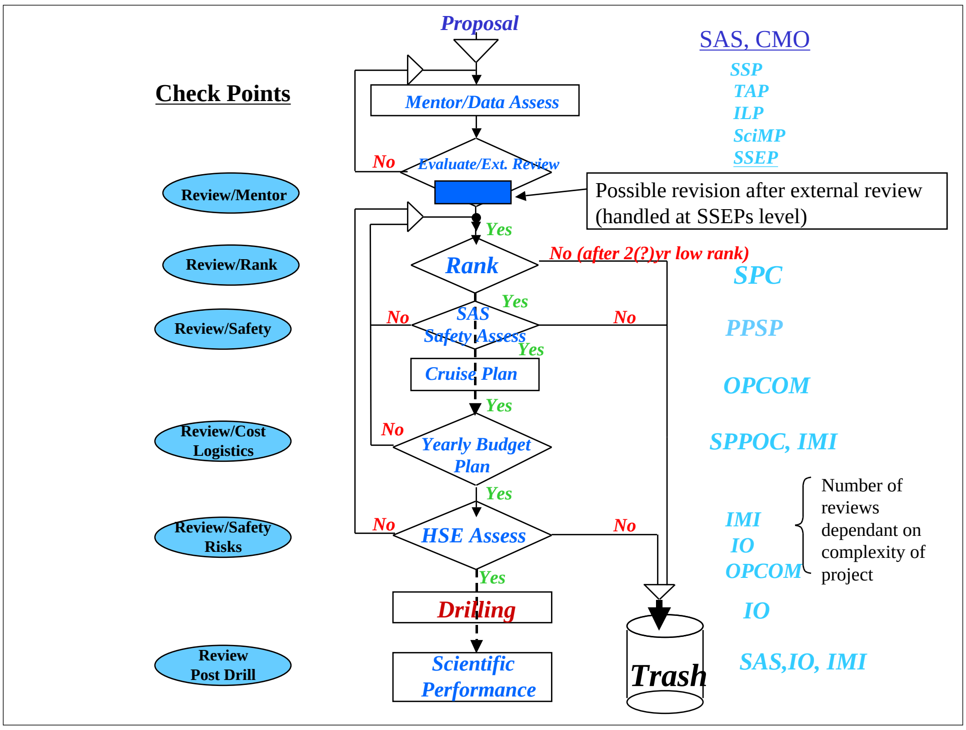


Objectives - Project Planning Phase VII: Post-operation

- Post-operations review to identify that sponsor investments satisfactorily employed
  - SAS (inc. SPC) review of science objectives met / value realized?
    - How can they be improved?
    - Seismic data quality adequate for science, safety, etc?
  - At close of simple operations, review may not be needed
  - OPCOM/TAP Review of operational activities, scope for efficiency improvements
    - Drilling, measurement, health, safety and environment, budget
    - Critical review of planning process and operational performance
  - Review of environmental impact (if any) by IOs
  - Data storage completed?
    - Archived according to each SAS/OPCOM guidelines?
    - Including provision for destruction where appropriate
  - Recommended timing: 6 months to 1 year after operations completed


Project Planning Phase VII: Post-operational review
Operations management
SPC
SAS EA
CMO
OPCOM
IO
Science objectives met / value achieved?
Review of operational activity / success
Self evaluation
Project team activities
review
Project evaluation
SAS Off
SSEPS
SSP
PPSP
SciMP
TAP-ILP
external
Data storage/archive adequate?
Review of operational activity / success
Participation as requested


Check Review
Riser well planning and review
Program Management System
Phase 1
Initiation (Proposal Nurturing)
Phase 2
Full Proposal Ranking/Preparation of Key Data and Documents
SAS Function
Phase 3
DPG/Co-Chief Nomination/Project Scheduling
Well concept peer review
Phase 4
Ordering Individual Proposal of CDP
Additional Site Specific Data Collection /Extra Survey
Survey, well plan and science integration review
OPCOM CMO/IO Function
Phase 5
Incorporate New Data and Feasibility Assessment
Final Review
Phase 6
Drilling Operation
IO
Phase 7
Post Drilling Review
Scientific Performance
Budgetary Efficiency
Drilling Operation
SAS
CMO
IO
Phase 8
Whole CDP Review
CD-PEC
Go To New CDP/ Phase 1


Proposal
SAS, CMO
SSP
TAP
ILP
SciMP
SSEP
Check Points
Mentor/Data Assess
No
Evaluate/Ext. Review
Possible revision after external review (handled at SSEPs level)
Review/Mentor
Yes
Review/Rank
Rank
No (after 2(?)yr low rank)
SPC
Review/Safety
No
SAS Safety Assess
Yes
No
PPSP
Yes
Cruise Plan
OPCOM
Yes
No
Review/Cost Logistics
Yearly Budget Plan
SPPOC, IMI
Yes
Number of reviews dependant on complexity of project
Review/Safety Risks
No
HSE Assess
No
IMI
IO
OPCOM
Yes
Drilling
IO
Review Post Drill
Scientific Performance
Trash
SAS,IO, IMI

Project Scoping Working Group

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

Membership: iTAP members, proponents, representative from I.O.s, consultants from industry:

John Thorogood	project management specialist	British Petroleum, UK
Geir Karlsen	deep water drilling engineering	USA
Mark Cowan	risk assessment specialist	Altinex ASA,UK
Yoshi Kawamura	CDEX	JAMSTEC, Japan
Taigo Wada	CDEX	JAMSTEC, Japan
Asahiko Taira	CDEX	JAMSTEC, Japan
Kate Moran	iTAP	Univeisity of Rhode Island
Jamie Austin	IMI	University of Texas at Austin
Harold Tobin	#603-CDP: NanTroSEIZE	New Mexico Tech, USA
Peter Clift	#537: Costa Rica	WHOI,USA

The Project Scoping group met in Bozeman, Montana on August 21 and 22 and will report to iPC at its meeting in September 2003.

iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB6

Guide to IODP

A Guide to the Integrated Ocean Drilling Program

Members: NSF (U.S.A.), MEXT (Japan), ECORD (Europe), others TBD*
*(perhaps the IWG membership principles could be inserted here)

A Guide to the Integrated Ocean Drilling Program

Table of Contents

1. PREFACE

The Deep Sea Drilling Project (DSDP) and Ocean Drilling Program (ODP) have revolutionized our view of Earth history and global processes and are widely considered to be models for international cooperation in multidisciplinary research and technological development. The scientific and administrative structures of these programs evolved profoundly during their 35-year existence, and this evolution continues with the start of the Integrated Ocean Drilling Program (IODP) on 1 October 2003. This Guide to IODP is intended to assist proponents in preparing, submitting, and revising drilling proposals. It also contains limited information on IODP's organization and planning structure, operational and management components, and related activities. This Guide is a "living" document, to be updated throughout the life of the new program as the framework that supports integrated, multi-platform scientific ocean drilling develops. Within such a compilation, the amount of detailed information is necessarily limited; interested readers are directed to the Initial Science Plan for IODP, "Earth, Oceans and Life" (http://www.joiscience.org/JOI/Publications.html), for a discussion of program goals and strategies, and to the iSAS office (http://www.isas-office.jp) for more information on the proposal preparation, submission, review, and ranking processes and on the advisory and administrative structures that support IODP. Updates to this guide will be published as often as changes in IODP necessitate.

2. SCIENTIFIC GOALS, ORGANIZATION AND STRUCTURE

2.1 Goals: The Initial Science Plan

The first program principle developed by the International Working Group (IWG) charged with formulating IODP states that "The IODP is an [integrated, multi-drilling platform] scientific research program with objectives identified in the IODP Science Plan". (Other program principles are identified in Appendix I.). Thus the Initial Science Plan (ISP) is the heart of the new program, providing fundamental guidance as to the scientific and technical objectives that are of greatest interest to IODP. Exciting discoveries are certain to lead to new priorities in the future, and IODP will be flexible in responding to unique opportunities, but the ISP lays out an essential framework for the design and evaluation of scientific programs that will help to achieve critical goals. IODP studies will lead to a better understanding of the deep biosphere and the sub-seafloor ocean; environmental change, processes, and impacts; and solid earth cycles and geodynamics.

The full title of the ISP for IODP is "Earth, Oceans and Life: Scientific Investigations of the Earth System Using Multiple Drilling Platforms and New Technologies." The ISP grew out of numerous workshops, conferences, and discussions among hundreds of scientists, engineers, and agency representatives. The contents of the ISP were formulated mainly during the period from 1997 to 2001 by an international, multi-disciplinary, scientific community, drawn together by common interests, technical needs, an appreciation for the wonder of scientific discovery, and dedication to the success of the complete enterprise. Some of the objectives discussed in the ISP date back to the original Conference on Scientific Ocean Drilling (COSOD, 1982), while others were developed only in the last few years leading up to the establishment of IODP. The Conference on Cooperative Ocean Riser Drilling (CONCORD, 1997) and the Conference on Multiple Platform Exploration of the Ocean (COMPLEX, 1999) were particularly important in formulating the scientific objectives for IODP and drafting the ISP.

The ISP identifies three broad themes on which scientific ocean drilling efforts will be concentrated beyond the year 2003. The first is study of the deep biosphere and associated sub-seafloor ocean. The second involves investigating Earth's environmental change, in terms of both its processes and effects. The final theme encompasses a range of inter-related scientific problems pertaining to the cycles and geodynamics of the solid Earth. Within these broad themes, specific areas of concentration are identified for which ocean drilling is either the best, or only, way to solve scientific problems of a fundamental nature. These include studies of: seismogenic zones, gas hydrates, rapid climate change and periods of extreme climates, continental breakup and sedimentary basin formation, large igneous provinces, and the fundamental nature of oceanic crust. There is an emphasis in all of these topics on the study of active processes. The integration of multiple drilling platforms, exploratory tools, and diverse strategies in resolving outstanding questions is discussed throughout the ISP and is central to the success of IODP.

2.2 Organization and Structure

IODP is an international partnership of scientists and research institutions and programs organized to explore the Earth, as recorded in the ocean basins, through a program of seafloor drilling and coring, downhole measurements and sampling, and the establishment of long-term borehole observatories. IODP will contribute to collection of sediment and rock samples ("cores"); downhole geophysical and geochemical measurements ("wireline logging"); and opportunities for special experiments (both short-term and long-term) to determine *in situ* conditions beneath the seafloor. Extensive shipboard and shore-based facilities have been and are being developed for the study of these samples and data.

IODP is supported by “lead agencies” which are, in 2003: the United States of America’s National Science Foundation (NSF) and Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT). Other international partners will be added; a European lead agency, the European Consortium for Ocean Research Drilling (ECORD), may also join the USA and Japan. A series of membership principles for participation in IODP have been formulated by the IWG (see Appendix I) to promote accomplishment of the best possible science from IODP operations.

IODP will be a multi-platform operation. A riser drillship, *Chikyu*, is being built and will be operated by Japan, and a non-riser vessel similar to *JOIDES Resolution* will be operated by the USA. ECORD aims to provide mission-specific platform (MSP) operations for IODP, and has been nominated by the IWG as the Implementing Organization that will provide MSP capability in the first year of IODP. Specifications and capabilities of these different drilling platforms are summarized in Section 3.

The Ocean Drilling Program office at NSF (which falls under the Marine Geosciences section of the Division of Ocean Sciences within the Directorate for Geosciences) is responsible for funding the US part of IODP and administering co-mingled funds directed towards the “science operating costs” (SOCs) of all IODP operations. These co-mingled funds come from the international partners as the part of their membership fees used for the conduct of IODP science. “Platform operating costs” (POCs), unlike in ODP, are the responsibility of the agency supplying the capability (specified in Section 3). An IODP Council, representing all of the partners, provides a forum for exchange of views among member nations and consortia, and reviews accomplishments, status, and plans, including financial, managerial and all other matters regarding the overall support of IODP. The Chairperson of the IODP Council rotates among the lead agencies every year.

Overall IODP program management (shown in Figure 1, to be added and explained, see below) is provided by a Central Management Office (CMO), under contract to the lead agencies. The CMO, a legal entity, will have the following primary characteristics: a commitment to IODP science, lack of bias, and independence. The CMO will have a number of specific tasks and responsibilities (see Appendix II).

Scientific planning for IODP is provided by the Science Advisory Structure (SAS). The SAS is an international organization of committees and panels under the overall guidance of an Executive Authority. The Executive Authority:

1) formulates scientific and policy recommendations for the Council and reports to the Council,
2) Works with the CMO to develop an annual program plan for scientific ocean drilling based on the recommendations of the SAS,
3) evaluates and assesses IODP accomplishments with regard to established ISP goals and objectives, working with SAS,
4) promotes support for IODP where appropriate (including expansion of membership), and

5) ensures liaison with other scientific programs.

Figure 1. Management Structure of IODP (details TBD)

IODP science planning differs in a fundamental way from that of ODP and DSDP. Scientific operations within ODP were concentrated around a single drilling platform. In contrast, IODP operates using a range of drilling platforms and capabilities. The IODP Science Advisory Structure, in concert with the CMO and the Implementing Organizations (drilling operators), are responsible for “mapping” highly ranked science into the various drilling systems available to IODP.

Council/Lead Agencies + International Partners - - SAS Executive Authority
CMO
SAS: Planning/Science Committee, Science Steering & Evaluation Panels, Service Panels, Program Planning Groups (PPGs), Detailed Planning Groups (DPGs)
Drilling Platform Operators/Implementing Organizations: Chikyu (Japan), JOIDES Resolution replacement (U.S.A.), MSPs (ECORD/TBD)
Downhole Logging/Wireline Services Operator(s)
Geophysical Data Bank
Core Repositories/Curation

3. IODP DRILLING PLATFORM CAPABILITIES

3.1. *Chikyu* – the riser-based capability

Conclusion of construction: mid-2004
Drilling test: from April 2005 to October 2005
Shakedown: 2006
Available to IODP: late 2006
Place of construction: MITSUI Engineering & Shipbuilding Co. Ltd., Tamano Works, and MITSUBISHI Heavy Industries Ltd., Nagasaki Shipyard & Machinery works
Laboratories and other scientific equipment installed: X-ray CT scanner
Gross tonnage: about 57,500 t
Variable load: about 23,000 t
Engines/generators: 6 x 5,000 kW, 2 x 2,500 kW, 1 x 560 kW
Length overall: 210 m
Breadth: 38 m
Derrick: about 110 m from base line
Speed: 10 knots
Cruising range: 14,800 nautical miles
Scientific and technical party: 50 persons
Crew (including drilling personnel): 100 persons
Max. complement: 150 persons
Drill string: 10,000 m
Laboratory space:
Core lab: approx. 210m^2
X-ray CT scanner lab: approx. 27m^2

QA/QC sampling room: approx. $35m^2$
Paleomagnetics lab: approx. $28m^2$
Microbiology lab (including frozen sample room): approx. $80m^2$
Sample preparation room: approx. $62m^2$
Paleontology/petrology lab: approx. $47m^2$
Thin-section room: approx. $18m^2$
Geochemistry lab (including semi-clean room): approx. $141m^2$

3.2. *JOIDES Resolution* replacement – the "continuous coring" capability

(to be supplied by NSF, when such information is available)

3.3. "Mission-specific" platform capability

(information on selected [but not all possible?] capabilities, to be supplied by: Arctic DPG report, JEODI planning documents, others?)
Available to IODP: 2004?

4. SCIENCE ADVISORY STRUCTURE

4.1 JOIDES: A Historical Perspective

In 1964, four institutions (Scripps Institution of Oceanography - University of California, Lamont-Doherty Earth Observatory - Columbia University, Rosenstiel School of Marine and Atmospheric Science - University of Miami, and the Woods Hole Oceanographic Institution) joined together to form the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). This became a national effort to explore the geological and geophysical structure of the sea floor through a systematic program of ocean drilling, known as the Deep Sea Drilling Project (DSDP). In 1968, the University of Washington joined the four original institutions, and in 1975, the University of Hawaii, University of Rhode Island, Oregon State University, and Texas A&M University became members. The University of Texas Institute for Geophysics joined the consortium in 1982. Since 1998, Rutgers University, University of Michigan, University of California at Santa Cruz, Stanford University, University of Florida and Florida State University have become JOI, Inc. member institutions.

International participation in the deep sea drilling effort has become one of its most distinctive features. From 1974 to 1976, five nations formally joined DSDP to begin the International Phase of Ocean Drilling (IPOD). The oceanographic institutions of the Federal Republic of Germany, France, Japan, the United Kingdom, and the USSR became members of JOIDES and participated as full scientific and financial partners in DSDP.

Four of these nations remained active members of JOIDES in the Ocean Drilling Program (ODP), which succeeded DSDP in 1983. Canada and the European Science

Foundation (then represented by 12 European countries) became members in 1983. In 1988, Australia became a participant through the establishment of the Canada-Australia Consortium; Korea and Chinese Taipei joined the consortium in 1996. China joined ODP in March 1998 as an Associate Member.

For IODP, the following international partners provide the scientific membership of SAS, IODP's version of JOIDES:

- MEXT/Japan (lead agency)
- NSF/USA (lead agency)
- ECORD/Europe (lead agency status to be determined)
- others (not lead agencies, their level of participation to be determined)

4.2 The IODP Science Advisory Structure (SAS)

Providing scientific and technological advice to a complex multi-platform drilling program like IODP, while representing the diverse scientific communities and funding agencies of the IODP partners, is a challenging task. The ODP Mid-Term Review Committee in late 1995 recognized that the JOIDES Science Advisory Structure had been "outstandingly successful" in maintaining a proposal-driven program while delivering high-quality science. However, with the continuing development of new directions for scientific ocean drilling, reorganization of JOIDES in alignment with evolving themes and scientific objectives was required. Therefore, in 1996 the JOIDES SAS was reorganized to better address the initiatives and objectives contained in the 1996 ODP Long Range Plan. The IODP SAS continues to evolve from this reorganization. The IODP SAS is focused on nurturing proposals from a broad scientific community while maintaining the highest possible scientific standards for ocean drilling. The new challenge is to achieve the scientific goals identified in the ISP by means of ocean drilling in its broadest sense. By adopting an efficient, integrated, multi-platform operational strategy IODP aims to tackle a much wider array of important scientific problems than can be addressed by means of a single drilling platform, as in DSDP and ODP.

The Science Advisory Structure (SAS) of IODP, as shown in Figure 2 (need to provide), involves many scientists and engineers on standing committees and panels, and many others on shorter-lived program planning and detailed planning groups, PPGs and DPGs. As noted above (see Figure 1), the primary governing body of this advisory structure is the SAS Executive Authority, which in turn reports to the IODP Council.

Figure 2. The SAS Science Advisory Structure of IODP (flow chart)
(IODP Council – ISAS Executive Authority, see above and Figure 1)
SPC
SSEPs
Service Panels: SSP, PPSP, TAP, SciMP, ILP
DPGs, PPGs

4.3 Science Planning Committee (SPC)

The SAS is headed by a Science Planning Committee (SPC), the mandate of which focuses on the long-term science planning activities necessary to achieve the aims and objectives of IODP as expressed in the ISP, and to push forward our current understanding of Earth systems (see Appendix III for the Mandates and Terms of Reference for all SAS panels and groups). In this capacity, SPC prioritizes (ranks) scientific and technological objectives, based in part on input and advice from the other SAS panels (Figure 2), in order to optimize the scientific returns from multi-platform drilling, sampling and related experiments. An Operations Committee (OPCOM), created as a sub-committee of SPC (with representatives of the CMO and implementing organizations represented at OPCOM meetings), deals more directly with operational and logistical issues: the mapping of highly ranked science onto a specific drilling platform or platforms, platform scheduling and coordination, technological development, scientific measurements, and setting up of observatories. OPCOM's responsibilities include providing the SPC with drilling schedules based on the SPC's proposal rankings, advising the SPC on short-term logistical and technological implementations necessary for highly ranked scientific programs, as well as longer term technological requirements for implementing the goals and objectives of the ISP.

4.4 The IODP Science Steering and Evaluation Panels (SSEPs)

All science addressed by IODP is motivated by community input in the form of unsolicited proposals, nurtured and prioritized by the IODP SAS. SPC receives scientific advice on drilling proposals submitted by the international community from two Science Steering and Evaluation Panels (SSEPs) — the Dynamics of Earth's Environment SSEP and the Dynamics of Earth's Interior SSEP. They provide SPC with evaluations of high-priority drilling proposals, as well as advice on longer-term thematic development. The SSEPs also provide feedback to proponents through an evaluation process intended to improve the overall quality of proposals within IODP.

4.5 Program Planning Groups and Detailed Planning Groups

Program Planning Groups (PPGs) and Detailed Planning Groups (DPGs) are small, focused groups created as necessary by the SPC. PPGs are formed when there is a need to more clearly define drilling programs and/or technological strategies to achieve the goals of the ISP. Their term is variable. PPGs report to the SSEPs and through the SSEPs to the SPC.

DPGs are generally short-lived and are dedicated to intensive study of certain aspects of planning. For example, a DPG may be asked to create a viable drilling plan from a series of ranked drilling proposals that address a specific scientific objective. One longer-term DPG is currently focusing on the science planning and the evolving technological and logistical implications of riser-based drilling. Additional DPGs could be formulated within the context of "Complex Drilling Programs" (CDPs), as discussed below.

4.6 Service Panels

Technical and operational advice is provided by the SAS service panels, which include the Site Survey Panel (SSP), the Pollution Prevention and Safety Panel (PPSP), the Scientific Measurements Panel (SciMP), the new Technology Advice Panel (TAP), and the new Industry Liaison Panel (ILP). The Mandates and Terms of Reference for all of these bodies can be found in Appendix III.

4.7 The SAS Office

The SAS Office (http://www.isas-office.jp/) receives all proposals submitted for consideration within IODP. It is responsible for coordination of all SAS activities, and for integrating advice from the panel structure to enable the SAS Executive Authority to make policy decisions. The Chair and Vice-Chair of the IODP SPC oversee the operation of the SAS Office. Other administrative functions of this office include: obtaining external mail reviews for drilling proposals when proposals are deemed ready for this review by the SSEPs; overseeing the preparation of an annual Science Plan, which is a fundamental part of the annual IODP Program Plan, in concert with the CMO (see Appendix II); compiling summaries of the reports of meetings of the SAS and distributing these to SAS panel and group members, the IODP Executive Authority, other members of IODP and (when appropriate) to the general scientific and technical scientific drilling community; providing administrative services to SAS; and producing an IODP Journal.

Figure 3. SAS Panel Meeting Schedule (TBD)

5. THE SCIENCE PLANNING PROCESS

5.1 SAS Activities

The SAS evaluates the readiness of scientific drilling proposals in achieving the goals discussed in the ISP. The SPC, with the aid of OPCOM, selects proposals to be incorporated into annual, multi-platform drilling plans that address the long-term goals of IODP. These plans are formalized by the CMO (Appendix II), which then presents them to the SAS Executive Authority and ultimately the ODP Council for review and approval. Costs and logistical considerations, as well the list of highly ranked drilling proposals provided by the SAS, figure into the development of the annual program plan.

Long-range planning is more important in IODP than in DSDP and ODP, because multiple platforms increase the complexity of IODP's operations and often require greater lead time in planning. This will be particularly true for Complex Drilling Programs (CDPs, see below). In concert with science planning, the SAS also evaluates the needs and plans for technological advancement and engineering innovations that are required to meet the long-term scientific objectives of the ISP. All such planning, along with the budgetary impact of executing these plans, must be conducted well in advance; lead time is necessary for engineering and logging developments, and for the establishment and operation of long-term observatories. In these tasks, SAS works with the CMO and the Implementing Organizations to merge scientific priorities with program capabilities.

5.2 Proposal Development and Planning

The proposal process gives tremendous opportunities for individuals and groups, including other science programs in liaison with IODP, to explore the frontiers of Earth Science and related disciplines through ocean drilling. The success of IODP rests with the quality of the science proposed and carried out by the community-at-large. Through proposals, individual scientists and groups of scientists have the opportunity to respond to IODP's scientific priorities, as expressed in the ISP, and to recommend appropriate targets for drilling. Scheduling a drilling activity is a major investment of time and funds. Hence, proposals need to be well developed before they are considered by SPC for scheduling. The nurturing, development, and evaluation of proposals in concert with proponents is the prime responsibility of the SSEPs. Full development of a drilling proposal can take several years. Development of a CDP may take even longer (see below).

Another important aspect of developing a drilling proposal is the collection of the requisite survey information (geophysical, geological, hydrographic) for both regional and site-specific characterization. The completion of necessary surveys, and the submission of supporting survey data to IODP, is in part the responsibility of the proponents (for regional data), and in part the responsibility of IODP (for site-specific information related to safety). All of this coordination requires long-term planning and careful attention to timing, and reviewer and panel recommendations and requests.

In developing and revising a scientific ocean drilling proposal, proponents may, with the permission of the SPC Chair, seek technical and safety-related advice from the Technical Advice Panel and the Pollution Prevention and Safety Panel. They may also wish to seek help from the Industry Liaison Panel for identifying suitable co-proponents in industry or for identifying industry data collected within the proposed study area.

6. PROPOSAL SUBMISSION AND EVALUATION

6.1 Introduction

Proposal Submission and Evaluation Guidelines developed by the interim SAS (2001-2003) will carry over to IODP at the beginning of the new program. As in DSDP and ODP, it is anticipated that there will always be many more excellent proposals in the system than can be drilled during any one planning period, and thus there will be strong competition for time, funding, and access to facilities within IODP. One essential goal of the SAS is to provide proponents with early feedback as to whether their project is likely to be considered of high priority to the Program, thereby allowing an honest assessment as to whether or not a proposal is currently or can in the future be made competitive. Figures 4 and 5 schematically illustrate how a proposal moves through the SAS planning process to reach the stage of actual scheduling. As with ODP, external review of fully-developed proposals will be solicited from the community-at-large to ascertain the fundamental importance of the proposed work and and the soundness of the operational plan. The multi-platform approach inherent in some IODP programs will necessitate new interactions between the SAS and proponents of CDPs. These are outlined in a separate section below.

The proposal process consists of two primary steps:

1. Submission of a "Preliminary Proposal" that will be evaluated and nurtured (if appropriate) through panels within the SAS; and
2. Subsequent submission of a "Full Proposal" that is developed while taking into account the advice from the appropriate Panels.

Guidelines for each of these, and their evaluation paths, are described below.

Proponents of Preliminary and Full Proposals may serve as members of SAS panels, committees, or groups; however, members of the SAS who are proponents on a proposal may not participate in the evaluation process during the review of their proposal. Other issues associated with potential conflict of interest are in Appendix ??.

6.2 Schedule for Submission of IODP Proposals

Proposals for scientific ocean drilling may be submitted to the SAS Office at any time. However, in order to be considered in the annual cycle of SAS panel meetings, there are two deadlines each year for submission of IODP proposals: 1 April (for the Spring SSEPs meeting) and 1 October (for the Fall SSEPs meeting). All proposals must be submitted in electronic form, and must follow the length and format limitations described herein and (in greater detail) on the web page maintained by the SAS office (http://www.isas-office.jp/). Proposals that do not meet basic formatting requirements will be returned to proponents without benefit of SAS or external review.

Figure 4 (to be updated)

Step 1

Preliminary Proposal

April 1 or October 1 deadline (to be continued?) for electronic submission to the ISAS Office
Preliminary proposal Reviewed by SSEPs
SSEP reviews sent to proponents (June/November?, depending on meeting schedule of the SSEPs, TBD)

6.3 Format Summary for IODP Proposals

Both Preliminary and Full Proposals must adhere to the following formatting requirements. Proposals that do not meet basic formatting requirements will be returned to proponents without benefit of SAS or external review.

• Proponents should submit the required materials as a single PDF document, readable and printable using Acrobat Reader 5.0.

• All pages should be in A4 or U.S.-letter size.

• All text should use a standard 12-point font (for example, Times, Times New Roman, Arial, Helvetica, or Courier), 1.5 line spacing, and 2.5-cm margins on all sides.

• Proposals have strict page limitations, including text, tables, figures, and references (10 pages for Preliminary Proposals, 25 pages for Full Proposals).

• Figures should be in black and white. Color figures are discouraged because they result in large document size and tend to reproduce poorly. NOTE: inclusion of color figures may hinder proposal review and evaluation. If color figures are absolutely essential, please contact the SAS Office for advice. Figures should be page-sized (A4/U.S. letter) or smaller.

6.4 Preliminary Proposals

New ideas for scientific ocean drilling are generally submitted initially as Preliminary Proposals. This allows the SAS to evaluate the proposed scientific and technical goals and provide guidance to proponents as to how a competitive full proposal may be prepared. Proponents may be individual scientists or groups of scientists, including national or international scientific groups or programs that are independent of IODP. In each case, the individuals who are submitting the Full Proposal must be named, and a single contact proponent must be clearly identified.

In exceptional cases (such as a narrow window of opportunity to test an exciting, fundamental scientific idea), a new project can bypass the Preliminary Proposal stage and be submitted initially as a Full Proposal. Proponents are encouraged to begin with a Preliminary Proposal so as to evaluate the level of interest from the SAS and target their program accordingly before expending the considerably greater effort necessary to craft a Full Proposal. In addition to the greater overall length and level of detail of Full Proposals compared to Preliminary Proposals, there are considerable data requirements for Full Proposals. Bypassing the Preliminary Proposal stage may not help to move their proposal forward within quickly IODP, and could even result in a net loss of time if the initial submission is not well received by the reviewers and SAS and a new preliminary proposal is required.

Preliminary Proposals must be no more than 10 pages long including text, tables, figures, and references, and they must include the following items that will not count against the page limit: (1) an official proposal cover sheet, complete with an abstract of 400 words or less; and (2) a one-page site summary form for each proposed drill site, with designated site names conforming to established policy (see below).

Proponents should submit the required materials as a single PDF document, with all pages in A4 or U.S.-letter size and using a 12-point font, 1.5 line spacing, and 2.5-cm margins. The SAS Office will not accept items that arrive after official deadlines, do not meet all of the specified requirements, or do not print properly using Acrobat Reader 5.0 (available at http://www.adobe.com).

6.5 Content Guidelines for Preliminary Proposals

A well-prepared Preliminary Proposal should include:

1. Clearly-stated scientific goals, and an explanation as to how they relate to high priority scientific objectives within the ISP or represent a new area of inquiry that should be addressed by ocean drilling. A description of relationships to other international geoscience programs (if any) should be included.

2. Justification of the need for drilling to accomplish the objectives.

3. A brief description of proposed sites, penetration depths, expected lithologies, etc.

4. A brief description of available regionally important and site-specific data.

5. A well-defined plan for drilling/sampling and/or logging/downhole measurements and/or establishment of long-term observatories (as appropriate for stated scientific objectives) and explanations as to how these activities address the scientific goals of the project and important objectives of the ISP.

6. The <u>first page</u> of a Site Summary Form for each proposed site. Site location names must conform to IODP drilling site designation policy.

Preliminary Proposals are reviewed by the appropriate SSEP(s) with respect to the fundamental scientific advances that the proposed drilling might make; its relevance to the ISP; and the appropriateness of both geographic location and proposed operations for addressing the proposed scientific objectives of the proposal. Both SSEPs will look at every submitted Preliminary Proposal and, as appropriate, evaluate them in order to assure that the maximum scientific benefit can be derived from the proposed drilling.

Written reviews from the SSEP(s) will be returned to the contact proponent with one of the following recommendations:

1. The proposal does not address high-priority goals of the ISP, or is otherwise of low scientific interest. A Full Proposal based largely on the Preliminary Proposal is unlikely to be competitive within IODP, and the Panel(s) recommend(s) that a Full Proposal should not be developed at this stage. Proponents may wish to rethink the basis for their program a submit a new Preliminary Proposal.

2. Some specific additional information is needed to evaluate the proposal (e.g., there is insufficient data to evaluate whether drilling addresses the stated objectives). The Panel(s) requests these data from the contact proponent for their next meeting(s). If the data are essential but unavailable, the Panel(s) will recommend that a revised Preliminary Proposal be submitted once the data are available.

3. The proposal addresses objectives for which other proposals already exist. The Panel(s) may refer the proposal to a DPG (should the appropriate group exist), or recommend that the proponents collaborate with other proponents having active proposals in the system.

4. The proposal is of high priority, but could be improved or made more relevant in the context of the ISP. In this case, one or both SSEPs may nurture a proposal (through a watchdog system) and request a revised Preliminary Proposal.

5. The proposal is highly relevant to the ISP, well justified, and well crafted. The Panel(s) recommends the development of a Full Proposal.

6.6 Full Proposals

The submission of a Full Proposal generally follows a positive response from the SAS to submission of a Preliminary Proposal, as described above. Full Proposals will normally be submitted by the proponent(s) of Preliminary Proposals. Proponents may be individual scientists or groups of scientists, including national or international scientific groups or programs that are independent of IODP. In each case, the individuals submitting the Full Proposal must be named, and a single contact proponent must be clearly identified.

Full Proposals must be no more than 25 pages long including text, tables, figures, and references, and they must include the following items that will not count against the page limit: (1) an official proposal cover sheet, complete with an abstract of 400 words or less; (2) complete site summary forms for each proposed drill site, with designated site names conforming to established policy (see below); and (3) background information on the proponents. Additional guidelines for proposal content and formatting are provided below; proponents of Full Proposals are advised to check the SAS Office website for recent revisions to these guidelines.

Proponents should submit the required materials as a single PDF document, with all pages in A4 or U.S.-letter size and using a 12-point font, 1.5 line spacing, and 2.5-cm margins. The SAS Office will not accept items that arrive after official deadlines, do not meet all of the specified requirements, or do not print properly using Acrobat Reader 5.0 (available at http://www.adobe.com).

6.7 Content Guidelines for Full Proposals

A well-prepared Full Proposal should include:

1. Clearly-stated scientific goals, and how they relate to high-priority scientific objectives within the ISP (or represents a new area of inquiry that can be addressed by ocean drilling). A description of relationships to other international geoscience programs (if any) should also be included.

2. Justification of the need for drilling to accomplish the objectives.

3. Detailed descriptions of drilling/sampling and/or logging/downhole measurements and/or establishment of long-term observatories (as appropriate for stated scientific

objectives) and explanations as to how these activities address the scientific goals of the project and important objectives of the ISP.

4. Discussion of the expected scientific outcome of drilling and what studies will remain to be done at completion of the proposed work.

5. Detailed estimates of drilling, logging, and experiment times.

6. A description of available regional and site survey data and a discussion of the relation of drilling targets to pertinent site-survey
data; a description of site-survey information that is still required and the plans for its acquisition must also be included.

7. A description of logistical requirements, including plans to deal with any anticipated logistical problems or hazards (e.g., the need for special platforms, currents, extreme weather, ice, etc.).

8. Complete Site Summary Forms for each proposed drill site. Site location names must conform to the IODP drilling site designation policy (see Section 6.12).

9. Information on the scientific background and relevant publications of proponents. This information may be in the form of: (a) a two page curriculum vitae and relevant publication list for one or more (not to exceed 4) proponents; or (b) a combined summary (not to exceed two pages) of the background of the individuals and/or groups submitting the proposal.

10. A list of contact information for at least five (5) individuals, having no conflict of interest with any of the proponents, qualified to provide comment on scientific aspects of the proposed drilling program.

Full Proposals are reviewed by the appropriate SSEP(s) with respect to the fundamental scientific advances that the proposed drilling might make; its relevance to the ISP; and the appropriateness of both geographic location and proposed operations for addressing the proposed scientific objectives of the proposal. One or both SSEPs will determine whether the Full Proposal meets criteria necessary for solicitation of external reviews. These criteria are:

1. The proposal addresses one or more scientific problems that are identified as a high priority in the IODP ISP (or moves IODP beyond the ISP into new, exciting fields of study);

2. There is clear indication that IODP assets and facilities provide the best means to achieve the scientific objectives to be addressed;

3. There is a well-defined operational strategy, the success of which can be assessed on the basis of the data presented in the proposal.

If these criteria are met, the Panel(s) will recommend to the SAS Office that external comments be acquired, and will provide a list of qualified evaluators for each recommended proposal. The list of potential evaluators will include individuals who are active within the international drilling community, as well as others from outside that community who can comment on the science with a broader perspective of its contribution to the appropriate field(s).

If it is determined that the three criteria are not met adequately, the Panel(s) will advise the proponents (through the SAS Office) as to revisions necessary for further consideration.

After the steering panels have recommended a proposal for external review, the SAS Office will obtain comments from at least three qualified reviewers. Once selected, external reviewers will remain anonymous to the proponents and advisory panelists at all times. External reviewers should comment critically on the importance of the scientific objectives toward the achievement of important scientific goals, the suitability of the study area for addressing the scientific objectives, the likelihood of achieving the scientific objectives based on the proposed drilling, logging, and experimental program, and the scientific competence of the proponents, keeping in mind that many scientists besides the
proponents would ultimately participate in planning and executing the drilling program. Proponents will receive the external reviews of their proposal from the SAS Office and may then submit a brief response letter (see below) before the next proposal deadline. The steering panels will also receive the external reviews, together with the response letter, and will then write a final panel review assessing the priority of the proposal with respect to the IODP Initial Science Plan.

Full proposals that have undergone external review will automatically go forward to the Science Planning Committee (SPC) for the next stage of advisory review. Once per year, the committee will consider a prospectus containing each externally reviewed proposal and all corresponding documents, including addenda, anonymous external reviews, response letters, and steering panel reviews. During the period before the start of IODP, the interim SAS discussed and categorized proposals within the framework of the IODP Initial Science Plan, with the goals of conveying the relative merits of each proposal to its proponents and identifying the most promising set of proposals for the official start of IODP. In anticipation of the start of IODP scientific operations, the SAS will rank proposals in terms of their scientific priority, evaluate their readiness (in terms of available data and technology and maturity of planning), and schedule a subset of programs for the next operating window. Weather, present and future ship operation locations, technical needs and costs, and other factors will also be taken into account in setting a final operating schedule.

6.8 The External Comment Process

The SAS Office is responsible for managing the acquisition of external comments. The SAS Office receives the list of proposals selected by the SSEPs, together with the recommendations of potential evaluators from both the Panels and the proponents. The

SAS Office selects and contacts individuals to provide external comments, receives those comments (generally 3-4 per proposal), and removes any information from the comments that would allow the reviewer to be identified. The anonymous external comments are then sent to proponents to allow them an opportunity to respond.

Because of the complexity of IODP operations, the large number of individuals likely to be involved in any one research program, and the extent of resources that will be dedicated to scheduled programs, the external review process for IODP proposals is different from that used for review within many other funding programs. External reviewers are given guidelines on specific issues that should be addressed in their comments, including the following instructions and questions:

(1) Review critically the importance of the scientific problem addressed in the proposal and its likely impact on understanding fundamental aspects of Earth history and/or processes.

(2) Identify and evaluate the scientific objectives and/or testable hypotheses that will be addressed by the proposed work.

(3) Is the general location selected appropriate to address the scientific problem and hypotheses posed?

(4) What is the likelihood that the proposed operations will contribute significantly to the solution of the stated scientific problem?

(5) IODP proposals differ in many ways from other science proposals. In particular, because a team of scientists is involved in planning and executing a drilling leg, scientists other than those listed as proponents will be involved in the project. With this in mind, please comment on the competence (e.g., research capability and research record) of the proponents if you feel that it is particularly relevant to the evaluation of the science contained in the proposal. Please explain why you feel that it is relevant.

Figure 5. Pathway of a Full Proposal (see text for details) – to be modified:

Full Proposal (New and Revised)
April 1 or October 1 deadline to the SAS Office
Full Proposal Reviewed by SSEPs (June/November)
SSEPs reviews sent out to proponents
Sent out for External Comment – yes or no?
Proponents send site-survey data to Data Bank by Feb. 1/July 1? for consideration by SSP
SAS Office manages acquisition of external comments
SAS Office sends anonymous external comments to proponents
Proponents submit letter of response to SAS Office (March1/September 1?)
SSEPs review anonymous external comments and proponent response letters
scheduling (by e-mail?)
SSEP reviews sent to proponents (June/November?)
SSEPs provide written response to proponents based on IODP ISP (June/November?)

SAS Office produces prospectus of all externally reviewed proposals (when?) SSP reviews proposals in prospectus for site-survey readiness (when?)
SPC reviews prospectus and ranks proposals of highest priority (August meeting?). A subset of ranked proposals is forwarded to OPCOM for possible incorporation into annual multi-platform science plan.

6.9 Proposal Addenda

Proponents of preliminary or full proposals that are already active within the SAS may submit a Proposal Addendum to provide information that is not normally covered by the regular proposal format. For example, this may include an update on relevant scientific research, a response to a specific request by an SAS panel or committee, or to present an offer of support from another scientific program or agency. An addendum is not to be used to extend the length of topics that are to be covered by the regular parts of a proposal. If the supplementary material necessitates a significant change to the objectives or strategy of the original proposal, the proponents should submit a revised proposal instead of an addendum. Proponents are urged to discuss Proposal Addenda with the SAS office prior to submission, to be sure that submission is appropriate.

Addenda must not exceed 10 pages in length, including text, tables, figures, and references, and they must include an official proposal cover sheet, complete with an abstract of 400 words or less. Addenda must be submitted electronically, and must follow the same formatting guidelines (page size, font, margins) as regular proposals. Normally, an addendum will go forward with the latest version of its corresponding proposal to the panel or committee that last reviewed that proposal. Under special circumstances, an addendum that concerns important information could go forward to the SSEPs or SPC without waiting for the next proposal deadline; however, the proponents must obtain prior approval for this from the SAS office.

6.10 Proponent Response Letters

Proponents may submit a brief letter to the SAS in response to the external reviews of their full proposal. Response letters must not exceed 5 pages in length, including text, tables, figures, and references, and they must address only the specific comments or questions posed by the reviewers. Occasionally, an advisory panel or committee may request an additional response letter during subsequent stages of the review process. The SAS Office will set an appropriate deadline for receiving such response letters so that they can be forwarded for consideration by the appropriate panel(s), typically at least four to six weeks in advance of the next panel or committee meeting.

6.11 Evaluation by the SSEPs and Recommendations to SPC

The anonymous external comments, together with the proponents' response, are reviewed by the SSEP(s) at their next meeting. Information on site-survey readiness is also provided by the SSP liaison(s) to the SSEP(s). For each reviewed proposal, a package is assembled by the SAS Office for the SPC members that contains:

- the SSEP(s) review(s) of the proposal;
- the external comments received from anonymous evaluators;
- the proponents' response to the external comments;
- an assessment by the SSEP(s) as to the priority of the drilling program in the context of the overall achievement of the IODP ISP (or how the proposal addresses an exceptional scientific opportunity).

At its annual August meeting, SPC takes all this information into consideration and conducts a global ranking of the proposals in terms of their scientific priority. SPC acts under strict conflict-of-interest guidelines, and the ranking procedure is also clearly enunciated (both are included in APPENDIX IV). A subset of ranked proposals is selected and forwarded to OPCOM for possible scheduling as drilling legs. Those that do not get selected are advised as to whether (i) SPC wishes to keep the proposal active for consideration at a later time (e.g., perhaps when more data are available, pending results from an already scheduled drilling expedition or scheduled geophysical survey), (ii) SPC wishes to see a revision, in which case the proposal is reconsidered by the SSEPs and sent out again for external comment, or (iii) will not consider it further.

The OPCOM meets directly following SPC, with the main goal devising a multi-platform science schedule for the next operating time window (typically the next unscheduled year of operations, but the planning window may vary in length depending on the nature of programs to be scheduled). Issues that are considered in planning a final schedule include SPC ranking, site-survey readiness, potential safety and pollution considerations, technological requirements and readiness (including, but not limited to: core recovery, enhancements to the standard set of logging tools, use of re-entry cones, and casing), availability of the appropriate platform(s), operational considerations (weather, ice cover, currents, and transit times between potential drilling sites), research clearance issues, heave restrictions in shallow water, and budgetary considerations. OPCOM then forwards its proposed schedule to SPC for final approval, which in turn passes it on to the IODP executive authority and the CMO for implementation.

Proponents of proposals scheduled by OPCOM with approval by SPC are notified in writing. Proponents of proposals sent forward by SPC to OPCOM, but not scheduled as drilling legs, receive an explanation of the decision and recommendations for future action. Such proposals generally are not revised and are not sent out for a second external evaluation. The SSEPs and SSP continue to track these proposals in the SAS system until the following year, when they are reconsidered for scheduling.

The scheduling of a proposal is not the end of the planning process. Within a few months of the schedule being finalized, the proposal will be reviewed by the Pollution Prevention and Safety Panel (PPSP). This requires the compilation of a data package to be submitted to PPSP for a safety review. Depending on the nature of proposed operations, more than one PPSP review may be required.

6.12 Drilling Site Designations

IODP uses a uniform system of designating proposed sites, in which each point on the seafloor that has ever been considered for drilling is known by one and only one name, and that name is never used for any other point on the seafloor. Proponents must use the format in naming proposed drill sites: Drill Site AAAAnnX.

AAAA is up to 4 alphanumeric characters indicating the geographic area of the proposed drill site; nn is two numerals indicating the number of the site within that area; X is one letter indicating variants (alternates or revisions) of that site. The first time a site is proposed, X=A. If alternative sites are proposed in close geographic proximity and sharing scientific objectives, they must have X=B, X=C, X=D, etc. Every time a site is moved, a new value of X must be used to identify the relocated site. The site designator should not attempt to encode information about the priority of the site (i.e. no “alt.” designators). Because site priorities often change as the proposal passes through the advisory system, a site name that encodes priority may became obsolete or misleading by the time the site is drilled.

Example: PIG03B is Pigafetta Basin Site 3B, indicating that the proposed location has been changed once.

6.13 Ancillary Program Requests

Upon occasion, one or more researchers may develop an idea for an Ancillary Program (a relatively short-term IODP project) that could be accomplished as part of another program that is being considered for scheduling or is already scheduled. Typically, Ancillary Programs have scientific goals that are not directly related to those of the larger program to which they may be associated, but may require use of IODP assets for collection of cores or data or deployment or recovery of instruments. Examples might include measurements of properties not routinely collected, the collection of downhole measurements during logging unrelated to primary drilling objectives, or the addition of a drilling site of opportunity while IODP assets are working in a particular area. Although they are typically not as complicated or time-consuming as regular drilling programs, Ancillary Programs can have significant cost, personnel, scheduling, and facility-access implications for IODP operations, and it is essential to integrate this work with the appropriate drilling projects as early as possible in the proposal submission and evaluation process. Typical lengths for Ancillary Programs are 1-3 days of ship operating time, including transits.

The option to add one or more Ancillary Programs to an exiting IODP operational schedule is one indication of the flexibility inherent in the new program, and of a willingness to take advantage of unique opportunities to achieve important, high-profile scientific goals. However, Ancillary Program requests must not be viewed as a means to bypass the regular IODP proposal process; proponents must make a strong case for consideration on an abbreviated time frame, without benefit of standard IODP proposal review.

Requests for accommodation of ancillary programs in IODP are submitted to the SAS Office in the form of a brief letter, including the following information:

• a description of the project and its overall scientific goals;
• the types of shipboard measurements/data collection necessary;
• the geographic areas of interest;
• the necessary time commitment, both in terms of ship-time and shipboard personnel; and
• strong justification as to why this program could not be proposed through the regular proposal process.

Investigators must submit Ancillary Project Letters to the SAS Office in accordance with normal proposal deadlines. An Ancillary Project Letter must not exceed 5 pages in length, including text, tables, figures, and references, and it must include the following items that will not count against the page limit: (1) An official proposal cover sheet, complete with an abstract of 400 words or less; and (2) the appropriate set of site summary forms for each newly proposed drill site, if any, with designated site names conforming to established policy.

Shortly after each proposal deadline, all new Ancillary Project Letters will go forward to the SSEPs for review. The SSEPs may advise the investigators to develop their ideas into a preliminary proposal or collaborate with the proponents of an existing proposal. If the latter, the SAS Office will initiate contact between the two groups of investigators. The steering panels may also decide to forward an ancillary project letter directly to the SPC, particularly if it relates to a drilling proposal that has already undergone external review. The SPC will assess the merits of ancillary project letters on a case-by-case basis.

7. COMPLEX DRILLING PROGRAMS/ CROSS-PLATFORM INTEGRATION

7.1 Introduction

~~Unlike DSDP and ODP,~~ The availability of multiple drilling platforms in IODP offers unprecedented opportunities for scientists to develop innovative and increasingly complex scientific drilling programs in order to reach highly important and relatively long-term goals. Complex Drilling Programs (CDPs) may be considered as a unique symbol of IODP. A CDP is complex but a single project. The same basic SAS principles will apply to both CDP-type and normal type proposals. In encouraging the development of such ~~Complex Drilling Programs (~~CDPs~~)~~, the SAS makes a conscious, long-term commitment to complicated (at a minimum long-term, multi-part and probably multi-platform) drilling efforts that may require a significant portion of total IODP resources. Thus it requires careful management, oversight and implementation by the PIs, by SAS, and by IMI and IOs.

Within IODP, a CDP has these fundamental characteristics:

• Despite use of multiple platforms and staged operations of a considerable time period, there is one or more, clearly-articulated, overarching goal.

• The pathway to achieving these goals requires completion of a series linked scientific and operational components.

• All components can themselves be completed in a reasonably short time.

• The fundamental goal(s) cannot be achieved through completion of a series of independent drilling projects.

This last criterion is, perhaps the most stringent, as it clearly demonstrates the need to work in a CDP context in order to succeed. ~~For example, within ODP, many paleoceanographic legs followed a global strategy of drilling transects that cut across major oceanographic gradients and revealed the history of circulation changes through time. However, each of these legs was scheduled on the basis of a separate proposal, judged on its own merit; no programmatic commitment was made regarding future legs, and neither was the success of one leg contingent on success of another.~~ In IODP, some ISP problems are of sufficient complexity and scope (e.g., understanding the Seismogenic Zone) that they will require SAS and individual IODP panel members to commit consciously and steadfastly to a sustained, multi-year effort in order to achieve fundamental objectives. There must also be a renewed commitment to annual reviews of progress towards complex science objectives within the SAS. ~~Such efforts may require extended periods of drilling, the use of more than one type of drilling platform (see capabilities above), and considerable ancillary resources (e.g., downhole instrumentation, development of new technologies), before they are complete.~~ Fairness in judgment and bold execution of these efforts by the IODP SAS and program management will be required.

In discussing these challenges, the CDP evaluation and review process can be divided into stages (refer to accompanying figure, “Handling Complex Drilling Proposals” by Kiyoshi Suyehiro, to be modified):

1. Developing scientific proposal(s) for CDPs and submission to the IODP SAS.
2. Mentoring component proposals of CDPs at the SSEP level.
3. Evaluating CDP component proposals at the SPC level.
4. Establishing Detailed Planning Groups (DPGs) relevant to CDPs and their charges.
5. Scheduling CDP drilling with careful consideration of efficient IODP cross-platform integration.
6. Managing CDP drilling and monitoring CDP progress through time.

As a practical matter, evaluation and review of CDPs within IODP will require considerable time and effort, and completion of CDPs will require dedication of a large fraction of the available programmatic resources. It is not expected that there will be more than a small number of CDPs active within the system simultaneously, perhaps only one or two. Thus it is all the more important that

CDP development be carefully planned, coordinated, and carried out so as to maximize opportunities for success.

Figure 6. “Handling Complex Drilling Proposals” (Kiyoshi Suyehiro, being modified). This is the flow chart discussed at the 3/02 iPC meeting.

7.2 Developing CDP Proposals

As previously described, the SAS assesses, mentors, and groups (or ranks) all scientific proposals submitted to IODP (see above) using the same criteria. No proponent, group of proponents, or project has any advantage in terms of access to, or consideration by, SAS panels. ~~Rather, the SAS is charged with:~~

- ~~judging whether or not proposals address important scientific themes within the IODP ISP, or explore important new research areas that have developed since publication of the ISP;~~
- ~~helping proponents develop their proposals by providing constructive criticism; and~~
- ~~evaluating the relative scientific merit of each proposal (or set of proposals); some of these proposals may be parts of a CDP, most will be stand-alone.~~

Proposals that address complex objectives and require multiple drilling legs and/or multiple types of drilling platforms must come into IODP through the initiative of either individual scientists and/or international science programs in liaison with IODP.

<<<CHANGE OF ORDER OF PARAGRAPHS BELOW>>>>

When appropriate, financial support by funding agencies of individual IODP member countries may be made available for CDP proposal development. Such support could include convening workshops and proposal-writing meetings that have the specific purpose of developing CDPs. Such workshops ~~have been held within the ODP framework for prospective proponents and have often been~~ are strongly encouraged to be international in scope. PIs and proponents would be identified during this stage. Technical advice may be sought from appropriate experts. The most important aspect of the proposal is to describe what sample or measurement information is critical to verifying your hypotheses, rather than stating what type of drilling is required. The choice of platform may change as the CDP develops. Such workshops are separate from the SAS, which remains neutral until actual proposals are submitted and the evaluation process begins.

The SAS does not write proposals. However, the SAS may form PPGs (see 4.5) to catalyze CDP proposal developments~~. consider actions leading to proposal development when it is felt by SPC and/or by the SSEPs that there is an important scientific objective or initiative of the ISP that is not receiving necessary attention by the scientific ocean drilling community. In that case, the SPC may consider establishing a PPG, whose task it would be to define approach(es) to addressing a specified scientific objective using ocean drilling and encourage proponents to submit proposals that address such objective(s). One hoped-for result of any PPG's efforts would be to stimulate the production of proposals. PPG's are not charged with producing proposals, although~~

~~individual PPG members are not precluded from writing and submitting proposals as independent proponents. CDPs may fall into this category~~, as prior experience with their development and nurturing is limited.

7.3 Mentoring CDP Proposals ~~within the SAS~~

~~Within the SAS, the SSEPs have the primary task of determining which submitted proposals address important scientific objectives of the ISP. Their next task is to provide guidance to proponents to help them strengthen each proposal, to offer constructive criticism, and to seek impartial outside reviews of the proposal. This is true for all IODP proposals under evaluation, including CDPs.~~

The unique challenge for the SAS within IODP is to develop and initiate procedures whereby CDPs, inevitably involving multiple, linked proposals, may be fairly evaluated and properly mentored, especially when the drilling strategy requires more than a single field expedition and/or multiple drilling platforms. ODP experience with such efforts has been limited, but there are some drilling projects that suggest examples. Drilling in and around the Nankai Trough, to understand the nature of accretionary prism development and evolution and its relationship to the Seismogenic Zone, has required careful planning and more than one leg of ODP drilling, using a variety of drilling technologies (ODP Legs 131, 19x). As another example, ANTOSTRAT came to ODP with a set of proposals that formed a well-reasoned, phased approach to defining the history of ice sheet development in and around Antarctica. Multiple ODP legs were carried out as a result to address ANTOSTRAT objectives (cite reference).

<<<Change in the order of sentences below>>>

~~At the beginning of each proposed effort, a clear statement of the strategy and of the drilling approaches to be used was set forward. A similar approach will be required for CDPs in IODP, to justify the commitment of drilling resources to those problems requiring multiple drilling legs and/or drilling platforms.~~ Proponents collaborating on a CDP are expected to provide the SAS with clear, concise statements of the overall scientific problems to be addressed, the context of the ISP, and the overarching strategy for addressing these problems through scientific ocean drilling. This statement and generalized drilling strategy then form the preface to a group (or package) of linked proposals, constituting together a jointly submitted foundation document for follow-on proposals addressing the CDP's scientific focus. This preface accompanies all follow-on specific proposals for carrying out component parts of the overall CDP plan. In both the Nankai Trough and ANTOSTRAT cases, each proposal ~~represented~~ can be regarded as one step within an overall strategy for addressing stated broad scientific objectives.

Within IODP, each drilling proposal may not constitute a separate "leg" of operations. Instead, each component proposal of a CDP will address a single, integral step in achieving the overall scientific objectives, no matter what that step requires with respect to drilling time or platforms. Therefore, each proposal within a CDP should:

• Address a particular aspect of the general scientific problem in a way that both requires close interaction of the scientists involved and a necessary interdependence of the results with other component proposals of the CDP.
• Provide results that are scientifically valuable in their own right, independent of the success or failure of other proposed drilling components (either proposed or yet to be proposed) within the CDP, yet move the overall CDP forward.

As SSEPs are the first SAS panels to receive component proposals of a CDP for scientific review and evaluation, the initial questions they must ask are:

• Does this CDP address an exceptionally important scientific theme or initiative in the IODP ISP (or perhaps represent an exceptionally important new scientific direction not covered by the ISP)?
• Does the proposed overarching drilling strategy provide a reasonable chance of success in achieving the proposed objectives?
• Is CDP the appropriate approach to achieve the objectives?

These questions can be addressed at the pre-proposal stage, through consideration of a fairly complete and polished overarching prefacing statement (umbrella proposal). This may be accompanied by a single proposal or by a set of relatively short pre-proposals addressing component parts of the CDP.

Mentoring such CDP proposals from this initial submission will be a major challenge for the SSEPs. Each component proposal of the CDP must stand on its own, but at the same time, each must be judged in relation to its importance to the overall objectives of the CDP as described in the umbrella proposal and to IODP. Occasionally, some proposed component element of the CDP may not be viewed as innovative or "frontier science" in and of itself, but could provide absolutely critical data for the overall success of the CDP. The SAS will take this into account in evaluating individual proposals and establishing short-term and long-term drilling priorities. Before SPC approves the CDP status, the SSEPs will flag CDP proposals to the SAS as soon as they start treating them as CDPs.

CDPs likely involve large fundings from outside IODP. In such cases, proponents are encouraged to provide SSEPs the information on their project scheme in terms of schedule and outside resources to allow planning to proceed in as integral as possible way. Therefore, one of the SSEPs challenge is maintaining awareness of the whole project scheme and correctly perceive the CDP in such perspective.

7.4 Evaluating CDP Proposals

Because of the necessary inter-dependence of component CDP proposals, each component must be viewed as an element of an overarching drilling strategy. These proposals must therefore be mentored in a way that will provide consistency and long-term corporate memory within SAS. This will be an important task for the Science Support Office to keep records and assist SAS. The SAS must constantly refer to this corporate memory. CDP proposals must also be peer reviewed externally by mail. Individual proposals that form part of a CDP can be reviewed separately, but the overarching statement that defines the broad objectives and drilling strategy for the CDP should always be appended to provide reviewers with critical context.

If CDP proponents feel that their proposal(s) would benefit from technical or scientific review and advice either prior to or after its submittal to the SSEPs, they may ask the SAS office to send their proposal(s) to: a) the TAP, for review of technical needs of the proposed science in order to seek recommended solutions to technical challenges (Early Project Scoping); b) the PPSP for review of safety problems that may arise with the proposed drilling (see section below); and / or c) the ILP for scientific advice, recommended sources of additional data pertinent to the proposal, or recommended industry participants in the proposed scientific research. Such evaluations by IODP service panels may also be suggested to the proponents by the SSEPs.

Once the SSEPs have evaluated and grouped CDP proposals, they are passed on to the SPC for approval as CDP and ranking. Individual proposals of a CDP ~~may~~ need not reach the same stage of maturity at the same time. In such a case, SSEPs must send the CDP to SPC if the umbrella and at least one component proposal is in full form and after appropriate evaluation. Since SPC approves CDP status, this component proposal may be processed as a normal proposal by SPC. ~~it will be up to the SSEPs to decide when individual CDP proposals have reached a level that allows evaluation of the proposed CDP science by the SPC.~~

Any CDP that is drilled as a series of component drilling projects will meet with unanticipated discoveries and difficulties. The SPC and the OPCOM will review the progress of ongoing CDPs with participating scientists on a regular basis, at least annually. Flexibility in how the CDP is carried out, as well as a strong commitment to the success of the CDP by the SAS, should be maintained by the Science Support Office. At the same time, CDP proponents must continue to refine plans, respond to new information and technological developments, and update their proposals as necessary to optimize chances for success. This is an ongoing process between CDP proponents and the SAS throughout the life of a CDP.

First, SPC has to approve the package as CDP. That is, to make judgment as to whether SPC handles this package as CDP or as normal proposals. As described earlier, SPC should be well aware of the proposal status from the point when CDP was submitted to SAS. After the presentation and discussion of a CDP, the SPC has several crucial decisions to make:

(1) Is the CDP package of proposals at a sufficient level of maturity to be fairly judged? If the SPC consensus on this issue is “no”, then the SPC must inform the SSEPs and the proponents of what additional materials or information are needed.

(2) If the CDP package is sufficiently complete to be fairly judged, then the SPC must decide whether or not the CDP is “highly important”, “likely to become highly important”, or “unlikely to become highly important”. If the latter,

the SPC must explain to the SSEPs and the proponents why they feel this CDP is unlikely to achieve importance in the IODP. If the SPC feels the CDP is “likely to become highly important”, then the SPC must specify what additional actions need to be taken by the proponents for component proposals to reach the level of maturity required.

(3) If the CDP package is judged to be either “highly important” or “likely to become highly important”, several other SAS actions are likely to be appropriate:

- TAP will be briefed on the CDP package and on its technical requirements. TAP will present their comments and recommendations regarding the CDP to the SPC, with copies to the proponents.
- SSP will review all relevant site-specific data for the CDP proposal package as it becomes available, and then report to the SPC the degree of completeness of data packages.
- PPSP will be briefed, and will then report to the SPC and to the proponents any safety concerns, as well as recommendations for addressing these concerns. As progress is made by the proponents towards addressing these concerns, they should request from the SPC an opportunity to update PPSP on their progress in acquiring additional data, acquiring site-specific geotechnical information, shifting site locations, changing target depths, etc.
- ILP should be briefed on any scientific problems that are also of interest to industry and make any recommendations to the SPC that they feel would enhance the science to be derived from the drilling effort.

7.5 CDP Project Management

As a rule, the SPC will require that a well-received / highly grouped CDP undergoes a higher degree of detail in its planning before the proposal package can be ranked in IODP. In such a case, a Detailed Planning Group (DPG) can be named by the SPC to address these concerns. The makeup and charge of such a DPG will depend on the nature of the concerns. If the concerns are primarily scientific (e.g., priority and ordering of individual legs; details of drilling to be done or measurements to be made on each leg, etc.), the makeup of such a DPG would be primarily scientific. If the concerns are of a more technical / engineering nature, the SPC would work with the service panels (TAP, PPSP, ILP) to assign appropriate expertise.

There may also be a need, either before or after grouping of the CDP package, for a DPG whose main charge is focused on logistical issues (e.g., efficient use of different platforms, optimal scheduling of different legs that make up the CDP, etc.). Such a DPG might then include representatives from the relevant Implementing Organizations (drilling platform operators), experts in logistical issues recommended by TAP and the ILP, and ~~perhaps~~ representatives from IMI.

If the CDP package includes riser-based drilling, a special DPG needs to be named for each such site. This DPG would be composed of scientists, drilling engineers, and technical experts including those from IOs whose charge would be to develop a detailed plan for each riser hole. Such a plan would include a detailed scientific measurement and sampling plan (e.g., downhole experiment program, coring program, cuttings program), as well as a detailed drilling plan, including a casing program, mud weight program, etc.

All DPGs will be named by the SPC, with advice as appropriate from proponents, service panels, the SSEPs, and the scientific ocean drilling community. All such DPGs will report to the SPC.

~~7.6 Scheduling of CDP drilling~~

The SPC will evaluate the scientific importance and readiness of individual components of CDPs during their annual meeting, and will pass along these findings to OPCOM for consideration when preparing schedules for the upcoming operational period. The guiding principle of SAS is that the best possible science be completed within IODP, and CDPs will compete for access to IODP resources with other programs on this basis.

IODP planning may also require multi-year advance scheduling of some drilling assets for optimal coordination of CDP efforts with other drilling activities. This will require corporate memory that goes beyond the generally recognized rotation schedules of members of the SPC and the SSEPs.

~~7.7 Management of CDP Drilling through Time~~

The management of CDPs is ~~necessarily complex~~ must be carefully conducted. Once a CDP has been approved for drilling, a CDP project team will be set up, with representatives from the proponent group(s), advisory panels, and the IMI, under the overall responsibility of a project coordinator (this may or may not be a proponent, depending upon circumstances) chosen by the SPC and approved by IODP management ~~(this may or may not be a proponent, depending upon circumstances)~~. The project team will review CDP progress annually, and report such progress to the SAS, and in particular the OPCOM. OPCOM will not only have representatives from the SPC, but have representatives from the IOs, the IMI, as well as any logistical and riser DPGs that might be involved with CDP planning. OPCOM may also have industry representatives who have experience with complex multi-platform operations.

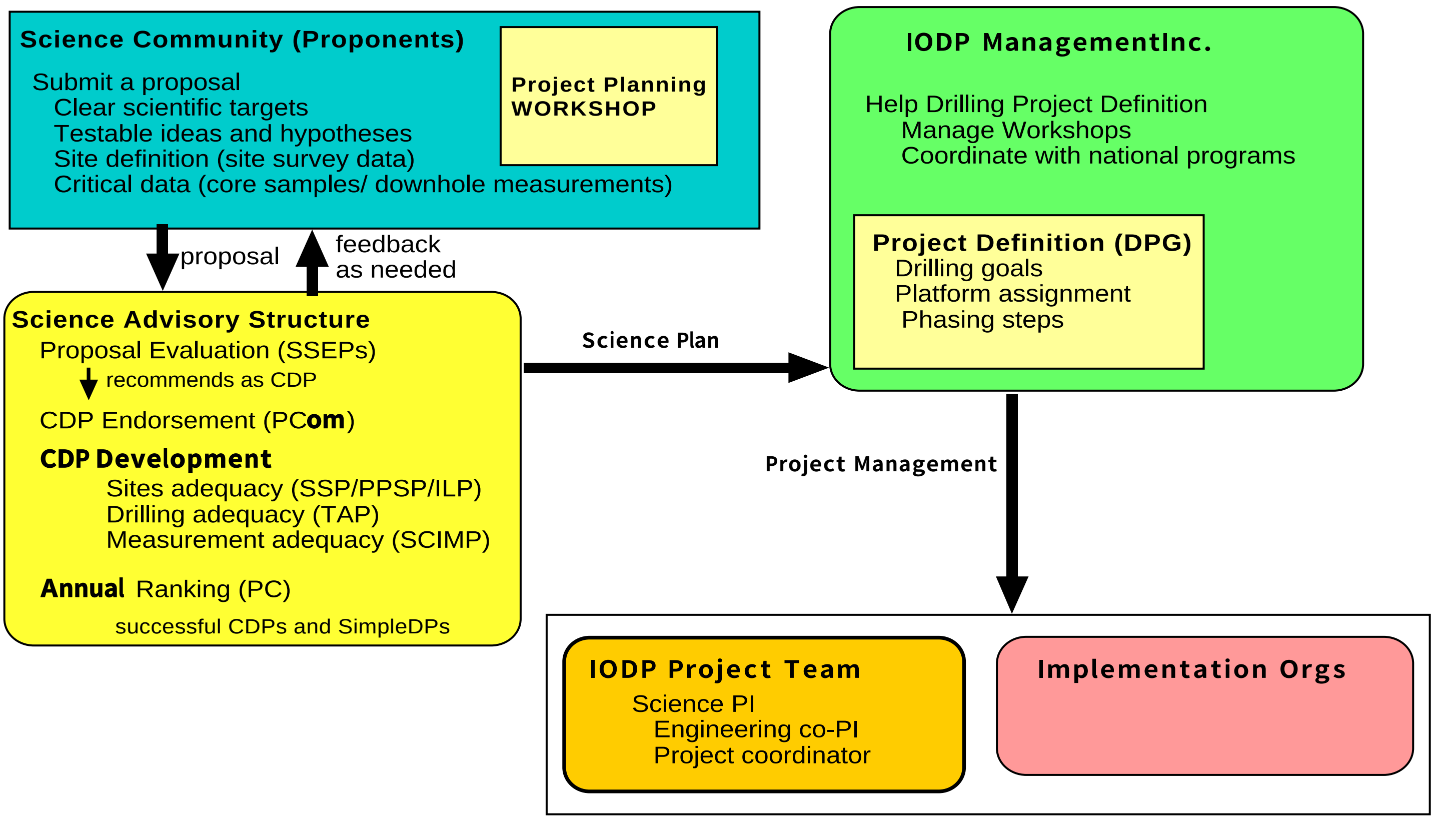
CDPs represent an end-member case of a larger task, which will face the IODP SAS each year in IODP: fostering the efficient use of the diverse drilling capabilities available to the program. In addition to nurturing proposals with proponents and prioritizing important science for drilling, SAS will monitor use of IODP drilling and related technical capabilities continuously, in conjunction with the IOs and the IMI. Annual evaluation will occur prior to scheduling of drilling and technical assets for the following year.

8. APPENDICES

Appendix IV – List of Acronyms

ANTOSTRAT	???
APL	Ancillary Project Letter
CDP	Complex Drilling Proposal
CMO	Central Management Office
COMPLEX	Conference on Multiple Platform Exploration of the Ocean
CONCORD	Conference on Cooperative Ocean Riser Drilling
COSOD	Conference on Scientific Ocean Drilling
DPG	Detailed Planning Group
DSDP	Deep Sea Drilling Project
ECORD	European Consortium for Ocean Research Drilling
ILP	Industry Liaison Panel
IO	Implementing Organisation
IODP	Integrated Ocean Drilling Program
IPOD	International Phase of Ocean Drilling
ISP	Initial Science Plan
IWG	International Working Group
JAMSTEC	Japanese Marine Science and Technology Center
JOI	Joint Oceanographic Institutions Inc.
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
MEXT	Ministry of Education, Culture, Sports, Science and Technology (Japan)
NSF	National Science Foundation (USA)
ODP	Ocean Drilling Program
OPCOM	Operations Committee
PDF	Portable Document Format
POCs	Platform Operating Costs
PPG	Program Planning Group
PPSP	Pollution Prevention and Safety Panel
SAS	Science Advisory Structure
SOCs	Science Operating Costs
SPC	Science Planning Committee
SSEP	Science Steering and Evaluation Panel
SSP	Site Survey Panel
TAP	Technology Advisory Panel

Handling Complex Drilling P**roject P**roposals



iSAS interim Planning Committee
5th meeting, 13-14 September 2003

Hokkaido University

Sapporo, Hokkaido, JAPAN

TAB7

Interim Science Advisory Structure – Recommendations to IODP

September 2003

The interim Science Advisory Structure has been functioning during the transition period between ODP and IODP to provide science advice and program planning preparatory to the start of IODP in October 2003. Meetings of the interim service panels and interim Planning Committee have generated a number of recommendations concerning program administration and technical procedures. A number of iSAS recommendations have already been accepted and acted upon, while several are still pending. This document describes pending recommendations and their current status, and is intended to serve as the official transmittal of these recommendations to IODP and the SAS.

interim Planning Committee (iPC) RECOMMENDATION

1. Develop a set of environmental principles for IODP

iPC Consensus 3-4: iPC recommends that IWG develop a set of environmental principles for addressing potential public concerns about the impact of IODP activities, for raising the awareness of all IODP participants toward such concerns, and for providing clear and consistent operating guidelines for all IODP contractors.

2. Adopt the following principles of scientific investigation

iPC Motion 3-14: the iPC recommends that IODP adopt the following principles of scientific investigation.

1. The Integrated Ocean Drilling Program (IODP) is an international scientific research program that investigates important questions in the study of the Earth.
2. Science plans for IODP will be formulated and developed by the international scientific ocean drilling community through the IODP science advisory structure.
3. IODP investigations will be based on unsolicited proposals that address objectives of the IODP Science Plan or other outstanding new research ideas.
4. The IODP science advisory structure, composed of internationally representative committees, panels and working groups, will provide science advice to IODP management through a planning committee and policy advice through the executive authority.
5. The executive authority of the science advisory structure will be the lead policy-making body of IODP and will establish science committees and panels as needed.
6. All panels and working groups providing scientific and technical advice to IODP will report through a lead science planning committee to the executive authority.
7. The lead science planning committee will provide scientific and technical advice to IODP, guidance to proponents, and evaluation of proposals to conduct future drilling projects. The lead science planning committee may recommend policy changes to the executive authority.
8. The IODP science advisory structure will evaluate proposals for scientific ocean drilling in a fair and unbiased manner that avoids conflicts of interests.

9. The IODP science advisory structure will provide advice to IODP management regarding scientific priorities of proposed drilling and of technical needs.
10. IODP policies and procedures and the recommendations of the IODP advisory panels and committees will be openly available to the public.
11. IODP scientific ocean drilling projects will be undertaken by teams of scientists selected by IODP. IODP management and the platform operators in consultation with the science advisory structure will make decisions concerning the scheduling and staffing of drilling projects.
12. IODP will provide open access to all samples and data collected and produced during a drilling project once the members of the scientific party have had a reasonable opportunity to complete their initial studies.

3. Supports the concept that robust international participation is crucial to the long-term success of IODP

iPC Motion 4-17: The iPC supports the concept that robust international participation is crucial to the long-term success of IODP. The iPC further recognizes the potential scientific contributions of scientists from countries and/or consortia seeking membership in IODP and therefore supports their involvement at the Science Planning Committee level, at least as observers, until such time as their funding commitment to IODP is assured.

4. Develop mandate for Operations Committee (OPCOM)

iPC Consensus 3-16: the iPC establishes an *ad hoc* working group to develop a mandate for an operations committee in the future IODP advisory structure. The working group will consist of Keir Becker, Hisao Ito, Philippe Pezard, Nick Pisias, Alister Skinner, and Asahiko Taira, and they will report their recommendations at the next iPC meeting in March 2003.

iPC Motion 4-18: The iPC accepts the revised Section 4 of the IODP OPCOM mandate, on participants counting toward consensus and quorum, as proposed by the OPCOM working group.

iPC Consensus 4-19: The iPC accepts the revised Sections 1, 2, 3, 5, and 6 of the IODP OPCOM mandate proposed by the OPCOM working group.

5. Terms of service for SPC chair and vice-chair

iPC Motion 4-22: The iPC recommends that the Science Planning Committee should have a chair and vice-chair who serve a total term of four years, with the chair replaced by the vice-chair and a new vice-chair appointed every two years.

interim Site Survey Panel (iSSP) RECOMMENDATIONS

1. Develop a two-tiered approach to site surveys in support of riser-based drilling:

iSSP Recommendation 02-1-1: The iSSP recognizes that the site-survey data required for riser drilling is considerably more comprehensive than previously required for non-riser drilling. In particular, high-resolution, 3-D surveys of the shallow subsurface will be required for safety purposes and most likely to satisfy regulatory agencies as well. This will require a two-tier process, with separate requirements to satisfy (1) scientific criteria for site selection in the proposal and (2) safety and regulatory criteria for drilling. We recommend that high resolution, 3-D survey data in support of drilling fall under the purview of IODP and be included in the planning and funding process.

iPC Consensus 2-4: The iPC has received and discussed iSSP Recommendation 02-1-1 on the need for a two-tiered approach to site surveys in support of riser-based drilling. We note that the IWG has agreed that appropriate science operations costs include on the need for a two-tiered approach to site surveys in support of riser-based drilling. "engineering or geophysical surveys required for hole design or evaluation of drilling safety during final site selection." We also note, however, that the need for complex, high-resolution, 3-D imaging in support of IODP activities may extend beyond riser-based drilling. Therefore, the iPC urges the iSSP to continue examining this issue.

2. A thorough evaluation of the requirements and procedures of an IODP seismic data bank:

iSSP Recommendation 02-1-2: The future IODP data bank is to have the capability of accessing all future data and interpretations for riser, non-riser and MSP projects remotely accessible in digital/electronic form, and to have all shipboard data packages assembled in the form of "projects." Importing existing data, handling proprietary data and largely analog data are handled within such a system. We recommend that a systematic review of how this data bank can best serve the processes of proposal and site-survey data review and support of drilling activities be undertaken immediately. This includes a re-evaluation of the necessary data types to be imported, managed and maintained by the data bank. Technical assistance required for support and management of the data center also needs to be carefully assessed.

iPC Consensus 2-5: The iPC recognizes the need identified in iSSP Recommendation 02-1-2 for a thorough evaluation of the requirements and procedures of an IODP data bank. We request that the iSSP complete such an evaluation and report the results at our next meeting in August 2002. The iSSP report should include recommendations concerning (1) the requirements for digital versus analog data, (2) allowable data formats, specified by type (i.e., seismic, bathymetric, hydrographic, etc.) and form (both analog and digital), (3) the mechanisms and timing of communications with IODP panels and proponents, and (4) facilities, hardware, software, and personnel required for creating and operating an IODP data bank that meets the needs of a diverse, international community.

iSSP Reply:
Regional characterization of an area to develop the scientific rational of a proposal is the responsibility of the proponents.
Site specific survey for safety, engineering is the responsibility of the drilling program.
Engineering or geophysical survey required for the whole design or evaluation of drilling safety during the final site selection (by iSSP meeting minutes July 2002)

iPC Consensus 3-3: the iPC approves the iSSP plan to form a working group for developing the procedures and requirements for an IODP databank. The working group should prepare a report for the next iPC meeting in March 2003.

iPC Motion 4-7: The iPC receives the iSSP data bank working group report and forwards it to IODP, and we thank the iSSP for completing the report on time.

iSSPs has established a working group—Matrix Working Group—per iPC's direction. The Matrix WG will report to iPC at its final meeting in September 2003.

interim Scientific Measurements Panel (iSciMP) RECOMMENDATIONS

1-a) Using digital core images for archiving purposes in IODP

SciMP Recommendation 01-2-02: SciMP recommends that iSciMP investigate using digital core images as the method for archiving core images in IODP.

iPC Consensus 2-3: The iPC accepts SciMP Recommendation 01-2-02 on using digital core images for archiving purposes in IODP, SciMP Recommendation 01-2-10 on maintenance of micropaleontology reference centers in IODP, and iSciMP Recommendation 01-1-1 on development of an IODP sample and data distribution policy. The iPC further encourages the iSciMP to address these topics at its next meeting.

1- b) Maintenance of micropaleontology reference centers in IODP

SciMP Recommendation 01-2-10: SciMP recommends that the role and maintenance of the Micropaleontology Reference Centers in the IODP structure be addressed by iSAS. Specific topics of concern include adequately supporting curation of the collections and exploiting curator's taxonomic and stratigraphic expertise in advancing program goals (*e.g.*, creation and vetting of dictionaries for paleontological applications, assembling reference sample sets, creation of digital image atlases, creation of stratigraphic databases). It is recognized that achieving these goals will not be likely under the current *ad hoc* funding of the MRC effort.

Accepted by **iPC Consensus 2-3** (see above)

1-c) Development of an IODP sample and data distribution policy

iPC Motion 1-06: The interim Planning Committee recommends that IODP adopt a sample and data distribution policy based largely on current ODP policy. The interim Planning Committee requests the interim Scientific Measurements Panel (iSciMP) to review the current ODP sample and data distribution policy, as a panel and through a working group if necessary, and report to the interim Planning Committee with a revised policy for review, discussion, and possible adoption.

iSciMP Recommendation 01-1-1
iSciMP recognizes the novel difficulties presented by IODP, particularly with respect to potential commercial spin-offs associated with sampling the deep biosphere. Given the open access and sharing principles of IODP, iSCIMP requests that IWG address those complex issues urgently, possibly through a specialist sub-group. Feedback to iSCIMP on this will help iSCIMP address iPC Motion 1-06 on developing a sample and data distribution policy for IODP. The ownership of samples and sub-samples (often at the molecular level) is probably pertinent.

Accepted by **iPC Consensus 2-3** (see above)

Action Items of June 2002 iSciMP meeting**:**

1) Sanny Saito and Dave Smith will modify Sample and Data Distribution Policy for IODP. Due July 15 to Eiichi and Jamie for distribution for comments.

iPC Motion 3-15: the iPC accepts the sample and data distribution policy from iSciMP as a working draft. We remind the iSciMP that the IWG has requested a report from the iPC on the final draft policy in January 2003.

iPC Motion 4-9: The iPC approves the sample and data policy received from iSciMP and forwards it to IODP.

iSciMP Action 03-01-4: Revisit IODP Sample and Data Policy with regard to linking obligations to publication policy.

2-a) Archiving of core images

iSciMP Recommendation 02-1-1: iSciMP notes that archived, accurate color renditions of core are essential for IODP science and legacy. iSciMP recommends that this is most effectively accomplished by the current ODP methods of a color film archive with color accuracy obtained by scanning and digital correction.

iSciMP Recommendation 02-1-2: Digitally acquired core images may serve as the core image archive when CCD brightness, dynamic range, and size of color space equals or exceeds that of color film.

iPC Consensus 3-5: the iPC receives iSciMP Recommendations 02-1-1 and 02-1-2 on the archiving of core images, iSciMP Recommendation 02-1-3 on the hard-rock working group report, iSciMP Recommendation 02-1-4 on shipboard reference collections, and iSciMP Recommendation 02-1-5 on the OD21 core description and database visualization system. We hereby forward these recommendations to IODP.

2-b) Accept the hard-rock working group report

iSCIMP Recommendation 02-1-3 iSCIMP endorses the principles and goals articulated by the SCIMP Hard Rock Working Group report (May 2002) and recommends that these goals be realized for all rock and sediment types.

Received by **iPC Consensus 3-5** (see above)

2-c) Shipboard reference collections

iSCIMP Recommendation 02-1-4 To improve the stratigraphic quality and consistency of shipboard biostratigraphy in IODP, iSCIMP recommends that shipboard reference collections of Mesozoic and Cenozoiccmicrofossils as well as digital image atlases and stratigraphic databases are needed and should be available for all IODP platforms and laboratories.

Received by **iPC Consensus 3-5** (see above)

2-d) OD21 core description and database visualization system

iSCIMP Recommendation 02-1-5 iSCIMP applauds the progress made in developing the OD21 integrated core description and data visualization system. iSCIMP recognizes the value of a common core description and data visualization system for the IODP, and that the OD21 integrated system could become the common system used by all IODP platforms and laboratories

Received by **iPC Consensus 3-5** (see above)

3. Establishment of ad hoc **database working group**

iSciMP Recommendation 02-2-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

iPC Consensus 3-16: the iPC establishes an *ad hoc* working group to develop a mandate for an operations committee in the future IODP advisory structure. The working group will consist of Keir Becker, Hisao Ito, Philippe Pezard, Nick Pisias, Alister Skinner, and Asahiko Taira, and they will report their recommendations at the next iPC meeting in March 2003.

iPC Consensus 4-10: The iPC approves iSciMP Recommendation 02-2-2 to establish an *ad hoc* database working group.

Recommendation 03-01-2: iSciMP recommends to iPC acceptance of the Database Working Group report, and requests iPC distribute it to the IO's and IMI as soon as possible. The full report of the WG is found in Appendix 4.

4-a) Establish a database operator in IODP

iSciMP Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

iPC Consensus 4-12: The iPC receives iSciMP Recommendation 02-2-1 on establishing a database operator in IODP, Recommendation 02-2-4 on standardizing the diameter of drill pipe used on IODP platforms, Recommendation 02-2-5 on development of the JAMSTEC anti-contamination drilling and sampling tool, and Recommendation 02-2-6 on formalizing the link between iSciMP and the iSSEPs, and we forward these recommendations to IODP.

4-b) Standardize the diameter of drill pipe used on IODP platforms

iSciMP Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.
Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Received by **iPC Consensus 4-12** (see above)

4-c) Endorse the development by JAMSTEC of the anti-contamination drilling and sampling tool

iSCIMP Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anticontamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.
Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining noncontaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Received by **iPC Consensus 4-12** (see above)

4-d) Formalize the link between iSciMP and the iSSEPs

iSCIMP Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.
(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.
(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives
(e) ISAS policy regarding conflict of interest will be closely adhered to.

Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future. It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Received by **iPC Consensus 4-12** (see above)

interim Technical Advice Panel (iTAP) RECOMMENDATIONS

1. Conduct a study of pipe diameter capabilities on the non-riser vessel

iTAP Recommendation 03-1: iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (*e.g.*, core quality, core volume, tool deployment) and costs of outfitting the JRreplacement to be able to handle up to 6-5/8" drillpipe. iTAP will provide a recommended work statement to ODP.

iPC Motion 4-13: The iPC accepts iTAP Recommendation 03-1 on conducting a study of pipe diameter capabilities on the non-riser vessel.

2. Develop a hole problem risk mitigation plan

iTAP Recommendation 03-2: iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program. The plan should include near-real-time analyses during the drilling program that uses real-time drilling parameters. These parameters should also be captured into the IODP database to be used to improve future drilling plans.

iPC Motion 4-14: The iPC accepts iTAP Recommendation 03-2 on developing a hole-problem risk mitigation plan.

3. Ask ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation

iTAP Recommendation 03-3: iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP. iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

iPC Motion 4-15: The iPC accepts iTAP Recommendation 03-3 on asking ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation. The iTAP will define the scope of this evaluation and would like to review the results at its next meeting in July 2003.

4. Development of Project Management System Working Group

iTAP Recommendation 03-4: iTAP recommends the formation of an IODP working group that will develop a project-based management planning system. The system will be similar to those used by the petroleum exploration industry. It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project. This Project Management Working Group would be charged with developing the project management system by June 2003. Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representative.

iPC Motion 4-20: The iPC accepts iTAP Recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iSSEPs, iPC or SPC, the OPCOM working group, CDEX, and industry project managers. The system should be developed by June 2003.

5. Development of Project Scoping Working Group

iTAP Recommendation 03-5: iTAP recommends the formation of a Detailed Planning Group (or a Project Scoping Group) to begin the scoping process for complex drilling programs that are currently planned to address seismogenic zone objectives, as an interim measure. The scoping process includes project description (based on the existing proposals in the system), risk analyses, preliminary cost estimates, and project planning. Proposed membership: proponent representative(s), CDEX representative, project management advisor, risk identification specialist, well engineer.

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

IODP Active Proposal List

Proposal #		as of Apr 03	Short Title	Lead Proponent
455	-	Rev3	Laurentide Ice Sheet Outlets (LISO)	Piper
477	-	Full3	Okhotsk/Bering Plio-Pleistocene	Takahashi
478	-	Full4	Eastern Nankai Subduction	Tokuyama
482	-	Full3	Wilkes Land Margin	Escutia
489	-	Full3	Ross Continental Shelf	Barrett
491	-	Full3	Cretaceous S. Atlantic Accretion	Hinz
503	-	Full2	Weddell Basin	Jokat
505	-	Add3	Mariana Convergent Margin	Fryer
512	-	Full3	Oceanic Core Complex	Blackman
513	-	Full2	Scott Plateau Paleoceanography	Opdyke
514	-	Full4	Maldives Sea Level	Droxler
515	-	Full	Black + Marmara Seas Sediments	Flood
519	-	Full2	South Pacific Sea Level	Camoin
531	-	Pre2	Max Spreading Rate Core Complex	Snow
532	-	Full	Kane Megamullion	Tucholke
533	-	Full3	Arctic-Lomonosov Ridge	Backman
535	-	Full2	735B Deep	Dick
537	-	CDP2	Costa Rica Seismogenic Zone Overview	von Huene
537A	-	Full2	Costa Rica Seismogenic Zone Stage 1	von Huene
539	-	Full2	Blake Ridge Gas Hydrates	Holbrook
541	-	Full	Chilean Fjord Sediments	Anderson
542	-	Pre	Hikurangi Plateau LIP (SW Pacific)	Mortimer
543	-	Full2	CORK in Hole 642E	Harris
545	-	Full3	Juan de Fuca Flank Hydrogeology	Fisher
547	-	Full4	Oceanic subsurface biosphere (OSB)	Fisk
548	-	Full2	Chixculub K-T Impact Crater	Morgan
549	-	Full4	Northern Arabian Sea Monsoon	von Rad
550	-	Full	Carbonate Clinoforms, NW Aust/.	Bradshaw
551	-	Full	Hess Deep Plutonic Crust	Gillis
552	-	Full3	Bengal Fan	France-Lanord
553	-	Full2	Cascadia Margin Hydrates	Hyndman
554	-	Full4	Gulf of Mexico Hydrates	Kennicutt
555	-	Full3	Continental Collision, Crete	Kopf
556	-	Pre	Malvinas Confluence	Wefer
557	-	Full2	Storegga Slide Gas Hydrates	Andreassen
560	-	Full	Return to Woodlark Basin 1108	Taylor
561	-	Full3	Caribbean Large Igneous Province	Duncan
562	-	Full2	J Anomaly Ridge Transect	Norris
564	-	Full	New Jersey Shallow Shelf	Miller
565	-	Pre	Eucla Carbonate Platform	Feary
566	-	Full3	Nankai Trough Gas Hydrates	Ashi
567	-	Full	South Pacific Paleogene	Rea
568	-	Pre	Northern Nicaragua Rise	Droxler
569	-	Full	CO2 Sequestration	Goldberg
570	-	Full	East Pacific Rise Crust	Haymon
572	-	Full3	Late Neogene-Quaternary climate records	Channell
573	-	Full2	Porcupine Basin Carbonate Mounds	Henriet
574	-	Full	Rainbow Hydrothermal Field, Mid Atlantic Ridge	Fouquet
575	-	Full3	Gulf of Aden African Climate	deMenocal
576	-	Pre2	S. Barbados Accretionary Prism	Deville
578	-	Pre	Marmara Sea Gateway	Hiscott

IODP Active Proposal List

Proposal #		as of Apr 03	Short Title	Lead Proponent
579	-	Pre	Pacific Climate Variability - Skan Bay	Anderson
581	-	Full2	Late Pleistocence Coralgal Banks	Droxler
584	-	Full2	TAG II Hydrothermal	Rona
586	-	Full2	Hawaiian Coral Reefs and Basalts	Rubenstone
587	-	Pre	Gulf of Mexico Mini-Basin	Nelson
588	-	Full	Arctic-Atlantic Cretaceous Gateway	Gradstein
589	-	Full3	Gulf of Mexico Overpressures	Flemings
590	-	Pre	Coop. JOIDES-Industry GoMex	Armentrout
591	-	Full	Conical/Desmos Hyd., PNG	Herzig
592	-	Pre2	Shallow Water Dogger Bank	Andriessen
593	-	Full	Gulf of Mex. Neogene Climate	Flower
595	-	Add	Indus Fan Riser + Non-Riser	Clift
596	-	Pre2	Rockall-Hatton Cretaceous Hotspot	Morrissey
597	-	Full	S. Alaska High-resolution Sediments	Jaeger
600	-	Pre	Canterbury Basin	Fulthorpe
601	-	Pre	Iheya Ridge	Takai
602	-	Full	Tropical Epeiric Seas	Edgar
603	-	CDP2	NanTroSEIZE Overview	Kimura
603A	-	Full2	NanTroSEIZE Reference Sites	Underwood
603B	-	Full	NanTroSEIZE Mega-Splay Faults	Kinoshita
604	-	Pre	Ulleung Basin	Lee
605	-	Pre	Asian monsoon	Tada
606	-	Pre	Mesozoic Greenhouse	Nishi
607	-	Full	New Jersey Slope	Dugan
608	-	Pre	NW Pacific/ Cretaceous Greenhouse	Hasegawa
609	-	Pre	Himalaya-Bengal system	Spiess
610	-	Full2	W Florida Margin	Mallinson
611	-	Pre	Pacific Warm Pool	Stott
612	-	Full	Geodynamo	Yamazaki
613	-	Pre	NW Pacific Margin Transect	Hoyanagi
614	-	Pre2	Izu-Bonin Arc	Tamura
615	-	Pre	NW Pacific Coral Reefs	Matsuda
616	-	Pre	North Carolina Margin	Bralower
617	-	Pre	Hudson Bay and Strait	White
618	-	Full	East Asia Margin	Clift
619	-	Pre	Indian Southern Ocena Latitudinal Transect	Mackensen
620	-	Pre	Hotspot Seamounts	Sager
621	-	Pre	Monterey Bay Observatory	McNutt
622	-	Pre	Chilean Fjords	Dunbar
623	-	Pre	Ontong Java Plateau	Neal
624	-	Pre	Atlatic Southern Ocean Paleoclimate	Pudsey
625	-	Pre	Pleistocene Pacific Southern Ocean	Gersonde
626	-	Full	Pacific Equatorial Age Transect	Pälike
627	-	Pre	Clipperton Atoll	Linsley
628	-	Pre	Barents Sea Impact Crator	Dypvik/Tsikalas
629	-	Full	Chamorro Seamount Deep-biosphere	Inagaki
630	-	Pre	Magellan and Manihiki Plateaus	Erba
631	-	Pre	ION Observatories	Stephen
632	-	Pre	Lamont Seamount	Lundstrom
633	-	Pre	Middle America Slope	Brueckmann

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for
Ocean Research Drilling

Enclosure 5A2

1st IODP Science Planning and Operations Committees Meeting

by courtesy of Junko Nishimura

Hokkaido University
Sapporo Hokkaido, Japan
15 – 19 September 2003

HAKUHOMARU
R/V HAKUHO

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15 September 2003

Dear SPC and OPCOM members, liaisons, and guests,

Welcome to Sapporo on the beautiful island of Hokkaido, and the inaugural scientific advisory structure meetings of an exciting new era in scientific ocean drilling. Years of effort by a diverse international array of individuals, both scientists and non-scientists, have paid off, and we are now embarking on a program that will illuminate the Earth in ways unimaginable until only recently. We are especially grateful to the visionaries who first dreamed of scientific ocean drilling, to those who have made it happen since the late 1960s, and to the movers and shakers who have led us into IODP. In particular, the scientists of the IODP Planning Sub-Committee (IPSC) and the interim Planning Committee (iPC) have set a well-prepared stage for our work.

Co-leadership of IODP by Japan and the United States will be a novel experience for all of us, and one that promises both fertile science and enhanced cultural understanding. Although English is IODP's working language, it is not the native language for the majority of scientists in the IODP science advisory structure (SAS); hence, we must strive constantly to ensure fairness and balance in communication throughout our proceedings. To that end, we ask your patience, understanding, and ingenuity in maximizing comprehension and contributions by all SAS members.

As IODP activities gradually ramp up over the next several years, we will be faced with many opportunities and challenges in ensuring that the best science happens. The scientific ocean drilling community has an excellent track record in responding to such opportunities and challenges, and we will make every effort to sustain and embellish that record. The national committees have selected outstanding scientists to serve in SAS, and I am grateful that you are volunteering your time and expertise to be here. This first IODP ranking and scheduling exercise that we are poised to undertake marks the beginning of a bright new future for scientific ocean drilling.

Sincerely yours,

Mike Coffin

Meeting Logistics

MEETING DATES & TIMES

September 13	PANCH	8:30~12:00
	iPC	1300~17:00
September 14	iPC	8:30~17:00
September 15	SPC	8:30~17:00
September 16	Excursion	10:00~16:00
	Discussion	
September 17	SPC	8:30~17:00
September 18	SPC	8:30~12:00
	OPCOM	12:00~17:00
September 19	SPC	8:30~17:00

MEETING HOST

Dr. Noriyuki Suzuki
Professor, Faculty of Science, Hokkaido University
suzu@ep.hokudai.sc.jp

Dr. Toru Nishikawa
Advanced Earth Sciences & Technology Organization (AESTO)
nishikaw@hq.aesto.or.jp

GROUND TRANSPORTATION

From Shin-Chitose (Sapporo) Airport to Sapporo downtown:

TRAIN (36 minutes): JR (Japan Railway) train leaves every 15 minutes from Shin-Chitose Airport station, which is located in the underground level of the airport building, between 7:00 am and 10:00 pm. The fare is 1,040 yen for one way. Get off at Sapporo station.

BUS (70 minutes): Buses leave every 10 minutes from Shin-Chitose Airport. It takes about 70 minutes to Royton Sapporo. The fare is 820 one way.

TAXI (60 minutes): The fare is about 15,000 yen.

LODGING ACCOMMODATIONS

A. Sapporo Aspen Hotel (Kita 8 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-700-2111
B. Sapporo Dai 1 Washington Hotel (Kita 4 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-251-3211
C. Sapporo Clark Hotel (Kita 13 Jo Nishi , Kita-ku, Sapporo) Tel:011-716-7772
D. Hotel Dynasty (Kita 10 Jo Nishi 4, Kita-ku, Sapporo) Tel:011-756-7733

FIELD TRIP

Date & Time: September 16, 10:00 ~ 16:00
Cost: 6,000 YEN per person (will be collected at the iSAS/IODP meetings)
History of Sapporo Tour:
Hokkaido University - Sapporo City Archive Museum - Hokkaido Shrine - Sapporo Factory (Sapporo Kaitakushi Brewery & LUNCH) - Historical Museum of Hokkaido - Hokkaido University
*If you want to participate in this Excursion Tour, please choose "Yes" in online application form.

BANQUET

Date & Time: September 16, 18:00 ~ 20:00
Location: Restaurant "Elm" in the Faculty House Enreiso (located at 100 m north of the meeting room in Faculty of Science)
Cost: 6,000 YEN per person (will be collected at the iSAS/IODP meetings)
*If you want to participate in this Banquet, please choose "Yes" in online application form.

CTY INFORMATION DESK

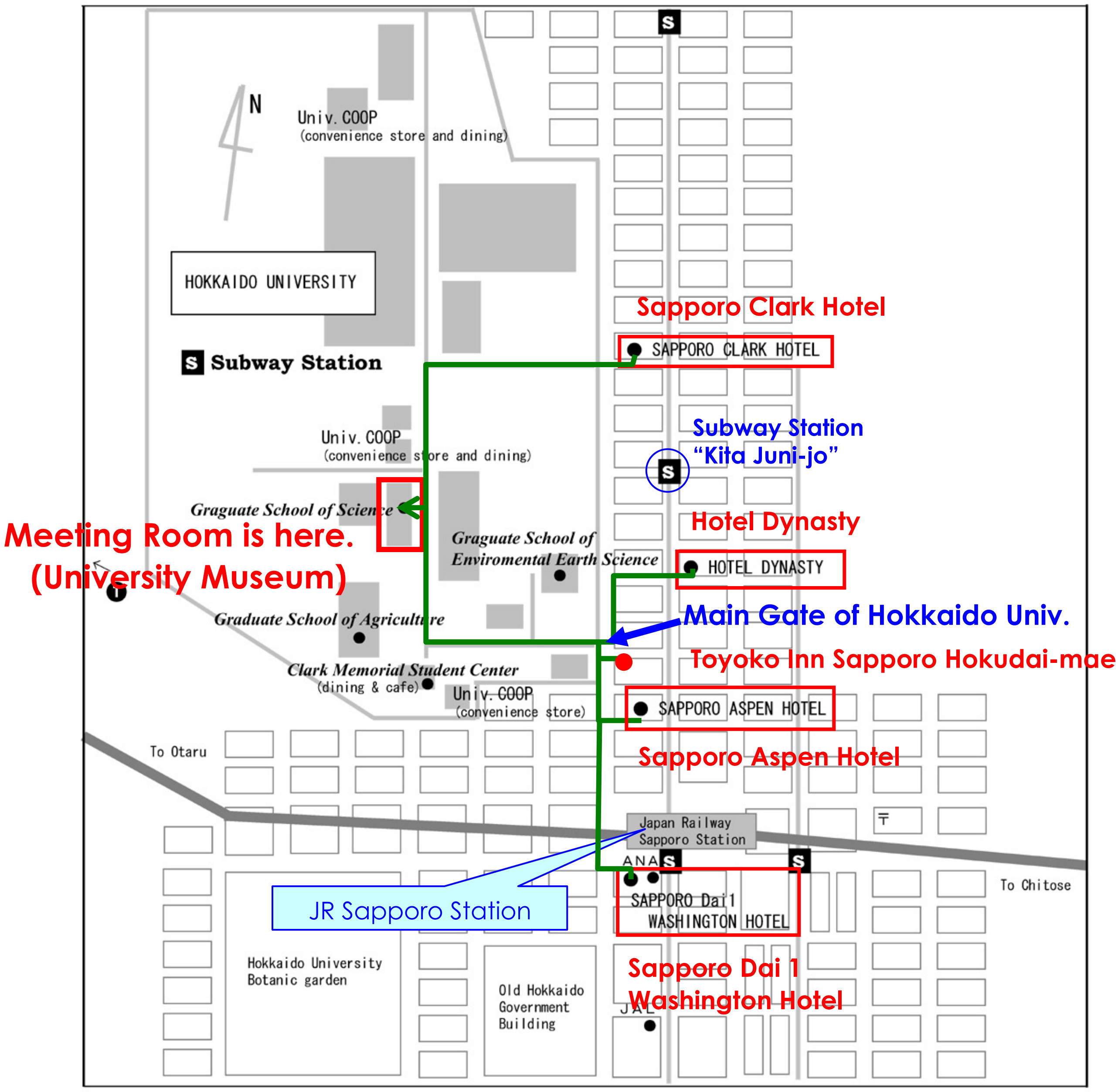
The Sapporo City Information Desk is located on the 1st floor of the JR Sapporo Station Complex, open from 9:00 to 17:30. If you have problems (getting lost at the airport, around town, etc.), please call 011-209-5030. The desk staff will be there to help you.

CLIMATE

The Sapporo's weather in September is generally cool and dry; the average temperature ranges between 17°C and 26°C, and average precipitation is 140 mm per month.

For general information of Sapporo, please visit **http://www.global.city.sapporo.jp/index.html**

From Hotels to Hokkaido University



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http://www4.city.sapporo.jp/cgi-bin/global/accom/accom.cgi

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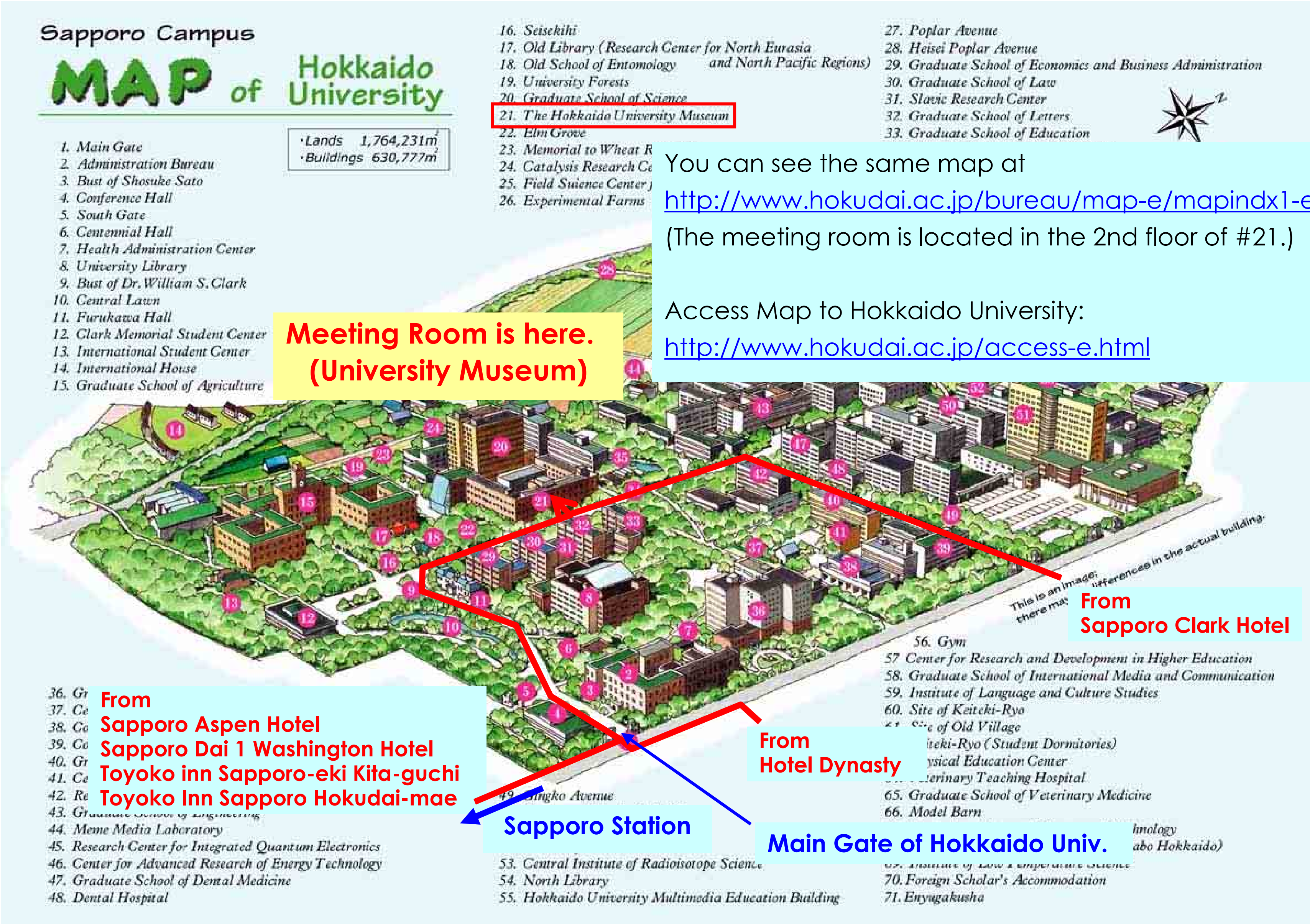

You can see the same map at

http://www.hokudai.ac.jp/bureau/map-e/mapindx1-e.htm

(The meeting room is located in the 2nd floor of #21.)

Access Map to Hokkaido University:

http://www.hokudai.ac.jp/access-e.html

IODP Science Planning Committee

1st Meeting, 15-19 September 2003

Hokkaido University
Sapporo, Japan

Science Planning Committee - SPC

Jamie Austin**	Institute for Geophysics, University of Texas at Austin, USA
Keir Becker	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Donna Blackman[a]	Scripps Institution of Oceanography, University of California, San Diego, USA
Tim Byrne[b]	Department of Geology and Geophysics, University of Connecticut, USA
Mike Coffin (chair)	Ocean Research Institute, University of Tokyo, Japan
Bob Duncan*	College of Oceanic & Atmospheric Sciences, Oregon State University, USA
Andy Fisher	Department of Earth Sciences, University of California, Santa Cruz, USA
Don Fisher[c]	Department of Geosciences, Pennsylvania State University, USA
Hisao Ito	Geological Survey of Japan
Kenji Kato	Institute of Geosciences, Shizuoka University, Japan
Hodaka Kawahata	Geological Survey of Japan
Ken Miller	Department of Geological Sciences, Rutgers University, USA
Ted Moore (vice-chair)	Department of Geological Sciences, University of Michigan, USA
James Mori	Disaster Prevention Research Institute, Kyoto University, Japan
Nick Pisias[d]	Joint Oceanographic Institutions, Inc. (JOI), USA
Warren Prell[e]	Department of Geological Sciences, Brown University, USA
Terry Quinn	Department of Marine Science, University of South Florida, USA
Wonn Soh	Japan Marine Science and Technology Center (JAMSTEC), Japan
Yoshiyuki Tatsumi	Japan Marine Science and Technology Center (JAMSTEC), Japan

[a]Alternate for Andy Fisher during proposal review and ranking, if Proposal 512 does not come forward.
[b]Alternate for Jamie Austin.
[c]Alternate for Keir Becker during proposal review and ranking.
[d]Alternate for Bob Duncan.
[e]Alternate for Ken Miller during proposal review and ranking.
**Attending as interim IMI director.
*Unable to attend.

Guests

Jamie Allan	National Science Foundation (NSF), USA
Jack Baldauf	JOI Alliance, Texas A&M University, USA
Rodey Batiza	National Science Foundation (NSF), USA
Steve Bohlen	Joint Oceanographic Institutions, Inc. (JOI), USA
Gilbert Camoin (iESSEP)	CEREGE-CNRS, France
Harry Doust (iILP)	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
André Droxler (iSSP)	Department of Earth Science, Rice University, USA
Rob Dunbar (IMAGES)	Department of Geological and Environmental Sciences, Stanford University, USA
John Farrell	Joint Oceanographic Institutions, Inc. (JOI), USA
Jeff Fox	JOI Alliance, Texas A&M University, USA
Ulrich Harms (ICDP)	GeoForschungsZentrum Potsdam, Germany
Peter Herzig (iPC)	Institut für Mineralogie, Technische Universität Bergakademie, Freiberg, Germany
John Hogg (iILP)	EnCana Corporation, Canada
Benoît Ildefonse (iPC)	Laboratoire de Tectonophysique, ISTEEM, Université Montpellier II, France
Barry Katz (iPPSP)	ChevronTexaco, Energy, Research and Technology Company, USA
Yoshihisa Kawamura (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Jeroen Kenter (iPC)	Faculty of Earth Sciences, Vrije Universiteit, The Netherlands
Eiichi Kikawa (iSciMP)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Andrew Kingdon (ESO)	British Geological Survey, United Kingdom
Hajimu Kinoshita (iPC)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Chris MacLeod (iPC)	Department of Earth Sciences, Cardiff University, United Kingdom
Yoshihiro Masuda (iTAP)	Department of Geosystem Engineering, University of Tokyo, Japan

Tadao Matsuzaki (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Osamu Miyaki	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Kate Moran (iTAP)	Graduate School of Oceanography, University of Rhode Island, USA
Toru Nishikawa (Host)	Advanced Earth Science and Technology Organization (AESTO), Japan
Hisatake Okada (IMI)	Department of Earth Science, Hokkaido University, Japan
Kyoko Okino (iSSP)	Ocean Research Institute, University of Tokyo, Japan
Kiyoshi Otsuka (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Joanne Reuss	Department of Geological Sciences, University of Michigan, USA
Saneatsu Saito	Japan Marine Science and Technology Center (JAMSTEC), Japan
Izumi Sakamoto	International Working Group Support Office (IWGSO), USA
Michael Sarnthein (IMAGES)	Institut für Geowissenschaften, Universität zu Kiel, Germany
Takehiro Sasayama (OD21)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kiyoshi Suyehiro (IMI)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Noriyuki Suzuki (Host)	Department of Earth Science, Hokkaido University, Japan
Uko Suzuki (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Ryuji Tada (iPC)	Department of Earth and Planetary Science, University of Tokyo, Japan
Asahiko Taira (CDEX)	Japan Marine Science and Technology Center (JAMSTEC), Japan
Kozo Takahashi (iESSEP)	Department of Earth and Planetary Sciences, Kyushu University, Japan
Kensaku Tamaki (SPPOC)	Ocean Research Institute, University of Tokyo, Japan
Mariko Tanaka	Advanced Earth Science and Technology Organization (AESTO), Japan
Yasuhisa Tanaka	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Hidekazu Tokuyama (J-DESC)	Ocean Research Institute, University of Tokyo, Japan
Doug Wilson (ODP Leg 206)	Department of Geological Sciences, University of California, Santa Barbara, USA
Zuyi Zhou (iPC)	Department of Marine Geology and Geophysics, Tongji University, China

iSAS Office

Nobuhisa Eguchi	Japan Marine Science and Technology Center (JAMSTEC), Japan
Yayoi Komamura	Japan Marine Science and Technology Center (JAMSTEC), Japan
Jeff Schuffert	Japan Marine Science and Technology Center (JAMSTEC), Japan
Minoru Yamakawa	Japan Marine Science and Technology Center (JAMSTEC), Japan

SPC members

As of Aug 2003

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IODP MEMBERSHIP PRINCIPLES

1. Membership in the IODP is available to government and/or national agencies (or their representatives), which have an interest and capability in geoscience research.

2. Membership will be secured through signing of a memorandum of understanding between the government and/or national agency (or representative) and the Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the National Science Foundation (NSF).

3. Lead Agencies of the IODP, (presently MEXT and NSF), will have equal membership rights and responsibilities. Lead agencies will contribute core capabilities to the Program. Lead agencies will contribute equally to total Program costs.

4. An IODP Council will provide governmental oversight for all IODP activity. All countries, as well as member organizations representing countries, participating in the IODP will be represented on the Council.

5. Members will have the right to: (1) participate in all drilling cruises, (2) be represented on all planning and advisory panels, (3) be represented on IWG or its successor, (4) have access to data, samples, scientific and technical results. (5) Submit proposals to the advisory structure for drilling or engineering developments in support of IODP science, (6) etc.

6. Members will have the responsibility to: (1) actively participate in all aspects of the IODP, (2) ensure publication and sharing of scientific results, (3) participate in providing data and proposals for planning of drilling programs, (4) etc.

7. Based on present projection of total annual Program costs ($130-140M) for a two drilling vessel program, the financial contribution for membership in the IODP will be $5 million/year. Financial contributions from international partners will be commingled to support science operations costs. This contribution will entitle a member to one participation unit, with one participation unit equivalent to one member per panel and two scientific participants per “cruise leg,” or equivalent. More than two participants on a cruise leg may be acceptable as offset by reduced participation in other legs. A member may acquire additional participation units through a corresponding increase in financial contribution, and/or long-term provision of mission specific platforms. It is understood that the Lead Agencies will contribute equally to total Program cost and acquire additional participation units necessary to fully support the program. When the Program is established, associate membership status will be considered.

8. Membership will be based on a 10-year commitment, in principle, to IODP participation.

Principle accepted 13 June 2001 by IWG in Ottawa, Canada.

IODP PROGRAM PRINCIPLES

1. The IODP is a scientific research program with objectives identified in the IODP Science Plan. The results of the Program's scientific and engineering activities will be openly available.

2. The IODP is based on international cooperation and sharing of financial and intellectual resources.

3. Membership in the IODP is available to government and/or national agencies (or their representatives) which have an interest and capability in geoscience research.

4. The IODP will be guided by a science advisory structure, composed of scientists and engineers representing IODP members. The IODP science advisory structure will establish the appropriate panels to provide advice to IODP management on platforms and science operations.

5. The operation of two ocean drilling vessels (riser capable vessel and non-riser vessel) presently constitutes the core capability of the IODP.

6. The IODP will seek substantive cooperation with other earth and ocean sciences programs and initiatives.

7. Program costs will be determined by the IODP Lead Agencies (presently NSF and MEXT). The Lead Agencies will contribute equally to Program costs. Program costs are composed of platform operations costs and science operations costs[1]. Platform operations costs of the two primary vessels are to be the responsibility of MEXT and NSF. Mission specific platform operation costs will be the responsibility of the member(s) providing the platform. Members in the IODP (including MEXT and NSF) will contribute financially to support of the science operations costs.

8. Support of scientific research and development costs for shore-based analysis and research on IODP samples and data, and for non-routine downhole measurements, are the responsibility of member countries/agencies. Support of geophysical and geological research to prepare drilling proposals or identify drilling targets are also the responsibility of member countries/agencies.

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[1] Platform Operations Costs will support the basic operation of the vessel as a drillship, and will include, for example: (1) costs of the drilling and ship's crew, (2) catering services, (3) fuel, vessel supplies and other related consumables, (4) berthage and port call costs, (5) disposal of wastes, (6) crew travel, (7) inspections and insurance, (8) drilling equipment, supplies, and related consumables, (9) administration and management costs of the platform operators.
Science Operation Costs will provide for those activities onboard program platforms necessary to the proper conduct of the scientific research program and those shore-based activities required to properly maintain and distribute samples and data, support seagoing activities, and administer and manage the program. These costs will include, for example: (1) technical services, (2) computer capability, (3) data storage and distribution, (4) description, archiving, and distribution of data and samples, (5) deployment of a standard suite of logging tools, (6) development of new drilling tools and techniques required by IODP research, (7) program publications, (8) costs of consumables (exclusive of those identified under platform operations costs), (9) costs required for administration and management, including the Central Management Office, (10) engineering or geophysical surveys required for hole design or evaluation of drilling safety during final site selection.

Principle accepted 13 June 2001 by IWG in Ottawa, Canada.

IODP PRINCIPLES ON DRILLING PLATFORMS

1. The operation of two drilling vessels (riser capable vessel and non-riser vessel) presently constitutes the core capability of the IODP. The riser capable platform will be made available by MEXT and will be owned and operated by JAMSTEC, and the non-riser platform by the NSF.

2. Legal and financial responsibility including mobilization and platform operation costs for the riser capable vessel will reside with Japan and for the non-riser vessel with the United States.

3. Access to mission specific platforms (beyond the two primary vessels) will be required to meet specific objectives identified by the science advisory structure, but resources to support these activities have not been identified at this time.

4. Legal and financial responsibility, including mobilization and platform operation costs of mission specific platforms, is to reside with the organization(s) or country (ies) which make the decision to offer this additional capability to the Program. Provision of such a capability will not be considered a contribution in lieu of annual IODP membership contribution.

5. IODP commingled program funds will be used to support costs of science operations on IODP drilling platforms.

6. International participation in the science and operations of all IODP drilling platforms will be consistent with IODP program procedures.

Principle accepted 13 June 2001 by IWG in Ottawa, Canada.

IODP IMPLEMENTATION PRINCIPLES

SCHEDULE

1. IODP will begin officially on 1 October 2003. Membership and Program implementation will be effective from this date.

2. The first year of the program will be spent in detailed planning activities and preparing for drilling operations (engineering development, detailed site surveys, etc.). 2005 will begin operation of the non-riser vessel. 2006 will begin operation of the riser vessel.

INTERIM SCIENCE ADVISORY STRUCTURE (ISAS)

1. An Interim Science Advisory Structure (ISAS) for IODP will be organized beginning in June 2001 and will exist until 1 October 2003. ISAS will be a joint working group representing JOIDES and the OD21 Science Advisory Committee. The purpose of ISAS is to continue scientific planning for IODP.

2. Membership on ISAS committees will be nominated by JOIDES and the OD21 Science Advisory Committee. Representation on the committees and panels of ISAS is expected to be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members). It is expected that JOIDES and the OD21 Science Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations.

3. An Interim Planning Committee (IPC) will serve as the highest level committee and management authority for the ISAS and is expected to oversee and implement ISAS activity. Representation on IPC will be chosen from IWG members who are, in principle, seeking full IODP membership. The IPC will be responsible to the IWG for its guidance and direction and will report to the IWG. IPC will be co-chaired by the chairs of IPSC and the OD21 Science Advisory Committee.

4. IPC will encourage the international community to submit drilling proposals for IODP. The proposals will be examined and reviewed by ISAS, but final evaluation, ranking and scheduling will be conducted by the formal IODP Science Advisory Committee which will be established on 1 October 2003.

5. IWG will request IPSC to provide recommendations on the necessary committees and panels for ISAS, a schedule for their creation, and panel mandates by 1 January 2001.

6. ISAS committees are expected to meet in conjunction with their equivalent JOIDES committee.

Principle accepted 13 June 2001 by IWG in Ottawa, Canada.

IODP PRINCIPLE ON MANAGEMENT STRUCTURE

1. A Central Management Office (CMO) will develop and manage the implementation plans for the IODP science program. The CMO will have a formal arrangement with IODP Lead Agencies for this activity and will operate in the best interest of the IODP and all member organizations, without preference.

2. The principal task of the CMO is to receive advice on priorities and plans from the IODP Science Advisory Structure, to request plans, which are responsive to this advice from the IODP implementing organizations, and to submit an annual IODP plan to the Lead Agencies. The CMO will negotiate with the implementing organizations and the Science Advisory Structure to produce an annual IODP plan, which is consistent with budget guidance from the Lead Agencies.

3. Implementing organizations will have primary responsibility for the management of the Program's facilities, operational capabilities and services as identified in the annual plan. JAMSTEC will carryout the role of the implementing organization for operation of the riser platform. NSF will determine the implementing organization for the non-riser platform. Other implementing organizations will be established as appropriate and required. Those organizations supported by science operations costs will be selected by processes agreed to by the IWG or its successor, and the CMO as required.

4. The annual IODP plan will include presentation of science operations costs and platform operations costs.

5. The annual IODP Plan will be approved by the executive authority of the Science Advisory Structure (which represents all international members) prior to its consideration by the Lead Agencies.

6. Significant changes in the annual plan will be approved by the CMO and the Lead Agencies prior to implementation, in consultation with the executive authority of the Science Advisory Structure when appropriate.

7. NSF will provide commingled funds to the CMO, which in turn will provide funds to implementing organizations for science operation costs through appropriate formal arrangements.

8. An IODP Council will provide governmental oversight for all IODP activity. All countries, as well as member organizations representing countries, participating in the IODP will be represented on the Council.

Principle accepted 13 June 2001 by IWG in Ottawa, Canada.

INTEGRATED OCEAN DRILLING PROGRAM (IODP)

Principles of Scientific Investigation

Approved by iPC, August 2002

1. The Integrated Ocean Drilling Program (IODP) is an international scientific research program that investigates important questions in the study of the Earth.
2. Science Plans for IODP will be formulated and developed by the international scientific ocean drilling community through the IODP science advisory structure.
3. IODP investigations will be based on unsolicited proposals that address objectives of the IODP Science Plan or other outstanding new research ideas.
4. The IODP science advisory structure, composed of internationally representative committees, panels and working groups, will provide science advice to IODP management through a planning committee and policy advice through the executive authority.
5. The executive authority of the IODP science advisory structure will be the lead policy-making body of IODP and will establish science committees and panels as needed.
6. All panels and working groups providing scientific and technical advice to IODP will report through a lead science planning committee to the executive authority.
7. The lead science planning committee will provide scientific and technical advice to IODP, guidance to proponents, and evaluation of proposals to conduct future drilling projects. The lead science planning committee may recommend policy changes to the executive authority.
8. The IODP science advisory structure will evaluate proposals for scientific ocean drilling in a fair and unbiased manner that avoids conflicts of interests.
9. The IODP scientific advisory structure will provide advice to IODP management regarding scientific priorities of proposed drilling and of technical needs.
10. IODP policies and procedures and the recommendations of the IODP advisory panels and committees will be openly available to the public.
11. IODP scientific ocean drilling projects will be undertaken by teams of scientists selected by IODP. IODP management and platform operators, in consultation with the science advisory structure, will make decisions concerning the scheduling and staffing of drilling projects.
12. IODP will provide open access to all samples and data collected and produced during a drilling project once the members of the scientific party have had a reasonable opportunity to complete their initial studies.

ACRONYM LIST

APLACON	Alternate Platform Conference
AESTO	Advanced Earth Science and Technology Organization
CDEX	Center for Deep Earth Exploration
CDP	Complex Drilling Project
CMO	Central Management Office
COMPLEX	Conference on Multiple Platform Exploration of the Ocean
CONCORD	Conference on Cooperative Ocean Riser Drilling
ECORD	European Consortium on Ocean Research Drilling
EMA	European Management Agency
ESCOD	European Steering Committee on Ocean Drilling
ESF	European Science Foundation
ESOC	European Science Operation Committee
ICDP	International Continental Scientific Drilling Program
iDPG	interim Detailed Planning Group
iESSEP	interim Science Steering and Evaluation Panel-Environment
iILP	interim Industry Liaison Panel
iISSEP	interim Science Steering and Evaluation Panel-Interior
ILWG	Industry Liaison Working Group
IMAGES	International Marine Past Global Changes Study
IMI	IODP Management International, Inc.
InterMARGINS	International Margins Program
InterRidge	An initiative for international cooperation in ridge-crest studies
IO	Implementing Organization
IODP	Integrated Ocean Drilling Program
iPC	interim Planning Committee
iPPG	interim Program Planning Group
iPPSP	interim Pollution Prevention and Safety Panel
IPSC	IODP Planning Sub-Committee
iSAS	interim Science Advisory Structure
iSciMP	interim Scientific Measurements Panel
ISP	Initial Science Plan for IODP
iSSEPs	interim Science Steering and Evaluation Panels
iSSP	interim Site Survey Panel
iTAP	interim Technology Advice Panel
IWG	International Working Group for IODP
IWGSO	International Working Group Support Office
JAMSTEC	Japan Marine Science and Technology Center
J-DESC	Japan Drilling Earth Science Consortium
JEODI	Joint European Ocean Drilling Initiative
JOI	Joint Oceanographic Institutions, Inc.
JOIDES	Joint Oceanographic Institutions for Deep Earth Sampling
LDEO	Lamont-Doherty Earth Observatory
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MOU	Memorandum of Understanding
MSP	Mission-Specific Platform
NanTroSEIZE	Nankai Trough Seismogenic Zone Experiment
NSF	National Science Foundation
OD21	Ocean Drilling in the 21st Century
OD21SAC	Ocean Drilling in the 21st Century Science Advisory Committee Operations Committee
OPCOM	Operations Committee
POC	Platform Operation Cost
SAS	Science Advisory Structure (IODP)
SOC	Science Operation Cost
SPC	Science Planning Committee
SPPOC	Science Planning and Policy Oversight Committee
TAMU	Texas A&M University
TAWG	Technical Advice Working Group
USSAC	US Science Advisory Committee
USSSP	US Science Support Program

TAB Contents

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 1

-Introduction-

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University
Sapporo, Japan

MEETING AGENDA

Monday	**15 September 2003**	**08:30-17:00**

S1. Introduction		TAB 1
a. Welcome and meeting logistics	(Suzuki)	
b. Opening remarks from MEXT and NSF	(Tanaka/Allan)	
c. Approve SPC meeting agenda	(Coffin)	
d. Review SPC procedures and protocol	(Coffin)	
i. Present SPC draft mandate		
ii. Conflict-of-interest statements (JOIDES and iPC)		
iii. Robert's Rules of Order		
S2. IODP Management International, Inc. (IMI) progress report	(Austin)	TAB 2
S3. iSAS Office report	(Yamakawa)	TAB 3
S4. Operator reports		TAB 4
a. CDEX	(Taira)	
b. U.S. Systems Integration Contractor	(JOI Alliance representatives)	
c. Others (BGS)	(Kingdon)	
S5. ODP Leg 206 report	(Wilson)	TAB 5
S6. Reports from other scientific programs		TAB 6
a. ICDP	(Harms)	
b. IMAGES	(Sarnthein/Dunbar)	
c. InterMARGINS	(Suyehiro)	
d. InterRidge	(Tamaki)	

S7. Matters forwarded from iSAS (Moore/Kinoshita) TAB 7

a. Committee and panel recommendations

i. iPC
ii. iSSEPs
iii. iSSP
iv. iPPSP
v. iSciMP
vi. iTAP
vii. iILP

b. iSAS working group reports

i. Database
ii. Microbiology
iii. Data bank
iv. Matrix
v. Project management
vi. Project scoping

c. Policy on interacting with ancillary programs

d. IODP sample and data policy

S8. Publications (Coffin) TAB 8

Tuesday **16 September 2003** **8:30-17:00**

Group discussions, local excursion

Wednesday **17 September 2003** **8:30-17:00**

S9. Discuss and establish SPC proposal review and ranking procedure (Coffin) TAB 9

S10. Presentation and discussion of proposals TAB 10

a. Deep Biosphere and Subseafloor Ocean

545-Full3	Juan de Fuca Flank Hydrogeology	(D. Fisher/Ito/Kato)
547-Full4	Oceanic Subsurface Biosphere	(Kato/Moore/Ito)
*553-Full2	Cascadia Margin Hydrates*	(Kato/Byrne/Ito)
557-Full2	Storegga Slide Gas Hydrates	(Prell/Tatsumi/Mori)
573-Full2	Porcupine Basin Carbonate Mounds	(Quinn/Kato/Soh)
584-Full2	TAG II Hydrothermal	(Tatsumi/Kawahata/Mori)
589-Full3	Gulf of Mexico Overpressures	(D. Fisher/Soh/Ito)

b. Environmental Change, Processes, and Effects

482-Full3	Wilkes Land Margin	(Soh/Byrne/Moore)
519-Full2	South Pacific Sea Level	(Quinn/Moore/Prell)
533-Full3	Arctic Lomonosov Ridge	(Prell/Kawahata/Quinn)
543-Full2	CORK in Hole 642E	(Ito/Byrne/Kawahata)
548-Full2	Chicxulub K-T Impact Crater	(Mori/D. Fisher/Tatsumi)
564-Full	New Jersey Shallow Shelf	(Soh/Prell/Quinn)
572-Full3	Late Neogene-Quaternary Climate	(Moore/Kawahata/Prell)
581-Full2	Late Pleistocene Coralgal Banks	(Kawahata/Quinn/Moore)
*595-Full3	Indus Fan and Murray Ridge*	(Byrne/Soh/Prell)

c. Solid Earth Cycles and Geodynamics

*512-Full3	Oceanic Core Complex*	(Tatsumi/D. Fisher/Mori)

*Note: The SPC will not review Proposals 512-Full3, 553-Full2, and 595-Full3 unless the iPC forwards them to the SPC.

Thursday **18 September 2003** **8:30-12:00**

S11. Global ranking of proposals (Coffin) TAB 11

a. Select proposal pool to rank

b. Balloting by SPC members

c. Tabulate results

d. Select group of proposals to forward to OPCOM

Thursday **18 September 2003** **12:00-17:00**

O1. Approve OPCOM meeting agenda (OPCOM chair)

O2. Present OPCOM mandate (OPCOM chair) TAB 12

O3. Operator updates or issues affecting scheduling

a. CDEX (Kawamura)

b. U.S. operator (JOI Alliance representative)

c. Others (BGS) (Kingdon)

O4. Develop alternative drilling schedules (OPCOM chair)

O5. Develop project and drill-site designation scheme (OPCOM chair) TAB 13

O6. Revisit OPCOM mandate (OPCOM chair)

O7. Other business	(OPCOM chair)	
Friday **19 September 2003**		**8:30-17:00**
S12. Review alternative schedules developed by OPCOM	(OPCOM chair)	
S13. Vote on FY2004 schedule (non-conflicted SPC members)		
S14. Review letters to proponents of unscheduled proposals	(Coffin)	
S15. Approve project and site designation scheme	(OPCOM chair)	
S16. Other recommendations from OPCOM	(OPCOM chair)	
S17. Identify obligations of IODP scientists	(Coffin)	
S18. IODP proposal evaluation process	(Coffin)	TAB 14
S19. Revisit SPC mandate and conflict-of-interest statement	(Coffin)	
S20. Review SSEP, SSP, PPSP, SciMP, TAP, and ILP mandates	(Coffin)	TAB 15
S21. Other business	(Coffin)	
S22. Future meetings a. Liaisons to other panels and programs b. 2nd SPC and OPCOM meetings, March 2004	(Coffin)	TAB 16
S23. Review of motions and consensus items	(Coffin)	

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP - interim Planning Committee (iPC) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Planning Committee

1.1General Purpose. The Interim Planning Committee (iPC) will be responsible to the International Working Group (IWG) of IODP for its guidance and direction. The iPC reports to the IWG, provides advice to IWG, facilitates the establishment of the IODP Science Advisory Structure, develops guidelines for evaluations on science proposals for IODP, and continues scientific planning for IODP. More specifically, the iPC is responsible for:

- custody and initial implementation of the IODP Initial Science Plan;
- categorizing of mature drilling proposals (*i.e.*, proposals having been grouped by the iSSEPs , undergone external review, and judged to be complete by iPC) that address the scientific themes and initiatives of the IODP Initial Science Plan

- advising how these proposals might be most effectively mapped into a drilling plan based on the IODP multiple platform concept;
- carrying out science planning, over the 2-year period of ODP to IODP transition;
- fostering communications among and between the international community, the JOIDES and OD21 Science advisory structures, and the IWG.

1.2 Mandate. iPC will encourage the international community to submit drilling proposals for IODP, and will foster the further development of those proposals. Proposals submitted to JOIDES that remain unscheduled in ODP by September of 2001 will be forwarded to the iSAS Support Office. The Co-Chairs of iPC will contact proponents of these proposals requesting from them a statement of intent regarding submittal of their proposal to IODP, as well as any modifications or amendments they wish to make in their proposals that help focus the proposed drilling on important scientific objectives of the IODP Initial Science Plan.

In addition, iPC may assign special tasks to iSAS panels and planning groups. The iPC Co-Chairs convene the iSAS panel meetings and approve the meeting dates, locations, and agendas of all the iSAS science advisory committees, panels, and groups. iPC, through the iPC Support Office, assigns proposals for review to iSAS Science Steering and Evaluation Panels (iSSEPs) and, if relevant, to the three service panels - the interim ScientificMeasurement Panel (iSciMP), Site Survey Panel (iSSP), and Pollution Prevention and Safety Panel (iPPSP). After proposals are reviewed by the panels and judged to be complete, with well-documented scientific objectives and drilling plans, they are considered to be mature and sent out for external (mail) review. After external reviews of these proposals are received, the iPC discusses the iSSEP comments and external reviews of each proposal and categorizes the scientific objectives of the proposals within the major thematic areas of the IODP Initial Science Plan. The iPC then categorizes all proposals based on their scientific merit and provides an assessment of their technical requirements and feasibility within the IODP multiple platform program. The final evaluation and ranking of these proposals will be carried out by the IODP Science Advisory Structure when it is established.

The iPC reviews the interim advisory structure in the light of developments in IODP planning, and recommends to IWG changes in the panel structure and mandates for IODP Science Advisory Structure. Much of the work of iPC is carried out by the commissioning of reports from other interim science advisory panels, including Detailed Planning Groups, *ad hoc*working groups, *ad hoc*subcommittees of its own membership, and its Co-Chairs.

1.3 Structure. iPC is empowered, with the approval of IWG, to modify the iSAS structure as appropriate to the definition and accomplishment of assigned tasks. Communication with the panels and active iPPGs and iDPGs is maintained by having their chairs meet with the iPC annually, and by assigning iPC members as liaison members to its panels and planning groups. Where counsel and communication are deemed important, other individuals may be

asked *ad hoc* to meet with the iPC or its panels.

1.4 Meetings. iPC meets at least twice a year, normally right before or after the meeting of JOIDES SCICOM.

1.5 Membership. iPC will consist of approximately fifteen to eighteen members. All appointees to iPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. If members of the iPC miss two meetings in succession, the iPC Co-Chairs will discuss the problem of iSAS representation with the appropriate country representative on IWG.

1.6 Liaison. The Co-Chairs of IWG, or nominees thereof, are liaisons to the iPC. The iPC Co-Chairs are liaisons to IWG.

1.7 Procedure of Decision Making. Decisions concerning substantive issues (e.g. the categorization of mature proposals) are made through consensus among members present.

1.8 Co-Chairs . The iPC will be co-chaired by the chair of IPSC and the designated iPC representative from the OD21 Science Advisory Committee.

Science Planning Committee (12 August 2003) DRAFT

1.1 General Purpose. The Science Planning Committee (SPC) reports to the Science Policy and Planning Oversight Committee (SPPOC) and provides advice to IODP Management International (IMI) and, through IMI, to the implementing organizations on plans designed to optimize the scientific productivity and operational efficiency of the drilling program.

More specifically, the SPC is responsible for: custody and initial implementation of the IODP Initial Science Plan; ranking of mature drilling proposals (i.e., proposals having been grouped by the Science Steering and Evaluation Panels (SSEPs), undergone external review, and judged to be complete by the Science Advisory Structure (SAS)) that address the scientific themes and initiatives in the IODP Initial Science Plan; advising how these proposals might be most effectively mapped into a drilling plan based on the IODP multiple platform concept; carrying out long-term science planning; fostering communications among and between the general community, the IODP Science Advisory Structure (SAS), IMI, and the implementing organizations.

1.2 Mandate. The SPC encourages the international community to develop and submit drilling proposals for IODP. The SPC can initiate and terminate temporary SAS groups as needed. The SPC recommends SAS membership to SPPOC, particularly with respect to disciplinary balance. The SPC chair serves as a member of OPCOM, and the SPC appoints other SPC members to OPCOM, as defined in the OPCOM mandate. The SPC recommends SAS meeting frequency and timing to SPPOC. In addition, the SPC may assign special tasks to SAS committees, panels, and planning groups. The SPC chair approves the agendas of all SAS committees, panels, and planning groups other than SPPOC. The SPC sponsors and convenes planning conferences at intervals determined by long-term science plans for IODP. The SPC assigns its own watchdogs to proposals that

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are forwarded from the SSEPs. The SPC ranks the scientific objectives of the proposals into final priority after they are reviewed by the SSEPs. The SPC approves by a majority vote the annual drilling schedule as forwarded from OPCOM. The SPC nominates chief scientists to the implementing organizations, who make the final selection.

The SPC periodically reviews the IODP SAS in light of developments in science and technology and recommends amendment of the SAS and its mandates to SPPOC. Much of the work of SPC is carried out by the commissioning of reports from OPCOM and the other SAS panels, including both formal and *ad hoc* working groups, *ad hoc* subcommittees of its own membership, and by its chair or vice-chair.

1.3 Structure. The SPC is empowered to modify an infrastructure appropriate to the definition and accomplishment of tasks described in its annual program plan as approved by SPPOC. Communication with the SAS panels and planning groups is maintained by having their chairs meet with the SPC annually and by assigning SPC members as non-voting liaisons to SAS panels and planning groups as necessary. Where counsel and communication are deemed important, other individuals may be asked to meet *ad hoc* with the committee or its panels.

1.4 Meetings. The SPC meets at least twice a year, normally in March and August. Robert's Rules of Order will govern its meetings and those of all of its subcommittees.

1.5 Membership. The SPC will consist initially of seven members from Japan and seven members from the U.S. All appointees to the SPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. Each member should have a designated alternate to serve in his or her absence. The term of membership will be three years and at least one third of the members shall rotate off the committee annually, so that the

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SPC membership is replaced every three years. Re-appointment shall be made only in exceptional circumstances. The fields of specialization on the SPC shall be kept balanced as far as possible by requests to national program committees. If an SPC member misses two meetings in succession, the SPC chair or vice-chair will discuss the problem of SAS representation with the appropriate country representative(s) on SPPOC.

1.6 Liaison. The director of IODP at IMI, the directors of the implementing organizations, or nominees thereof, and representatives of the lead agencies are permanent, non-voting liaison observers. The SPC chair is the liaison to SPPOC, and the SPC assigns other liaisons to the SSEPs, PPSP, and other SAS panels and groups.

1.7 Vote and Quorum. Substantive issues decided by formal vote require the vote of a majority of all members. A quorum shall consist of at least two-thirds of the members.

1.8 Chair and Vice-Chair. The SPC chair and vice-chair alternate between Japanese and U.S. institutions, excluding the implementing organizations. The vice-chair will replace the chair every two years, with a new vice-chair appointed.

Conflict of Interest Statement for iSAS

- Any panel or committee member involved in the review of a proposal is asked to reveal to the panel or committee chairs any interests, affiliations, or relationships that might affect his or her review at the outset of deliberations on that proposal. Those are then taken into account by the panel in making decisions or recommendations based on the review process. In each case, the chair will assess the degree of conflict, and determine the process for dealing with it.

- If any member of a panel or committee, particularly iSSEPs members, is a proponent of drilling sites or programs, the proposal must be reviewed independently by the iSSEPs without substantive input from that panel member. He/she is not to be involved in any substantive advisory role or in grouping of the proposal by the iSSEPs.

- If an iPC member is a proponent for drilling sites or programs, the proposal must be reviewed independently by iPC without substantive input from that panel member. He/she is not to be involved in any substantive advisory role or in any categorization of that proposal at iPC meetings. The process by which the conflict was dealt with must be made an explicit part of the minutes for the meeting in question.

- Panels are charged with recording in their minutes any information on potential conflict of interest and moves they have made to avoid such. They are also charged with clearly defining their decision-making and recommendation procedures and to have these reviewed by iPC.

Excerpt on MSP ranking procedure from minutes of 2nd iPC Meeting, March 2002

Moore reviewed the iSAS conflict-of-interest statement presented in the agenda book. Since the committee would only group proposals at this meeting and not rank them, they decided to exclude conflicted members and guests from the discussion of only their own proposal. With regard to the procedure for ranking MSP proposals at the next meeting, Moore proposed to compare the list of proponents with the iPC membership, then notify the appropriate national offices of any conflicts and give them the option of naming an alternate member or having the conflicted member excluded from the entire procedure. Moore also proposed that a quorum for voting would amount to two-thirds of all members regardless of nationality. Oppo asked about institutional conflicts. Moore answered that the committee must identify those conflicts as well and decide how to handle them on a case-by-case basis.

iPC Motion 2-7: The iPC adopts the JOIDES conflict-of-interest rules pertaining to the procedure for ranking mission-specific-platform proposals.

Mayer moved, Austin seconded; 16 in favor, none opposed.

Conflict of Interest Statement

Ratified by EXCOM February 1997

APPENDIX IV

If any JOIDES panel or committee member, or any individual or institution related to such member, has any interest that might be affected by, or might reasonably be perceived to be affected by, any action under consideration by the panel or committee on which he or she is serving, such member is required to declare the existence of such interest to the Chair. Such interests include (1) being a proponent of a pending drilling proposal, and (2) being proposed as a co-chief scientist. The possible existence of such interest may also be proposed to the Chair by a member or liaison other than the member having the interest.

All declared or proposed possible conflicts of interest, and the actions taken, will be recorded in the Minutes of the meeting at which the interest was considered. With respect to any such declared interest, or proposed possible interest, the Chair will make an initial determination regarding whether the circumstances constitute a direct conflict of interest.

In determining whether the circumstances constitute a direct conflict of interest, the Chair may, at his/her discretion, consult with other members of the panel or committee. The Chair's decision will be subject to review in accordance with Robert's Rules of Order.

(a) Panel or committee members who are determined by the Chair to have a direct conflict of interest with respect to a drilling proposal will not be present during any/that part of a panel or committee meeting when proposals affected by such direct conflict of interest are subject to deliberation, review and ranking. However, a conflicted panel or committee member may be permitted to participate in general discussions that do not lead directly to voting, regarding proposals in general, including discussion of his or her own proposal. Such members must restrict their comments and discussion to the scientific objectives of proposals being discussed and will refrain from making comparisons with their own proposals.

(b) SCICOM members determined to have a direct conflict of interest will not be present during deliberations leading directly to a vote and will not vote with respect to the inclusion in, or exclusion from, the upcoming recommended science plan of a proposal affected by such direct conflict of interest.

(c) During panel or committee discussions that do not lead directly to a vote, or that do not involve competitive ranking of proposals (e.g., determination of the long-term ship track at SCICOM), all members may participate in general discussions, in order to provide a full range of expertise to the decision-making process. A member having an active proposal that may form part of the long-term track of the drillship will abstain from final deliberations and voting relating to the long-term track.

(d) Panel or committee members who are determined to have a direct conflict of interest will not be present during deliberations leading directly to a vote and will not vote with respect to any other matters affected by such direct conflict of interest.

Robert's Rules of Order

(from Robert's Rules of Order: Simplified and Applied, 2nd Edition, Wiley Publishing Inc., 2001)

Some basic principles and procedures apply to all decision making processes; these principles and procedures are referred to formally as 'parliamentary procedure'. Parliamentary procedures are the rules that help us maintain order and fairness in all decision-making processes. Robert's Rules of Order is one man's presentation and discussion of parliamentary procedure that has become the leading authority in most organizations today. The basic principles behind Robert's Rules of Order are:

-someone has to facilitate and direct the discussion and keep order.
-all members of the group have the right to bring up ideas, discuss them, and come to a conclusion.
-members should come to an agreement about what to do.
-members should understand that the majority rules, but the rights of the minority are always protected by assuring those members the right to speak and vote.

Principles and Salient Points

1) Take up business one item at a time.
Doing so maintains order, expedites business, and accomplishes the purpose of the organization.
a. Each meeting follows an order of business called an agenda.
b. Only one main motion can be pending at a time.
c. Only one member can be assigned the floor at a time.
d. Members take turns speaking.
e. No member speaks twice about a motion until all members have had the opportunity to speak.

2) Promote courtesy, justice, impartiality, and equality.
This ensures that everyone is heard, that members treat each other with courtesy, that everyone has the same rights, and that no individual or special group is singled out for special favors.
a. Members take their seats promptly when the chair calls the meeting to order, and conversation stops.
b. Members raise their hands to be recognized by the chair and don't speak out of turn.
c. In debate, members do not 'cross talk', or talk directly to each other, when another member is speaking.
d. Members keep their discussion to the issues, not to personalities or other members' motives.
e. Members speak clearly and loudly so all can hear.
f. Members listen when others are speaking.

-The majority rules, but the rights of individual, minority, and absent members are protected.
This principle ensures that, even though the majority rules, the minority has a right to be heard and its ideas are taken seriously. Similarly, the minority doesn't leave the organization because it didn't win; it knows that it may win another day. Following this principle preserves the unity and harmony of the organization.

IODP Science Planning and
Operations Committees
1st Meeting, 15-19 September 2003
Hokkaido University
Sapporo Hokkaido, Japan

TAB 2
-IMI report-

Interim Planning in Support of IODP Start-Up

James A. Austin, Jr.
Interim Director, IODP
15 September, 2003
SPC
Sapporo

Background

- **Late March, '03 – inaugural meeting of IODP Management International, Inc., IMI (a "non-stock" corporation formed in the U.S.):**
  - By-laws approved
  - Corporation begins with 22 members (international)

- **Stoffa (Director, UTIG) becomes interim President, Austin asked (by him) to become interim Director.**

Founding Members, IMI

- University of Tokyo
- Kochi University
- Hokkaido University
- Tohoku University
- National Institute of Advanced Industrial Science and Technology
- Japan Marine Science and Technology Center
- Scripps Institution of Oceanography
- University of Hawaii
- University of Texas, Austin
- University of California, Santa Cruz
- Woods Hole Oceanographic Institution
- University of Miami

Additional Members, IMI

- Florida State University
- Lamont-Doherty Earth Observatory
- Oregon State University
- Rutgers University
- Texas A&M University
- Tokai University
- University of Florida
- University of Michigan
- University of Rhode Island
- University of Washington

IMI BOG

U.S.

- Bob Detrick (WHOI)
- Dennis Kent (Rutgers)
- John Orcutt (SIO)
- Nick Pisias (OSU)
- Paul Stoffa (UT/Austin) (Interim President)
- US Alternates: Eli Silver (UCSC) and Neil Opdyke (U Florida)

Japan

- Takemi Ishihara (AIST)
- Gaku Kimura (U Tokyo)
- Hajimu Kinoshita (JAMSTEC)
- Hisatake Okada (Hokkaido U)
- Tsune Saito (Tohoku U)
- Japan Alternates: Teruki Miyazaki (AIST) and Kiyoshi Suyehiro (JAMSTEC)

Premises for Interim Planning Office

- Term - the remainder of calendar 2003. Implication - permanent planning office (CMO) will be in place on or about 1 January, 2004.
- Contingent on Lead Agency support - proposal submitted by UTIG to NSF on 6 May and funded on July 8.
- UTIG is undertaking interim planning for the community's benefit, without adding personnel or developing a new organizational structure.

CMO Tasks and Responsibilities

(Based on Recommendations from SAS and Implementing Organizations)

Develop:

- **Annual Program Plan**
- Budget plan for Science Operation Cost of the program
- Budget plan for technical/engineering development
- Downhole logging plan and budget
- Annual publication and information service plan, budget, and guidelines for the Program
- Annual plan and budget for education, outreach, and promotion

Ensure the efficiency of:

- Detailed annual Science Operating Plan
- Detailed annual Platform Operation Plan
- Detailed Science Operation Cost
- Detailed drilling plan prepared by IO and DPG
- Platform Operation Cost of the Program
- Detailed Pre-drilling site survey plan prepared by IO

Seek or Promote:

- International cooperation to provide timely and useful site survey information for the proposed drill sites
- Advice from the drilling industry on operational/technical solutions
- New members for IODP

Conduct:

- Promotion of the Program

Execute:

- Contracts with IOs or IODP subcontractors for Science Operation Activities
- Contracts with IOs or IODP subcontractors for technical/engineering development
- Contract (or other agreement) with NSF/MEXT for science operations and management of IODP
- Other contracts/agreements which may be required

Secure or Maintain:

- Necessary funding for Science Operation of each platform
- Financial controls for the Science Operation Cost of the Program
- Necessary funding for publication and information services
- Fiscal activities of CMO operations
- Quality control for sample and data archives

Support or assist:

- Appropriate pre-drilling site survey standard for each platform to meet adequate HSE requirements
- IO to secure drilling permit from the country of jurisdiction
- DPG and IO in creating detailed drilling plans

Support SAS ACTIVITIES and OPERATIONS

- **SAS Support and Logistics**
- Proposal Administration
- Publication and Outreach

Anticipated Interim Planning Tasks

- **Prepare ‘04 (and anticipate ‘05) [non-riser, MSP(?)] Annual Program Plan - by early December 2003. (Candidates will come from programs prioritized by SPC at this meeting.)**

- **Assure smooth iSAS to SAS transition:**
  - Set up the SAS Executive Authority (SPPOC)
  - Have SPPOC approve the SPC Chair and Vice-Chair (and endorse SPC)
  - Begin a planning process whereby iSAS panel mandates will be revised and approved for SAS (by ’04)

- **Aid in selecting IMI President and IMI-J Vice President; prepare efficient shift to permanent CMO (location TBD) by 1 January, 2004.**

Prepare Annual Program Plan(s)

- SPC (+ panel chairs) prioritize available (non-riser + MSP) proposals in Sapporo. IMI is planning for ~2 non-riser expeditions in FY04, with perhaps up to 6 more for FY05.
- U.S. "SIC" (Systems Integration Contractor) has been announced (8 August) by NSF. JOI Alliance (TAMU, L-DEO, JOI) is currently in negotiations with NSF.
- Fate of summer '04 Arctic MSP program (ranked #1 by iPC, August '02) is unknown at this time. Arctic science must be re-ranked by SPC at this meeting.
- October-November, '03 - interim IODP director (Austin) will assemble '04 (and anticipate '05) Annual Program Plans, with input from SIC and ESO/European IO (Arctic MSP program may be included). Deadline for '04 PP to SPPOC: early December 2003.
- During '04 (and '05), *Ckikyu* outfitting will be completed and sea-trails will begin; these activities will also be included in PPs, with input from CDEX/Japanese IO.

What is SPPOC? (1)

- 1. *SPPOC is a committee created by the IMI in accordance with the terms and conditions of IMI's bylaws. (suggested addition, to be approved by IMI BOG)* This committee is the highest-level committee of Scientific Advisory Structure (SAS), and shall formulate scientific and policy recommendations with respect to the Integrated Ocean Drilling Program (IODP). It shall conduct IODP planning, as well as evaluation and assessment of the Program as to its accomplishments as compared to the goals and objectives which have been established. It may be assigned managerial and operational responsibilities for appropriate tasks, and will provide for scientific liaison to other scientific programs. The IMI Sapporo Office (IMI-J) will support the SPPOC's activity.
- 2. The SPPOC may establish subcommittees for cognizance of certain components of IODP. Areas of cognizance and the Terms of Reference for each subcommittee shall be defined by the SPPOC. In particular, a Science Planning Committee (SPC) shall be established. The SPPOC will determine the chair and vice-chair of SPC based on IODP member nominations.
- 3. The SPPOC will review and approve the annual IODP program plan and budget prior to forwarding it to the IMI Board of Governors for corporate approval and contractual submission to the Lead Agencies.

What is SPPOC? (2)

- 4. The members of SPPOC shall be representatives from oceanographic and marine research institutions or other organizations, which have a major interest in the study of the sea floor. Members of SPPOC shall be from the United States, Japan and other countries or consortia that have signed a Memorandum for IODP participation with MEXT and NSF, with representation based on IODP participation units. As a committee established under the auspices of IMI, the IMI Board of Governors must approve membership of the SPPOC. The Board of Governors on the recommendation of the SPPOC or in the event of a country or consortium member ceasing to have a valid Memorandum in existence may cancel membership of any member. The IMI BOG will appoint two of its members to the SPPOC, one from Japan and another from the US. In the event another Lead Agency joins IODP, the IMI BOG will appoint three members of SPPOC.

What is SPPOC? (3)

- 5. The SPPOC shall reach all its decisions by the affirmative vote of at least two-thirds of all members. A quorum shall constitute two-thirds of the Committee. If a member of the Committee is absent from a duly called meeting of the Committee, an alternate may be designated with full authority to act for them in their absence.

- 6. The Chair of SPPOC will rotate initially between Japan and the United States with a term of office of two years. The IMI Board of Governors based on IODP member nominations will determine the Chair of SPPOC.

Members of SPPOC (the SAS Executive Authority)

U.S.

- D. Rea (U. Michigan)
- E. Barron (Penn State)
- L. Mayer (UNH)
- N. Pisias (OSU/IMO BOG)
- P. Delaney (UC/Santa Cruz)
- R. Larson (URI)
- S. Humphris (WHOI)

Japan

- A. Nishimura (AIST)
- G. Kimura (U Tokyo)
- K. Tsujii (Hokkaido U)
- K. Shuto (Niigata U)
- K. Tamaki (U Tokyo) – Chair
- M. Oda (Tohoku U)
- Y. Fukao (U Tokyo)

Assure Smooth iSAS-SAS Transition

- **Help to define a process to review the mandates of all existing and proposed IODP science advisory panels and groups (the SAS):**
  - Begin to consider changes to mandates in Sapporo; continue this process at SAS panel meetings through fall '03
  - Revised mandates must ultimately be examined and approved by SPPOC, either at their first meeting in December '03 or perhaps in spring '04.
- **Establish regular meetings among Japanese, U.S. and European Implementing Organizations (IOs) with CMO and designated SAS members:**
  - First meeting 19-20 August, 2003, in Bozeman, MT to begin to consider cross-platform integration issues (*e.g.*, databases, installation and monitoring of observatories), program-wide engineering development, execution of CDPs.
- **Possible additional meetings as necessary (summer/fall 2003) to: consider core storage and sampling issues, identify appropriate databases and their management, and initiate planning for (centralized) publication and education/outreach activities.**

Formation of a Permanent CMO

- **Advertise for IMI President and Vice President(s):**
  - Both completed by the end of July 2003
- **Help as necessary with the interview and selection processes.**
  - Top 4 candidates for President and top 4 candidates for IMI-J Vice President were interviewed by IMI BOG in early September in Seattle.
  - Decisions made in Seattle will be reported to SPC.
- **Interim planning office will work with the designated President to set up a permanent CMO, at a location TBD.**
- **Transfer planning activities from UTIG to the permanent CMO, wherever it may be, by 1 January, 2004. (Our fingers are crossed!)**

Activities Completed or Underway

Keep track of what the interim IMI planning office is doing by checking the website:

http://www.ig.utexas.edu/imi/

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003
Hokkaido University
Sapporo Hokkaido, Japan

TAB 3
-COI statements-

iSAS Office Report

Transition from iSAS Office to tSAS Office

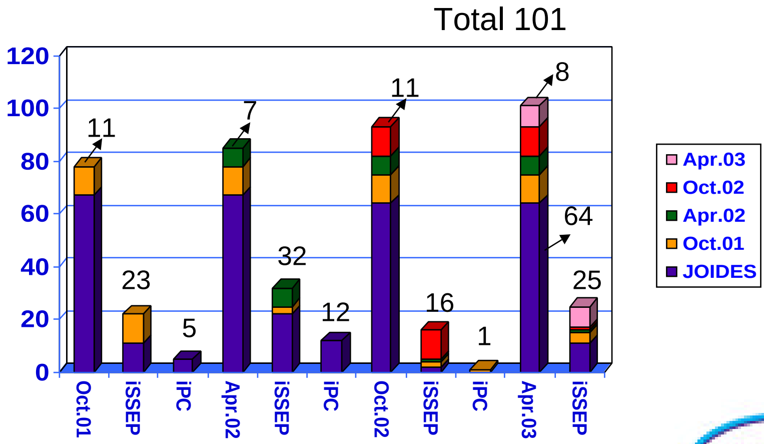
SPC/OPCOM meeting
Hokkaido University
Sapporo Hokkaido, Japan

Minoru YAMAKAWA
iSAS Office, Yokosuka Japan

iSAS Meeting Schedule

2003	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
iPC			#4 18-20 Austin TX, USA						#5 13-14 15-19 #1SPC,OPCOM Sapporo, Japan
iSSEPs					#4 22-25 Niigata, Japan				
iSSP		#3 24-26 Bologna, Italy					#4 28-30 Palisade NY, USA		
iSciMP							#4 14-16 Narragansett, RI USA		
iPPSP						#3 16-17 Stavanger, Norway			
iTAP		#2 21-22 Amsterdam, Holland					#3 14-16 Narragansett, RI USA		
iILP		#1 20-22 Amsterdam, Holland							

Proposal Status

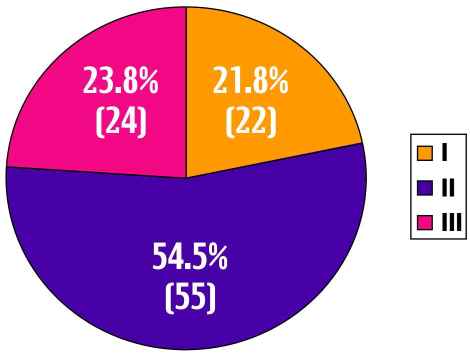


Three Broad Scientific Themes for IODP Initial Science Plan

I: The deep biosphere and the subseafloor ocean

II: Environmental change, processes and effects

III: Solid earth cycles and geodynamics



Total Proposal
Number: 101

Lead Proponent by Country

Australia	2	New Zealand	2
Belgium	1	Norway	3
Canada	4	South Korea	1
France	4	Spain	2
Germany	10	Sweden	2
Ireland	1	United Kingdom	2
Italy	2	United States	50
Japan	14		
Netherlands	1	Total	101

Affiliation of IODP Proponents (April 2003)

Please note that we counted some proponents more than once because they appear on more than one proposal.

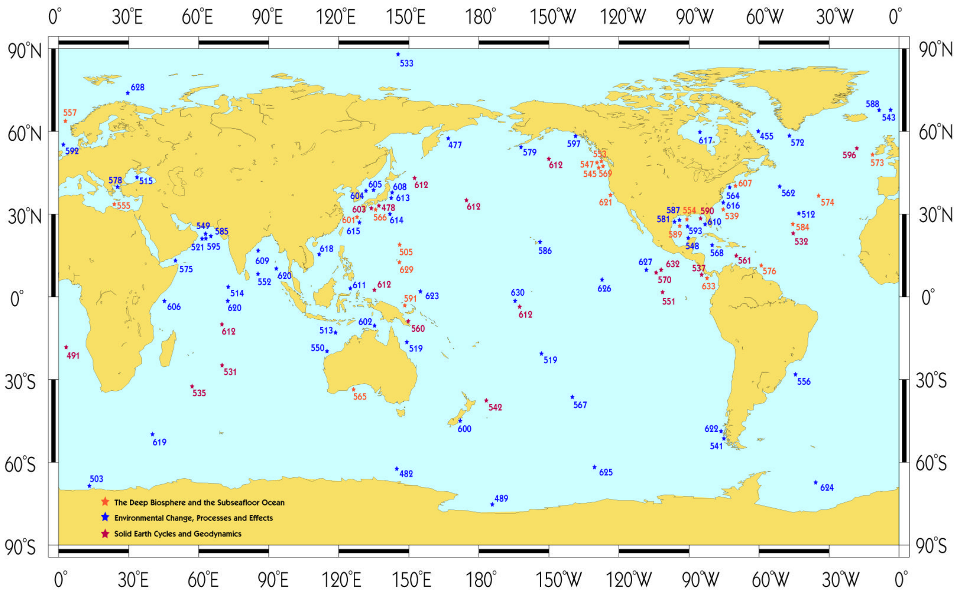
Argentina	1	Ireland	6	South Africa	1
Australia	15	Israel	1	South Korea	11
Belgium	3	Italy	8	Spain	7
Brazil	1	Japan	109	Sweden	6
Canada	22	Mexico	1	Switzerland	2
Chile	6	Netherlands	17	Taiwan	1
China	4	New Zealand	7	Turkey	2
Costa Rica	2	Norway	37	UK	50
Denmark	2	Pakistan	4	USA	360
France	44	Portugal	2	Vietnam	3
Germany	84	Romania	2		
Greece	1	Russia	4	Total	826

Proposals for Ranking

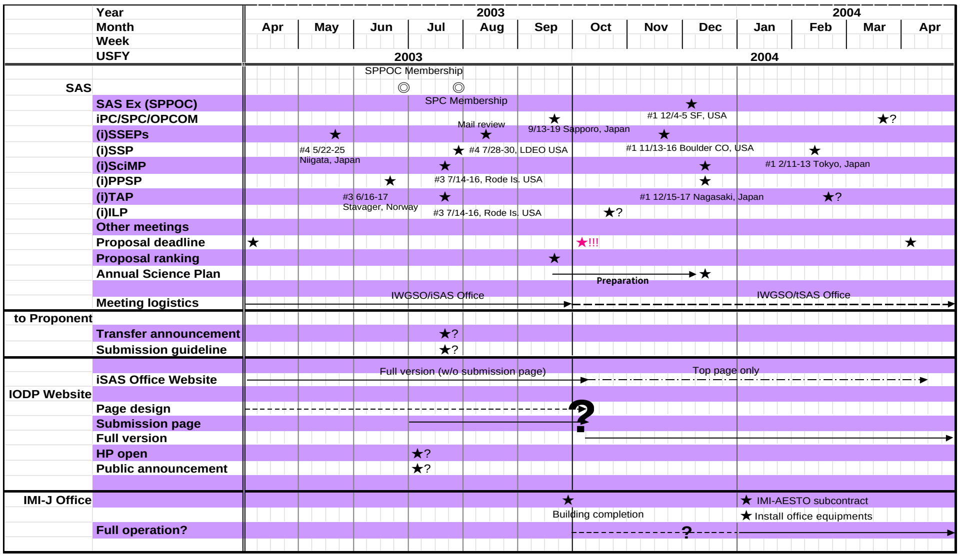
Proposal #	Short title	Lead proponent	ISP Theme
482-Full3	Wilkes Land Margin	Escutia	2
*512-Full3	Oceanic Core Complex	Blackman	3
519-Full2	South Pacific Sea Level	Camoin	2
533-Full3	Arctic-Lomonosov Ridge	Backman	2
543-Full2	CORK in Hole 642E	Harris	2&1
545-Full3	Juan de Fuca Flank Hydrogeology	Fisher	1
547-Full4	Oceanic Subsurface Biosphere (OSB)	Fisk	1
548-Full2	Chixculub K-T Impact Crater	Morgan	2
*553-Full2	Cascadia Margin Hydrates	Riedel	1
557-Full2	Storegga Slide Gas Hydrates	Andreassen	1
564-Full	New Jersey Shallow Shelf	Mountain	2
572-Full3	Late Neogene-Quaternary Climate Records	Channell	2
573-Full2	Porcupine Basin Carbonate Mounds	Henriet	1&2
581-Full2	Late Pleistocene Coralgal Banks	Droxler	2
584-Full2	TAG II Hydrothermal	Rona	1
589-Full3	Gulf of Mexico Overpressures	Flemings	1
*595-Full3	Indus Fan and Murray Ridge	Clift	2

* Provisional proposals

IODP Proposed Sites



Schedule of Needed Start-up Actions in Support of Smooth Transition from iSAS to tSAS



Smooth Transition Items

1 Scientific Drilling Proposal

1) Proponent's Approval Letter for Transferring from ODP to IODP
2) Administration of Submitted Scientific Drilling Proposal
3) Record of Review Processes including External Review

2 iSAS Office Report

4) Document on Interim Science Advisory Structure (iSAS) for the transition to IODP
5) Address List of Members for iSAS Committee and i-Panels
6) Address List of Representatives for Country Members and ODP Members
7) Agenda Book & Minutes of iPC and i-Panels Meetings
8) Outcome from Technical Discussion through i-Panels and Working Groups
9) iPC co-chairs Letter

3 Website

IODP Active Proposal List

Proposal #		as of Apr 03	Short Title	Lead Proponent
455	-	Rev3	Laurentide Ice Sheet Outlets (LISO)	Piper
477	-	Full3	Okhotsk/Bering Plio-Pleistocene	Takahashi
478	-	Full4	Eastern Nankai Subduction	Tokuyama
482	-	Full3	Wilkes Land Margin	Escutia
489	-	Full3	Ross Continental Shelf	Barrett
491	-	Full3	Cretaceous S. Atlantic Accretion	Hinz
503	-	Full2	Weddell Basin	Jokat
505	-	Add3	Mariana Convergent Margin	Fryer
512	-	Full3	Oceanic Core Complex	Blackman
513	-	Full2	Scott Plateau Paleoceanography	Opdyke
514	-	Full4	Maldives Sea Level	Droxler
515	-	Full	Black + Marmara Seas Sediments	Flood
519	-	Full2	South Pacific Sea Level	Camoin
531	-	Pre2	Max Spreading Rate Core Complex	Snow
532	-	Full	Kane Megamullion	Tucholke
533	-	Full3	Arctic-Lomonosov Ridge	Backman
535	-	Full2	735B Deep	Dick
537	-	CDP2	Costa Rica Seismogenic Zone Overview	von Huene
537A	-	Full2	Costa Rica Seismogenic Zone Stage 1	von Huene
539	-	Full2	Blake Ridge Gas Hydrates	Holbrook
541	-	Full	Chilean Fjord Sediments	Anderson
542	-	Pre	Hikurangi Plateau LIP (SW Pacific)	Mortimer
543	-	Full2	CORK in Hole 642E	Harris
545	-	Full3	Juan de Fuca Flank Hydrogeology	Fisher
547	-	Full4	Oceanic subsurface biosphere (OSB)	Fisk
548	-	Full2	Chixculub K-T Impact Crater	Morgan
549	-	Full4	Northern Arabian Sea Monsoon	von Rad
550	-	Full	Carbonate Clinoforms, NW Aust/.	Bradshaw
551	-	Full	Hess Deep Plutonic Crust	Gillis
552	-	Full3	Bengal Fan	France-Lanord
553	-	Full2	Cascadia Margin Hydrates	Hyndman
554	-	Full4	Gulf of Mexico Hydrates	Kennicutt
555	-	Full3	Continental Collision, Crete	Kopf
556	-	Pre	Malvinas Confluence	Wefer
557	-	Full2	Storegga Slide Gas Hydrates	Andreassen
560	-	Full	Return to Woodlark Basin 1108	Taylor
561	-	Full3	Caribbean Large Igneous Province	Duncan
562	-	Full2	J Anomaly Ridge Transect	Norris
564	-	Full	New Jersey Shallow Shelf	Miller
565	-	Pre	Eucla Carbonate Platform	Feary
566	-	Full3	Nankai Trough Gas Hydrates	Ashi
567	-	Full	South Pacific Paleogene	Rea
568	-	Pre	Northern Nicaragua Rise	Droxler
569	-	Full	CO2 Sequestration	Goldberg
570	-	Full	East Pacific Rise Crust	Haymon
572	-	Full3	Late Neogene-Quaternary climate records	Channell
573	-	Full2	Porcupine Basin Carbonate Mounds	Henriet
574	-	Full	Rainbow Hydrothermal Field, Mid Atlantic Ridge	Fouquet
575	-	Full3	Gulf of Aden African Climate	deMenocal
576	-	Pre2	S. Barbados Accretionary Prism	Deville
578	-	Pre	Marmara Sea Gateway	Hiscott

IODP Active Proposal List

Proposal #		as of Apr 03	Short Title	Lead Proponent
579	-	Pre	Pacific Climate Variability - Skan Bay	Anderson
581	-	Full2	Late Pleistocence Coralgal Banks	Droxler
584	-	Full2	TAG II Hydrothermal	Rona
586	-	Full2	Hawaiian Coral Reefs and Basalts	Rubenstone
587	-	Pre	Gulf of Mexico Mini-Basin	Nelson
588	-	Full	Arctic-Atlantic Cretaceous Gateway	Gradstein
589	-	Full3	Gulf of Mexico Overpressures	Flemings
590	-	Pre	Coop. JOIDES-Industry GoMex	Armentrout
591	-	Full	Conical/Desmos Hyd., PNG	Herzig
592	-	Pre2	Shallow Water Dogger Bank	Andriessen
593	-	Full	Gulf of Mex. Neogene Climate	Flower
595	-	Add	Indus Fan Riser + Non-Riser	Clift
596	-	Pre2	Rockall-Hatton Cretaceous Hotspot	Morrissey
597	-	Full	S. Alaska High-resolution Sediments	Jaeger
600	-	Pre	Canterbury Basin	Fulthorpe
601	-	Pre	Iheya Ridge	Takai
602	-	Full	Tropical Epeiric Seas	Edgar
603	-	CDP2	NanTroSEIZE Overview	Kimura
603A	-	Full2	NanTroSEIZE Reference Sites	Underwood
603B	-	Full	NanTroSEIZE Mega-Splay Faults	Kinoshita
604	-	Pre	Ulleung Basin	Lee
605	-	Pre	Asian monsoon	Tada
606	-	Pre	Mesozoic Greenhouse	Nishi
607	-	Full	New Jersey Slope	Dugan
608	-	Pre	NW Pacific/ Cretaceous Greenhouse	Hasegawa
609	-	Pre	Himalaya-Bengal system	Spiess
610	-	Full2	W Florida Margin	Mallinson
611	-	Pre	Pacific Warm Pool	Stott
612	-	Full	Geodynamo	Yamazaki
613	-	Pre	NW Pacific Margin Transect	Hoyanagi
614	-	Pre2	Izu-Bonin Arc	Tamura
615	-	Pre	NW Pacific Coral Reefs	Matsuda
616	-	Pre	North Carolina Margin	Bralower
617	-	Pre	Hudson Bay and Strait	White
618	-	Full	East Asia Margin	Clift
619	-	Pre	Indian Southern Ocena Latitudinal Transect	Mackensen
620	-	Pre	Hotspot Seamounts	Sager
621	-	Pre	Monterey Bay Observatory	McNutt
622	-	Pre	Chilean Fjords	Dunbar
623	-	Pre	Ontong Java Plateau	Neal
624	-	Pre	Atlatic Southern Ocean Paleoclimate	Pudsey
625	-	Pre	Pleistocene Pacific Southern Ocean	Gersonde
626	-	Full	Pacific Equatorial Age Transect	Pälike
627	-	Pre	Clipperton Atoll	Linsley
628	-	Pre	Barents Sea Impact Crator	Dypvik/Tsikalas
629	-	Full	Chamorro Seamount Deep-biosphere	Inagaki
630	-	Pre	Magellan and Manihiki Plateaus	Erba
631	-	Pre	ION Observatories	Stephen
632	-	Pre	Lamont Seamount	Lundstrom
633	-	Pre	Middle America Slope	Brueckmann

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 4

-Operator reports-

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

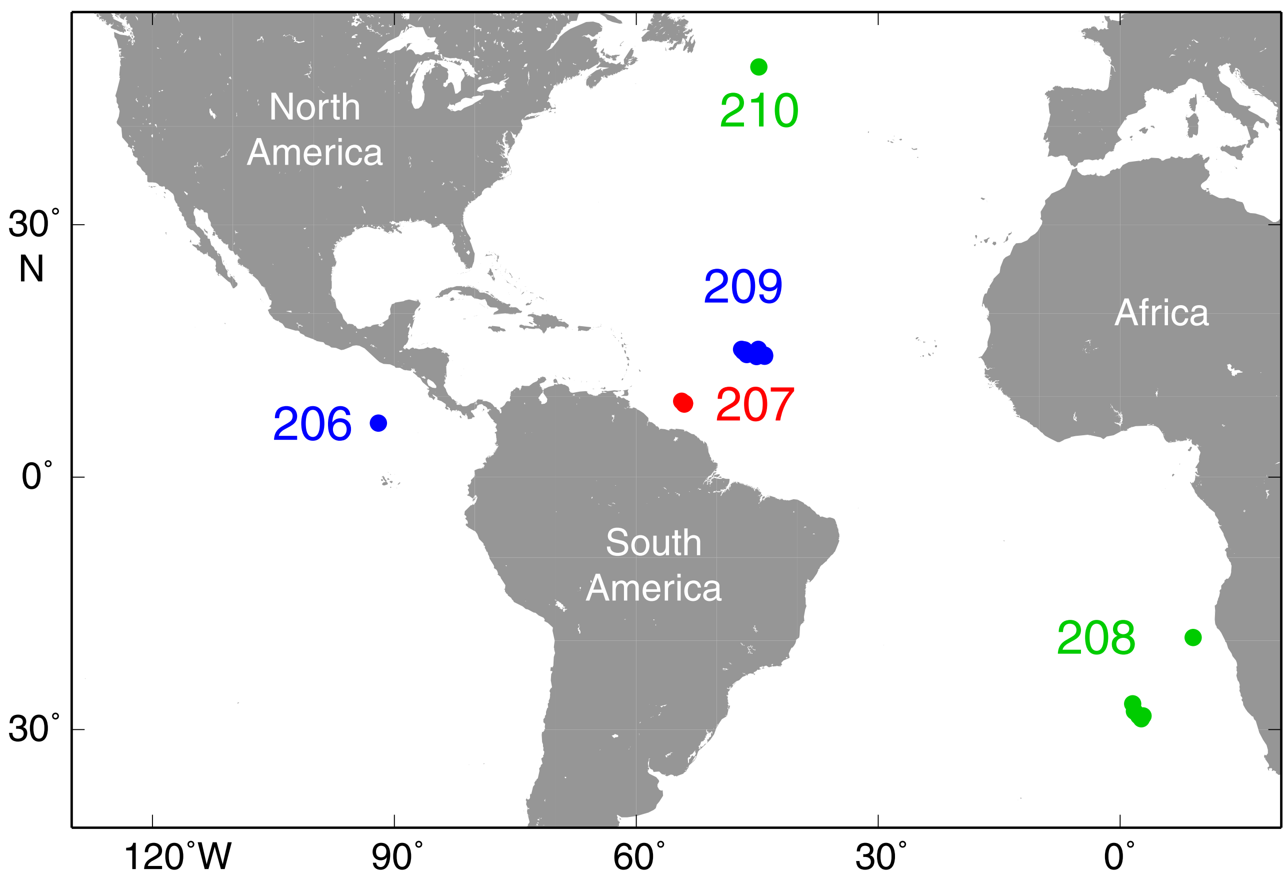
Hokkaido University

Sapporo Hokkaido, Japan

TAB 5

-ODP Leg206 report-

Ocean Drilling Program Legs 206–210



ABSTRACT

Drilling a complete section of oceanic crust has been an unfulfilled ambition since the inception of scientific ocean drilling. Recovery of in situ oceanic crust is imperative to understand igneous accretion and the complex interplay between magmatic, hydrothermal, and tectonic processes, as well as a means for calibrating remote geophysical observations, particularly seismic and magnetic data. Only by drilling a complete section of upper crust formed away from fracture zones can the processes operating at normal mid-ocean ridges be understood.

There is an observed relationship between the depth to axial low-velocity zones imaged at active mid-ocean ridges and spreading rate. Recent recognition of an episode of superfast spreading (200–220 mm/yr) on the East Pacific Rise ~11–20 m.y. ago presents an opportunity to drill through the upper oceanic crust into the gabbroic rocks in minimal time. Even allowing for significant burial by lavas that have flowed off axis (~300 m), the upper gabbros, thought to be the frozen axial melt lens, are predicted to occur at ~1100–1300 meters below seafloor (mbsf).

Leg 206 completed the initial phase of a planned two-leg project to drill a complete in situ section of the upper oceanic crust that will eventually extend through the extrusive lavas and sheeted dikes and into gabbros. Drilling was conducted at Ocean Drilling Program (ODP) Site 1256 (6.736°N, 91.934°W), which resides on ~15-Ma oceanic lithosphere of the Cocos plate that was formed by superfast spreading (>200 mm/yr) at the East Pacific Rise. To fully characterize the sedimentary overburden and establish depths for the casing strings, three pilot holes were cored that recovered a nearly complete section of the 250.7 m of sediment overlying basement and penetrated 88.5 m into basement with very good recovery (61.3%). The sediments can be subdivided into two main lithologies. Unit I (0–40.6 mbsf) is clay rich with a few carbonate-rich intervals, whereas Unit II (40.6–250.7 mbsf) is predominantly biogenic carbonate.

More than 500 m of young Pacific extrusive lavas was cored with moderate to high rates of recovery, following the installation of a reentry cone with a 16-in diameter casing string that extended 20 m into basement in Hole 1256D. Axial sheet flows with subordinate pillow lavas, hyaloclastites, and rare dikes are capped by a more evolved massive flow >75 m thick and other sheet flows that probably ponded in small faulted depressions several kilometers off axis. The lavas have normal mid-ocean-ridge (N-MORB) chemistries and display moderate fractionation upsection as well as heterogeneous incompatible element ratios. The lavas are only slightly affected by low-temperature hydrothermal alteration, and very little interaction with oxidizing seawater is apparent. The rocks are much less oxidized than those from Holes 504B and 896A in 6.9-Ma crust formed at an intermediate spreading rate and are more akin to the background alteration in Hole 801C (180 Ma), albeit with very little carbonate at Site 1256.

The complete lava sequence formed over a sufficient time period to record the transition from a stable shallowly dipping magnetic field in the axial lavas to a more steeply dipping field (inclination > 70°) in the overlying ponded flow. If our interpretation is correct, ~20% of the extrusive sequence cored so far formed from lava flows that flowed significant distances from the axis.

A complete suite of geophysical wireline logs, including the first deployment in a basement hole of the Ultrasonic Borehole Imager (UBI), confirmed that Hole 1256D is in excellent condition, with robust margins and within gauge for its complete depth. Formation MicroScanner and UBI imaging will be integrated with other geophysical logs and the recovered core to refine the igneous stratigraphy and structure.

Hole 1256D was exited cleanly, leaving the hole clear of debris, open to its full depth, and primed for future deepening into the sheeted dikes and gabbros early in the next phase of ocean drilling.

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CONCLUSIONS

During Leg 206 we successfully accomplished the initial phase of a multi-leg drilling program that aims to sample a complete section of upper oceanic crust through the extrusive lavas, the sheeted dike complex, and into the gabbros. The main achievements of Leg 206 include the following:

1. Installed a reentry cone and large-diameter (20 and 16 in) casing through the 250 m of sediment overlying basement and 19 m into basement, with the lower portion cemented in place. The cone and casing allow multiple reentries and maintain hole stability, both essential for deepening Hole 1256D through the dikes and into gabbros. The large-diameter casing leaves open the possibility that at least two more casing strings could be installed in Hole 1256D should future legs need to isolate unstable portions of the hole.
2. Achieved moderate to high recovery through the upper 502 m of the igneous oceanic crust created by superfast seafloor spreading, which has allowed us to characterize the upper crust as a sequence of massive flows and thin sheet flows with minor amounts of pillow basalt and breccia. The sequence is slightly altered and has N-MORB composition. It was extruded over sufficient time to record stable geomagnetic field directions and to capture transitional directions in the upper units as the geomagnetic field reversed.
3. Recorded a full sequence of downhole logs, including the first images obtained by the UBI in hard rock in an ODP hole. Additional high-resolution images from the FMS should aid in orienting and positioning cores as well as filling in coring gaps in the igneous stratigraphy of Hole 1256D.
4. Concluded operations with Hole 1256D clean of debris, in excellent condition, and ready for the next phase of deep ocean crust drilling.

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 6

-Reports from other scientific programs-

Information Network

international continental scientific drilling program

icdp

GFZ
POTSDAM

news

Callfor Proposals
for new or currently running ICDP Research projects

Deadline	Title
Next chance at **January15, 2004**	**ResearchOpportunities in International Continental Scientific Drilling** • Guidelines(pdf) and • CoverSheet (pdf)

ICDPWorkshops

Date	Title
October 20-23, 2003	Workshopon Lake Qinghai Scientific Drilling , in Xining, PR China NEW
September 22-24, 2003	Workshopon Chesapeake Bay Impact CraterDeepDrillingProject, near Reston, Virginia, United States NEW
September 17-20, 2003	Workshopon Sudbury Deep Drilling Project in Sudbury, Ontario, Canada NEW
August 31-September 5, 2003	Workshop on Orava Deep Drilling Project, in Zakopane, Poland NEW
August10-16, 2003	Workshop on Scientific Drilling in Lake Peten-Itza, in Flores, Guatemala NEW

Other ICDP relevant Workshops

Date	Title
December, 8-12, 2003	2003 FALL MEETING of AGU in San Francisco, CA USA NEW
December 8-10, 2003	InternationalMallikSymposium, **"From MalliktotheFuture",Chiba,** Japan **(for more info)** NEW
November 2-5, 2003	2003GSA Annual Meeting in Seattle, Washington, USA NEW

Training Courses
for the preparation of ICDP research projects

Publications
ICDP newsletter, papers, articles, press releases

- **"ICDPNewsletter 5, March 2003"**
pleaseaskforaprintedcopyat ulrich@gfz-potsdam.de

Jobs
Demonstration Island NEW

planeterde

Welcome to Czech Republic andNorway: ICDP has new member countries.
On behave of the Executive Committee of ICDP we should like to announce that the Czech Republic represented by and Norwayrepresented by the Norwegian Geological Survey joined ICDP.

Hawaii Scientific Drilling Project HSDP-2b
27-APR-2003: The big day has arrived - we have completed the detail work of getting the rig set to go and we are now going into the hole to begin the hole opening exercise.


Click to enlarge!

Unzen Conduit Drilling
1-FEB-2003: Rig-up for the conduit drilling after air-hammer drilling down to the 50-m depth. Opening ceremony of drilling is scheduled on February 13 on this site. The rig is 50 m high. It had heavy snow in late January.
13-FEB-2003: Opening ceremony was held at the rig site of conduit drilling.
17-FEB-2003: Conduit drilling started using the 50-m high rig. (Text and photo by USDP Project Management)
22-APR-2003: The drilling operation has been interrupted for a break until July 2003.

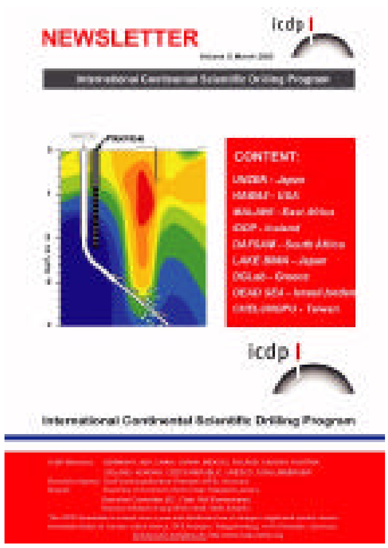


Click to enlarge!

New ICDP Flyers for download

- **ICDPOverview**
- **ICDPInfrastructure**

ICDP NEWSLETTER Volume 5



Top News on the Top

EOS 84,14: Investigating a 65-Old Smoking Gun: Deep Drilling of the Chicxulub Impact Structure (8-APR-2003)
Bold Venture Aims to Plumb a Volcano's Fiery Depth (28-MAR-2003)
Tapping the heat in Japan (Geotimes, FEB-2003)

please select one item from the list and **click the red ball**

Please direct comments, questions, suggestions to ICDP webteam.

IMAGES AND ODP BEYOND 2003

A contribution from the IMAGES Office and Chair (August 2003)

The conscience of the societal and economical problems which may derive from the global warming and increase in Greenhouse gases is growing across most countries. A potential output of the global warming is of major significance: the rapid climatic changes (cooling, warming, succession of major droughts or floods) non-analogous to those that Earth has seen in the last several millenia.

The international program IMAGES (International Marine Global Change Study), a key-action of IGBP-PAGES, offers a strategy to improve our knowledge on the causes and consequences of rapid climatic changes, based upon the detailed analysis of high resolution paleoclimatic ocean sediment records. This effort forms the most important counterpart to the pioneering paleoclimatic records obtained from polar ice sheets covering the last 900,000 years. The instrumented period (the last 50-150 years) is much too short to take in account the natural variability of the climatic system (which changes over decades to millenia, if we include the dynamics of the ocean and ice sheets). In the more distant past (the last few hundred kyrs), the study of different conjunctions between climate forcing factors and responses (insolation, greenhouse gases, continental albedo and ice coverage, ocean and atmosphere dynamics) will help to understand the interactions between the main components of the Earth climate. The large amount of quantitative proxies which may be measured in ocean sediments provides a unique source of information about past climates, if measured at sufficient spatial and temporal resolution over the globe. Those studies are necessary to develop accurate climate models.

The IMAGES program has achieved, over the last 8 years, a major effort to collect and analyze 30-65 m long, continuous sediment cores. Large-diameter sediment cores were obtained to provide sufficient sample material for modern multi-proxy studies and high-quality dating of past climate changes. Among more than 600 cores already collected in the major ocean basins, about half presents a sufficiently high sedimentation rate (10 cm/kyr or

more) to allow paleoclimatic studies with a temporal resolution of 10-100 years or better. Such target constitutes a crucial requirement to understand the role of the ocean in the chain of events driving climatic changes. Decadal to annual resolution records will also be necessary to link paleoclimatic records to the more recent instrumented period, directly affected by the increase in greenhouse gases.

The ODP, and its experience with « Joides resolution » , has proven well adapted to support paleoceanographic programs based upon APC/XCB coring. In continuation of these efforts, the IMAGES scientific committee strongly supports the concept of EU countries for a multiple platform drilling program (M.S.P.) that would include the capability to take long, continuous, and large diameter (>10 cm) cores in a cost-effective manner, using platforms such as the RV Marion Dufresne. A new effort must be initialized, involving both cruises for giant cores collection and shallow drillings (100-300 m) in places with especially high sedimentation rate (of the order of 1 m/kyr). At present, the RV Marion Dufresne is the only oceanographic ship fully operational for operating cruises with multiple giant coring operations (typically 1-2 per day, 50-150 per cruise; mean length 35-50m).

We offer the assistance of the IMAGES community in helping to define the specific scientific objectives in an unbureaucratic manner as well as the strategies and tools needed to meet these objectives. We would hope that the post-2003 Ocean Drilling Program will evolve to become a true multiplatform program that can efficiently address the scientific objectives of the IMAGES community.

At present IMAGES proposes six (four already submitted) coring legs that aim at resolving past variability in the Antarctic Circumpolar Current and its relation to oceanic fronts, topography, and forcing at orbital and millenial to sub-centennial timescales. Sites in the Indian Ocean sector aim at resolving the deep and surface water inter-ocean exchange. Sites closer to the Antarctic continental margin are located to extract information on high frequency variability in Antarctic Bottom Water production and its spreading into deep ocean basins. Other programs target expanded sections of the Holocene and last glacial interval. Collectively, these sites can be used for direct comparison with high resolution ice

cores to address questions concerning climate event leads/lags between the poles and to examine links between the Southern Ocean and the tropics and the latitudinal / longitudinal response to mid-Holocene changes in insolation seasonality. A program to core Chilean fjords will focus in part on establishing the time history of deglaciation of the Patagonian Ice Sheet as well as associated ocean-atmosphere dynamics.

In addition, a series of proposals for future coring legs are being considered for the Western Pacific Warm Pool, the Mediterranean and Black Seas, and the Southeast Atlantic off South Africa, and for coring the continental margin of Brazil and Argentina.

We propose that at the European level a special effort could be conducted during the transition period 2004-2006 to charter giant coring cruises using platforms that are compatible with CALYPSO giant coring as a partial contribution of the European community to the IODP.

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Fax. (49) 431-880-4376

Web site: www.images-pages.org

InterMARGINS

Continental Margins Research

InterMARGINS is an international and interdisciplinary initiative concerned with all aspects of continental margins research. It is designed to encourage scientific and logistical co-ordination, with particular focus on problems that cannot be addressed as efficiently by nations or national institutions acting alone or in limited partnerships.

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- [Permanent Guests and Observers]

Objectives

OVER THE PAST few years continental margins research has become a major focus of the international geoscience community. New national supporting programs have been initiated in many countries, e.g. in France, Japan, UK, and USA. To foster a greater degree of international coordination of margins research activities, to focus sufficient resources on some common, large interdisciplinary investigations, and to help leverage funding in each others countries, a new international geoscience initiative dedicated to continental margins research was formed in 1999.

InterMARGINS is an international and interdisciplinary initiative concerned with all aspects of continental margins research. It is designed to encourage scientific and logistical co-ordination, with particular focus on problems that cannot be addressed as efficiently by nations or national institutions acting alone or in limited partnerships. Initially InterMARGINS will focus on the following broadly defined research subjects:

- Rifted Margins
- Sedimentary Processes
- Seismogenic Zone Processes
- Subduction Factory Processes
- Fluid Processes, Geochemistry, Microbiology

InterMARGINS will attempt to foster and enhance communication between national margins-related research programs. It will develop and maintain databases of ongoing national and multinational projects and research activities, initiate and carry out workshops and disseminate information to members through newsletters and other forms of communication.

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InterRidge – The Next Decade

A science and structure plan for ridge research

2004 – 2013

Published August 2003

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Mission Statement

InterRidge was created in 1992 with the express objective of supporting and developing important international programmes which could not have been realized by researchers in individual countries alone. This philosophy remains at the core of InterRidge for the Next Decade (IRND). The first 10 years have produced a united, coordinated international ridge community in many of the industrialised nations and lead to vastly improved contacts amongst ridge researchers in all parts of the world. These developments mean that InterRidge´s primary objectives can now evolve in two directions: (1) the fostering of contacts within the active community with a strong emphasis on integrating scientists from countries not yet fully integrated into InterRidge and (2) placing a stronger emphasis on the achievement of major, long-term scientific goals.

The revised mission statement for InterRidge in the next decade could be put like this:

"InterRidge promotes interdisciplinary, international studies of oceanic spreading centres through scientific exchange among researchers in all countries. InterRidge promotes the sharing of technologies and facilities and it especially encourages the integration of additional countries into the study, use and protection of spreading centres. InterRidge promotes the sharing of knowledge among the public, scientists and governments."

InterRidge – The first ten years

When InterRidge began, ridge research was conducted primarily by national groups working alone or in limited collaborations. The first ten years of InterRidge have seen the transformation of these diverse groups into a strong, coordinated and informed community consisting of over 2700 active researchers from 47 countries. Notable successes of InterRidge and its member researchers in the first decade include:

- **Exploration and study of the South-West Indian Ridge (SWIR):** At the inception of InterRidge the SWIR was almost completely unknown due to its geographical remoteness, nevertheless it was identified as one of the most interesting ridge targets due to its slow and highly oblique spreading. The efforts of the InterRidge SWIR Working Group have led to 16 cruises to this region in the last decade, making the SWIR now one of the best studied slow-spreading ridges of the world.
- **The first mapping and sampling of the Arctic Gakkel Ridge:** One of the few unknown areas of the global ridge system was, until recently, the arctic Gakkel Ridge. Through the activities of its Arctic Ridge working group and the organization of two workshops (1994 and 1998) to formulate a plans for mapping and sampling this ridge, InterRidge provided essential support leading to the first two-ship international cruise to the Gakkel ridge in 2001. The results of this cruise have shown the Gakkel ridge to be spreading in ways never previously recognised on Earth. Amagmatic spreading has been seen along some of the ridge, direct evidence for the theoretically proposed strong melt-focussing at these ultra-slow spreading rates was also found.
- **Workshops on many aspects of ridge science:** InterRidge has convened and coordinated 21 workshops with publication of white papers in 8 countries during the last decade. A total of 1300 attendees from 36 countries shows the international significance of this effort.
- **The generation of an international ridge scientific community:** There are over 2700 ridge researchers registered in the InterRidge directory. The biannual InterRidge News, containing information on Working Group activities, upcoming cruises and reports of cruise results is circulated to over 3000 addresses. The InterRidge web site receives over 10.000 page requests per month from people requiring ridge information. All of these features are clear indicators of the sense of community that InterRidge has fostered in its first decade.
- **Liaison to other international programmes:** Collaborations with other international programs, SCOR, ODP, IAVCEI, have been pursued through the joint coordination of working groups and workshops. Many of the members of these international programmes are also active members of InterRidge.
- **Providing a voice for ridge researchers:** With the advent of deep-sea tourism and resource assessment and extraction at sensitive mid-ocean ridge hydrothermal vent sites, ridge scientists have been challenged to formulate standpoints and principles for wise use of the deep ocean. InterRidge has attempted to provide a central forum for outreach and communication for ridge scientists so that their expertise can guide those involved in the designation of Marine Protected Areas and advise the International Seafloor Authority.
- **The global sampling of the ridges:** Prior to the inception of InterRidge many areas of the world's ridge system were unsampled or only poorly sampled. Concerted efforts by InterRidge scientists using both targeted cruises and cruises of opportunity has greatly improved this situation.

Horizon – The next decade

The sense of community and the maturity of the scientific aims achieved by InterRidge in the first decade mean that the programme is ideally placed to play a leading role in facilitating major advances in ridge science in the future. InterRidge will progress in the future towards more in-depth studies of the ridges, involving actively supporting the development of advanced technologies to aid in the enormous task of studying the ridges both in time and space.

Principal Themes for InterRidge Next Decade (IRND)

Although InterRidge is committed to encouraging the study of all ridges, some areas or aspects of global ridge research are recognised as needing a concerted and coordinated research effort. The following themes (each represented by a working group, the workhorses of InterRidge) will therefore constitute the core of the IRND efforts:

1. Ultraslow-spreading Ridges
2. Ridge-Hotspot interaction
3. Back-arc Spreading Systems/ Back-arc Basins
4. Mid-oceanic ridge Ecosystems
5. Monitoring and Observatories
6. Deep Earth Sampling
7. Global Exploration

The scientific questions which InterRidge Next Decade intends to focus efforts upon and the way InterRidge will participate in solving these questions are outlined below.

1. Ultraslow Ridges

The Southwest Indian Ridge (SWIR) and Arctic Ridges working groups have been some of the most successful programs in InterRidge thus far. The members of these groups have reached a general consensus that the two share a common objective - Ultraslow spreading - that should be given a common focus in the future. Therefore we recommend the establishment of a new working group based on the scientific theme of ultraslow spreading (1/2 rate < 1cm/yr) that will combine both of these previously geographically based groups. Themes which this Working Group should work on in the next decade include:

1.1 Lithosphere/Asthenosphere interaction

The primary characteristic that differentiates ultraslow ridges from others is the thermal/rheological structure, characterized by a significantly thicker lithosphere. Determining the topology of the lithosphere is an important part of the characterization of such ridges that needs to be accomplished. This influences magma plumbing systems and melt focusing in a significant way, and has a strong influence on the dynamics of extreme lithospheric extension and ridge/hotspot interaction. Approaching this question requires extensive new geophysical investigations.

1.2 Magma genesis and mantle composition

The ultraslow spreading ridges are unique among the major ocean ridges in the abundance of the mantle rocks exposed along their length. This, along with the very low magma budgets, indicate that this is a unique place to look for primary mantle heterogeneity. Initial work at the SWIR and Gakkel ridges suggests that these exist. Ultraslow spreading ridges provide the opportunity to examine the effects of mantle source composition on basalts more directly than at other ridges, due to the small size of magma batches. This requires a much closer sample spacing than is typically required on faster ridges in order to understand both the distribution of magmatism and its origin. Episodic magmatism at ultraslow spreading ridges results in the emplacement of the mantle magmatic plumbing system of the ridge to the sea floor where it can be directly examined. This is thus a critical region for the study of mantle magmatic transport, including focussing mechanisms.

1.3 Hydrosphere/Lithosphere interaction

The abundance of ultramafic rocks close to the seafloor on ultraslow spreading ridges, combined with extraordinarily long-lived faults, provides a unique hydrothermal environment. The exploration of the Gakkel and the SW Indian Ridges during the first InterRidge decade have provided evidence of extensive hydrothermal activity over a broad range of temperature and substrate types.

While the heat source for magmatically robust spreading centres is known to be a magma chamber or crystal mush zone, the heat source at ultra slow ridges is presently unclear. Due to the extreme reactivity of ultramafic rocks exposed on the sea floor, the heat released by serpentinization (approximately 300 KJ/Kg) may play a significant role.

This type of hydrothermal activity may thus play a more important role in the overall geochemical budget of the oceans than the known outcrop of peridotite on the ocean floor might suggest. It is important that a mass balance approach to examining the chemical fluxes at ultraslow ridges is developed, since ultramafic and mixed mafic/ultramafic hydrothermal systems are more common than black smoker systems in this environment. It is necessary to study fluids, hydrothermal deposits, and their recharge zones in the ultraslow spreading environment to accomplish this.

1.4 Biogenesis

The interaction of ultramafic minerals and water provides a unique substrate for life in ultramafic–hosted hydrothermal systems. Serpentinization results in the production of large amounts of abiogenic CH_4 and H_2 that can be used as energy sources by chemoautotrophic microorganisms. Recent work has also shown that specific products of seawater/peridotite interaction (***e.g.***, Fe-Ni alloys) may catalyse the reaction between H_2 and CO_2 to form a variety of abiogenic hydrocarbons. It is a therefore possible that ultramafic-hosted hydrothermal systems play an important role in microbial ecology and the carbon cycling in the deep sea.

1.5 Biogeography

Both ultraslow ridges which have been studied up to present lie in key biogeographic areas. The biogeography of the SWIR is unique in that it acts as a link between the distinct faunal provinces in the Atlantic and Pacific oceans. The Arctic basin is even more intriguing, as it has been relatively cut off from the remainder of the world hydrothermal systems throughout geologic time, and may provide a unique set of macro and microfaunal assemblages.

1.6 Implementation

Icebreaking resources – Healy, Polarstern
Drilling: Aurora Borealis

1.7 Links to other programs

Integrated Ocean Drilling Project (IODP)

2. Ridge-Hotspot Interaction

The structural, geophysical, petrological and geochemical characteristics of mid-ocean ridges are drastically affected by the presence of a hotspot in the vicinity, such as in the case of Iceland, Azores, Reunion, Galapagos and more than a dozen other near-ridge hotspots. A large part of the global mid-ocean ridge system is or has been affected by the interaction of a ridge with a hotspot, and most of the islands located near mid ocean ridges result from such an interaction. Among the scientific questions raised by ridge-hotspot interaction are (1) the mantle dynamics associated with the interaction, (2) the structure of crustal features resulting from the interaction, and (3) the thermal, hydrothermal and magmatic consequences of the interaction.

2.1 Mantle dynamics of ridge-hotspot interaction

Many seamount alignments and elongated highs related to ridge-hotspot interaction display marked geochemical trends between isotopic and trace element characters of the hotspot and the nearby spreading centre. Such topographic features and geochemical trends are believed to reflect the flow of contaminated mantle away from the hotspot and its mixing with "normal" oceanic lithosphere material, although it may also result from the initial contamination of a large area of sub-lithospheric mantle by the wide plume head and the subsequent sampling of this mantle to build volcanic features on weakness zones. A direct flow connection between a mantle plume and a spreading centre separated by several hundred kilometres has never been observed, although seismological and electromagnetic techniques have proven adequate to address such a question (for instance during the MELT experiment on the EPR). Imaging the mantle beneath areas of ridge-hotspot interaction is therefore an important challenge, which can only be achieved through international collaboration.

Conversely, individual efforts should be encouraged to describe different zones of interaction in terms of scale, morphology, geochemistry as it is clear that parameters such as the distance separating the ridge and the hotspot, the "strength" of the hotspot (whatever parameter is used to define this "strength"), the type of spreading centre and its geometry including the presence of large offsets, the relative motion of the ridge and the hotspot, among others, affect the area influenced by the interaction.

The interaction of a ridge with a hotspot should be seen in the context of its evolution, with a ridge approaching a hotspot, remaining over this hotspot for some time, and finally drifting away. The different stages of this evolution should be described and understood. Moreover, it has been suggested that ridges tend to be "attracted" by the hotspots and remain over these hotspots, mostly through asymmetric spreading. The mechanisms of such interaction are still poorly understood.

2.2 Crustal structure

Various types of crustal features are associated with ridge-hotspot interaction, including seamount alignments, linear volcanic ridges, and volcanic plateaus. They likely correspond to various stages of the interaction, with seamounts and volcanic ridges being associated with hotspots relatively distant from the ridges whereas a plateau is created when a ridge is located over a hotspot. Again, the variability of such features should be addressed for different cases of interaction (***e.g***. "close" versus "distant" hotspot, "strong" versus "weak" hotspot, ridge approaching versus moving away from the hotspot), hence providing constraints to thermal models of the interaction.

The origin of linear volcanic ridges observed in the case of distant ridge-hotspot interactions should also be investigated. Because these features may represent tension-crack analogs, particular attention should be given to the stress budget in the zone of interaction, through detailed morphological analysis and the determination of focal mechanism of microseisms in the interaction zone.

The depth, size and persistence of the magma lens at the ridge axis is strongly influenced by the presence of hotspots, as is the petrologic stratigraphy of the crust. The factors controlling these influences are still only poorly understood.

2.3 Thermal and magmatic consequences

Beyond the intrinsic interest of ridge-hotspot interaction, the perturbation induced by the presence of the hotspot to a mid-ocean ridge may also represent a way to test our understanding of how ridges work. Ridge segmentation, thermal structure and melting systematic are clearly affected by a nearby hotspot. Its effects should be described and modelled using the present paradigm on mid-ocean ridges. Questions such as the restriction (or not) of silicic lavas to ridge hotspot interactions may be resolved in this way.

The consequences of ridge-hotspot interaction on the hydrothermal activity should also be evaluated. Are the hydrothermal products in regions of ridge-hotspot interaction geochemically or mineralogically different from those on "normal" mid ocean ridges (***e.g***., due to different thermal regimes, host rocks, magmatic fluids, and/or longevity of the hydrothermal activity)? Is the 3D structure of hydrothermal systems in an area of ridge-hotspot interaction different from "normal" ridges, and is there a relationship with the peculiar structures observed at such zones of interaction? How is the permeability of the crust affected as a result of ridge-hotspot interaction? Because the best known hydrothermal sites on slow spreading centres are located in the interaction area of the Mid-Atlantic Ridge and the Azores hotspot, such questions have to be addressed.

2.4 Implementation

Researchers in several counties are actively working on the problems of ridge-hotspot interaction. In the coming years, the InterRidge working group on Ridge-Hotspot Interaction can play an active role in promoting unique experiments that can address some key questions about plume-ridge interactions but that can not be done alone by single nations. Examples include, but are not limited to, (1) large-scale seismic/EM experiments to image the crustal and mantle structure in the interaction zones between plumes and ridges; and (2) establishment of one or two ridge-hotspot systems as integrated study sites, where enhanced research activities (including long-term seafloor observatories) can be conducted by multiple nations. It is recommended that the Ridge-Hotspot Interaction working group continues to play an active role in promoting timely exchange of the latest data/cruise results through organizing special sessions at international meetings (***e.g.***, AGU, EGU) and to consider organizing more focused InterRidge symposiums on plume-ridge interactions.

2.5 Links

The research activities of plume-ridge interactions are strongly linked to other programs, especially the following programs:

- ODP/IODP
- International Association of Volcanology and Chemistry of the Earth´s Interior (IAVCEI)
- IAVCEI Large Igneous Provinces (LIPS) group
- Monitoring the Mid Atlantic Ridge (MoMAR)
- Mantle Dynamics (NSF)

3. Back-arc Spreading systems

Back-arc basins (BABs) contain divergent plate boundaries situated behind subduction systems. Many important geological aspects of normal spreading axes can be found in BABs as well, including seafloor spreading, hydrothermal activity, associated vent fauna communities. However, BABs differ from mid-ocean ridges in several aspects. Due to their location close to convergent plate boundaries, they represent a non-steady state system which undergoes complex change over a relatively short period of time. They are influenced by the kinetics of a subducting slab and melting processes which generate arc magma. Their geometry is strongly affected by the interplay among plate tectonic forces and as a result complexity and spatial heterogeneity are common features of BAB. Continental run off and sedimentation strongly affect the mass accumulation in the basin. BABs are an integral part of the arc-backarc systems. The following fields will be the focus of InterRidge studies in the next decade:

3.1 Complexity of tectonics

BABs exhibit wide range of tectonic features as they evolve in time from initial rifting to seafloor spreading and eventually cessation of spreading. Because BABs lie at the convergent boundary between major plates, they are affected by even small changes in plate motions and frictional forces. The interplay between magmatism and tectonism is an important factor in BABs. The evolution of a back arc basin is closely linked to the subducting process. In-depth investigations of different evolutionary stages and combining results from various BABs studies are necessary in order to identify the parameters controlling the generation and evolution of BABs. Many BABs are thought to have initiated when there was a major change in plate motion – the tectonics of such situations are however so complex that very little is understood about how this might work. Because BABs change significantly over a short period of time, there is a strong chance that important new discoveries will be made by studying not only close to the spreading centres but also off-axis. Specific questions related to BAB tectonics which InterRidge should attempt to foster in the next decade are:

- What are the interactions between magmatism and tectonism in BABs ?
- How do geological parameters contribute to rapid temporal changes in BABs ?
- Are the initiation of subduction and BAB formation caused by changes in major plate motion ?
- What factor controls the oblique spreading and the segmentation of BABs ?

3.2 Diversity of magmatism

The endogenetic processes taking place in BABs derive their energy from upwelling magma which themselves provide heat for hydrothermal circulation and water-rock interactions. Since BABs lie close to convergent margins, they are inevitably influenced by arc volcanism and melting of the subducting slab. Their range of volcanic products is much more diverse than at mid-ocean ridges; for example bi-modal volcanism is commonly observed in BABs. Volatile content and fluid from the subducting slab also increase the complexity of chemical compositions of the rocks. Degassing processes from the crystallizing magma at relatively shallow depth is thought to have strong influence on the volatile budget of circulating hydrothermal fluids. Another point is that felsic melts are generally richer in fluids than mafic melts. The following questions appear most crucial for InterRidge attention:

- How can the development of bi-modal volcanism in BABs be explained?
- How can we define the deep mantle influence and sedimentary input on the composition of volcanic rocks in BABs ?

3.3 Mineralization and role of fluids

Hydrothermal fluids generated in BABs display a great variety in metal composition, volatile content, and salinity, because of their interaction with very different types of rocks (felsic, mafic, and sedimentary rocks). In particular, the higher volatile content due to magmatic degassing controls fluid chemistry. Because of the shallower depth range of fluid discharge, the fluids are often subject to phase separation, which will have a strong influence on fractionation processes and mineral precipitation. Due to this complexity, the related mineral deposits show a great variety in metal composition, including remarkable gold and silver enrichment. Since many on-land volcanogenic massive sulphide deposits are thought to have been formed by submarine hydrothermal activity in BABs, the investigation of modern hydrothermal systems offers an opportunity to understand the formation processes of these metal-rich deposits ranging from massive sulphides to epithermal occurrences. Due to the multi-stage evolution of these mineral deposits, re-equilibration and replacement processes are very common. Thus, the mineral assemblages in BABs are ideal targets to study these dynamics in terms of energy and material fluxes. The assemblage and compositions of minerals in hydrothermal deposits reflect basic aspects of the physical and chemical conditions at the time of formation, and can be used to comprehend these conditions, therefore these types of studies are an important field where progress can be achieved. Other questions for the next decade are:

- How do different source rocks, including sediments, affect the composition and volatile budget of BAB hydrothermal fluids ?
- How do different water depths affect the degassing process ?
- How does subcritical and supercritical phase separation control fractionation of the volatiles and metals in fluids and mineralization ?
- What are the compositional consequences of re-equilibration and replacement processes on the mineralizations ?
- Do we understand how sulphide mineral deposits produced in BAB systems end up on land ?

3.4 Biogeography

BABs are disconnected from major mid-ocean ridge systems, therefore it is possible that the local eco-system have evolved differently. There is a large gap in our understanding of the global distribution of hydrothermal vent communities, especially along back-arc spreading systems. One important aspect is that BABs eco-systems often develop in a boundary situation between the deep-sea and the continental controlled environment. The influence of environmental factors on eco-system changes is not well understood at present at BAB sites. The following are some of the important questions:

- How do eco-systems in BABs relate to global bio-distribution ?
- How well do we understand endemisms in BAB eco-systems ?

3.5 Implementation

InterRidge has to intensify its work to promote interactions among members of the Backarc Basin Working Group. Investigations of BABs often require building of long-term relationship with coastal states, helping them to increase their research capacity and with the dissemination of knowledge to the public.

One activity which InterRidge should become involved in the next decade to further these goals is to organise BAB workshops in such countries to increase awareness of the scientific and societal problems associated with the back-arc spreading systems and to help local scientists participate more fully in InterRidge work. A start to this will be made with an InterRidge Theoretical Institute in Korea in mid-2004.

3.6 Links

The BAB Working Group has strong links and common interests with the following international programs:

- MARGINS
- IODP
- SOuth Pacific Applied geosciences Commission (SOPAC)

4. Mid-ocean ridge ecosystems

In the last decade the exploration of mid oceanic ridges (MOR) has revealed new hydrothermal ecosystems with highly specialized and endemic micro- and macrofauna. The functioning of these chemo-autotrophic based ecosystems is not yet fully understood and further, more detailed, investigations are required which should also focus on the interactions of vent systems with the surrounding, photosynthetic ridge ecosystems. Vent fields represent a minor fraction of the ridge area and the influence of the chemosynthetic production on the overall biological production along the ridges is unclear but probably small. There has been relatively little focus on the productivity and biodiversity of the ridge fauna not associated with vents.

In terms of scientific research, the main tasks should continue to be the acquisition of basic knowledge on structure and function of the diverse mid oceanic ridge ecosystems and a more detailed investigation of the living communities that are characteristic of both vent and non-vent sites. There is however also an urgent need to improve the techniques for monitoring and sampling the living communities. Specific research themes may be the following:

4.1. Patterns and processes of the ecosystems of mid-oceanic ridges

IR should endorse the development of interdisciplinary research programmes which will focus on the least well-known areas and habitats of the ridges. The overriding aim would be to describe and understand the patterns of distribution, abundance and trophic relationships of the organisms inhabiting these areas, and furthermore identify and model the ecological processes that cause variability in these patterns. Studies should consider all trophic levels including the role of endo- and exo-symbionts, aspects of parasitism and, in particular the biogeography of keystone micro- and macro-organisms. A further task should be to measure productivity in chemosynthetic and photosynthetic driven ecosystems for creating essential input to models that provide estimates of expected productivity.

4.2 Population structure of organisms associated with ridges

The ridges may have isolated populations of some species, but very probably the rule is that dispersion rates are significant and advection essential for sustaining populations. Many ridge species have immense areas of distribution, but dispersion patterns are virtually unknown. The information on population identity and the extent of migrations and exchange of early life stages between assumed population units is often lacking or insufficient. Knowledge on population discrimination is essential for both assessing and describing the biogeography of selected species, and studies using novel methods covering a wide range from molecular techniques (DNA sensors) to tagging methods and studies on the dispersion of early life history stages should be encouraged by the IR community. Further studies should address systematic work on dominating species to develop morphological descriptions. These should be used to produce and update illustrative keys of the ridge micro- and macrofauna.

4.3 Validation and calibration of age determination methods for keystone species

It is often assumed that many deep oceanic species as they occur at the ridges grow slowly, have long life-spans, high ages at maturation, low fecundity and limited mobility. Major efforts should be made to test these assumptions through new investigation of growth and life history traits and systematic comparison of the diversity of these traits with related taxa from different habitats (the better known fauna of the continental slope). To study life history processes of the ridge fauna, age estimations of dominating taxa are essential. Deep-water species have been aged using skeletal structures such as otoliths in which growth increments similar to annuli in shelf species have been found. Information on age of ridge fauna taxa such as crustaceans and molluscs is not available. Hence, it will be a major challenge to develop and apply techniques to age invertebrate organisms of the ridge fauna in order to obtain information on their growth patterns and how that is related to physiological characteristics.

4.4 Investigations on sub-surface communities

Scientific studies should focus also on biologically mediated processes below the seafloor, where oxygen is not available. Other characteristic features are sharp pH, temperature, and chemical gradients. Organisms living in such an environment had to develop adaptation strategies including a specialized metabolism. Therefore, a high diversity of various micro-organisms of metabolically different pathways can be expected. Many specialized anaerobic micro-organisms will use reduced components for growth and substantially modify the composition of the hydrothermal fluid. A fundamental understanding of the composition and function of these microbial communities is required and will contribute to the understanding of the whole hydrothermal system.

4.5 Scientific experiments on conservation aspects

IR has put considerable emphasis on management and conservation aspects of mid oceanic ridge systems (see Report of the IR Workshop on Management and Conservation of Hydrothermal Vent Ecosystems, Sidney, Canada, 28 – 30 September 2000). The protection of marine areas has become a major concern in environmental issues.

Scientific investigations of the fate of debris left on the seafloor could be a major contribution to determine which environmental effects are caused by equipment lost during scientific field work at ridge ecosystems. Long term imaging of batteries, mooring and/or submersible weights left on the seafloor could be a valuable contribution to investigate environmental impact of these objects in areas with repeated submersible/ROV visits.

4.6 Implementation

Studies of deep-water macrofauna and their distribution have mainly relied on capture-based assessments of numbers or biomass. Most gears are selective, and their behaviour on the bottom at great depths is often unclear. Alternative strategies both for observation and quantification should be explored and developed. Furthermore, aquaria with the ability to simulate real habitat pressure should be developed for physiological and life cycle investigations in the laboratory. Hydroacoustics and optics, as well as manned and unmanned vehicles etc. should be further developed to gain more direct observations of deep-water organisms and communities.

Studies should be systems-orientated. This will require close cooperation between biologists spanning a range of fields, geologist, physical oceanographers, and technologists. A pre-requisite for all planned investigations will be a detailed knowledge of the abiotic factors of the surrounding environment. IR should provide a platform for data, image and specimen exchange which have been collected at ridge ecosystems.

4.7 Links

- MAR-ECO (see ***www.mar-eco.no***)
- Census of Marine Life (CoML) and its component Chemosynthetic Ecosystems (ChEss)
- DFG-Schwerpunktprogramm1144: “From the mantle to the ocean: Material, energy and life cycles on spreading axes”

5. Monitoring and Observatories

Understanding the dynamic processes of ridge systems and the complex interaction of the various components of these systems requires sustained time-series observations using a multidisciplinary suite of tools. The development of a seafloor observatory at a designated mid-ocean ridge site where infrastructure can support the installation, maintenance, and data telemetry for a broad spectrum of seafloor instruments led to the concept of MoMAR, or Monitoring of the Mid-Atlantic Ridge. At the first planning workshop held in Lisbon, Portugal in 1998, an initial science plan was created and a site selected at Lucky Strike, about 150 km south of the Azores on the Mid-Atlantic Ridge. The site is relatively well studied and is located within range of Azores-based vessels making response to seafloor events possible. A few studies have already begun at the site, including the development of long-range acoustic monitoring of the site. A second planning workshop was held in Horta, Azores in June 2002. The following are the major scientific questions for which InterRidge intends to have made major advances in answering in the next decade:

5.1 What are the interdependencies between the various components of the geological, chemical and biological systems of an active hydrothermal site?

How do changes in the magmatic and crustal properties affect the hydrothermal circulation and composition? How do these changes in the hydrothermal system affect the associated biological systems? How does the biological system affect the hydrothermal circulation and chemistry?

5.2 What is the evolution and temporal variability of a seafloor hydrothermal system?

How does the hydrothermal system respond to environmental forcing? What is the immediate impact and recovery response of hydrothermal ecosystems to magmatic or seismic disturbance? What is the susceptibility and response of the system to cyclical environmental forcing (***e.g***. tides)? In the absence of forcing by seismic or changes in magmatic activity, how do the hydrothermal, chemical and biological systems evolve toward a steady-state ecosystem?

5.3 How do ridge crest hydrothermal systems impact the environment of the ridge?

How do the conditions change as one moves from close proximity to an active hydrothermal system into a non-hydrothermal ridge crest environment? What are the spatial gradients in chemistry, mineralogy, biology, etc.?

5.4 How are the heat and mass originating from hydrothermal discharge dispersed into the ocean?

What are the interrelationships among ocean currents, dispersal, productivity, and mass/thermal flux? How does this dispersal behave at various time/space scales, under different background environmental conditions (***e.g***. tidal states, surface productivity), and in response to changes in the originating hydrothermal system?

5.5 How can a deep-sea observatory be best used to conduct controlled experiments outside of the laboratory?

How are mineral compositions affected by multiple hydrothermal overprinting? How is barren substrate colonized by vent organisms?

5.6 Implementation

Understanding the complex interaction of geological, hydrothermal and biological components of the ridge crest ecosystem requires the measurement of a wide range of environmental parameters, collected simultaneously at a common location. Determination of spatial gradients in chemical and physical parameters are particularly critical for understanding geochemical reactions and biological systems. The sustained measurement of geophysical, hydrothermal, chemical, and biological parameters in the deep ocean requires the development of new technologies. In some cases, instruments already exist or can be deployed with only minor modification; in other cases, entirely new technologies or extensive modification of existing technologies is required. For example, there is a critical need for new chemical sensors; both existing and new sensors must be capable of long-term deployment on the seafloor. The following is a non-exclusive list of variables that it would be desirable to measure:

<u>Environment:</u>
- Temperature
- Pressure
- pH
- Eh
- Turbidity
- Currents
- Geodesy
- Seismicity
- Magnetics
- Gravity
- Particles/precipitates/Particle size distribution
- Heat and mass flux (plume integration and flow measurements)
- Acoustic plume imaging
- High-resolution imaging
- Seafloor Video

<u>Chemistry:</u>
- Gas (H_2S, CH_4, H_2, total CO_2, CO, NH_3, $^4He/^3He$)
- Salinity/chlorinity
- ***In situ*** mineral alteration
- Stable isotopes
- Dissolved constituents (Mn, Fe, Zn, Cu, REE, Pb, S, Mg, Ca, Si, Po4, NO3/NO2)

Sampling:

- Biological sampling
  - Mark/resample
  - Collection (net sampling, slurp gun, etc.)
  - Video imaging
  - Microbiological sampling
  - Substrate experiments
- Sediment cores

Routine access to the seafloor is also critical, whether from a surface ship or deep submergence assets. Telemetry can produce massive volumes of data and the management and dissemination of this information presents an additional technical challenge. Real-time data telemetry is of value when a rapid response to events at the monitoring site is required. The location of the MOMAR site near the Azores offers the potential to respond to events on the seafloor. Potential technologies for real-time telemetry include deep- sea cables, large scale buoys, small scale buoys, or pop-up messenger buoys (either routine or triggered). These real-time technologies can be quite expensive and will only be undertaken after a more complete understanding of the MoMAR site is obtained and a commitment to event response is made. Also, due to the real-time, interdisciplinary nature of the monitoring effort, data must be readily available to all investigators. In many cases, the data will need to be extensively processed before being of use to other investigators. Resources and technologies must be provided to individual investigators to make this data management model a reality. Finally, the success of any complex monitoring/observatory effort depends on the creation of an effective coordination system. This Monitoring and Observatories working group will provide the coordination necessary during the next decade to ensure the success of the MoMAR project.

5.7 Links

There are several seafloor monitoring projects being formulated around the globe from various organizations. InterRidge/MoMAR is the only seafloor observatory targeted to the slow spreading Mid-Atlantic Ridge. The following initiatives are also involved in similar projects:

- RIDGE2000 (Integrated study sites)
- Achaean Park
- ODP/IODP
- International Ocean Network (ION)
- CoML component project “Patterns and Processes of ecosystems in the northern Mid-Atlantic” (MAR-ECO)
- NE Pacific Time-series Undersea Network (NEPTUNE), Victoria Experimental Network Under the Sea (VENUS), Monterey Accelerated Research System) MARS
- Hawaii Undersea Geo-Observatory (HUGO)
- New Millenium Observatory (NeMO)
- Hawaii-2 Observatory (H2O)
- Long-term Ecosystem Observatory (LEO15)
- Ocean Observation Initiative (OOI)

6. Deep Earth Sampling

InterRidge should seek to promote interdisciplinary investigations of the 4-D architecture of the ancient and modern ocean crust and shallow mantle at all scales, and explore the extent and diversity of the sub surface biosphere of the oceanic lithosphere. This would be best achieved by the formation of an InterRidge Working Group with a focus on promoting the development and use of different drilling platforms ranging from over-the-side rock drills to riser drilling, and land-based platforms. It would be instrumental in formulating a new international drilling project that will seek to achieve total penetrations of ***in situ*** ocean crust in the Atlantic and Pacific within 20 years, and partial sections of crust and mantle in different tectonic settings. Drilling of active hydrothermal systems and young ocean crust and mantle at the ridge axis and in tectonic windows would be a high priority for the working group. These holes should also be used as laboratories in themselves allowing, for example, experiments with, and long term monitoring of, hydrologic systems within the crust. Recognising the value of ophiolite studies to understand the ocean lithosphere, the working group should promote on-land drilling to acquire long sections of the ocean crust and shallow mantle in well understood ophiolite complexes thought to represent key end-members for mid-ocean and arc environments. The following points give more details on possible activities for the next decade:

6.1 Drilling of Active Hydrothermal Systems

Sea floor hydrothermal systems provide modern analogues to on-land ore deposits and may constitute an important economic resource in their own right. They occur in a wide range of lithologies and tectonic settings that require careful evaluation before the impact of their exploitation can be assessed. The hydrothermal systems also harbour a diversity of key ecologies both where they vent on the seafloor and in the sub-surface. Study of these hydrothermal systems in their entirety is critical to understanding the elemental fluxes from the Earth's crust and mantle to the oceans. Drilling these complexes is required in order to understand how they develop in three dimensions as well as their temporal evolution.

Following the successful TAG model, InterRidge can promote interdisciplinary projects within IODP to drill active hydrothermal systems in various oceanic settings, including both ultramafic and basalt hosted systems. Drilling should include zones of focused and diffuse upwellings, and different temperatures of flow. The group can also encourage the development of new drilling technologies including over –the-side rock drills and diamond coring.

6.2 Zero-age Ocean Crust and Axial Mantle

Evaluation of the physical properties of young ocean crust is a required starting point for understanding the evolution of this crust through time. Drill holes in young ocean crust are also required for instrumentation of sea floor observatories for long term monitoring of seismicity, fluid fluxes, bottom currents and hydrothermal vents. In the case of ultramafic exposures at the axis, drilling is the only method of obtaining much critical information. For example, locating the source of heat driving ultramafic-hosted hydrothermal deposits requires drilling to measure heat flow. Drilling is also necessary to obtain samples of fresh peridotite suitable for many geochemical studies at zero-age. Even in the case of low recovery from drill holes in young crust (both basaltic and ultramafic), geophysical logging of these holes can yield extremely valuable information about the properties of new crust, and can be used for active experiments to measure permeability and fluid flow.

6.3 The Deep Biosphere

The discovery of the deep biosphere has changed our perception both of the distribution of biomass on Earth and of the interaction between the biosphere and the geosphere.

Living organisms have been identified to several hundred meters depth in the upper crust. The spatial distribution of the deep biosphere is still unknown, and its relation to thermal gradient, crustal age and lithology is unconstrained. The importance of biodissolution and biomineralisation in low-temperature alteration needs to be further explored. The microbial interactions with ultramafic rocks and its possible relation with the formation of methane need to be investigated. The subsurface biomass needs also to be considered as a potentially important carbon sink.

As a microbial habitat, the oceanic lithosphere spans the entire temperature and pressure range that can accommodate living organisms and harbours various chemical gradients. This environment can thus be expected to select for a variety of organisms including extremely thermophilic, psycrophilic and barophilic organisms (extremophiles). This provides for a large microbial diversity, but the microbes involved are presently largely unknown. These highly important and novel questions can only be addressed by drilling, and InterRidge can provide the expertise to select suitable sites and design experiments.

6.4 Drilling in Ophiolites

Continuous core and logs have proved invaluable in understanding the stratigraphy and evolution of the ocean crust and provide unique information not obtainable by surficial studies even on land. Comparison of long sections of core from ophiolites and ocean crust may be the only way to fully evaluate ophiolites as analogues for different ocean crust environments. Drill holes in intact well-preserved ophiolites , for example in the Urals, are unique in terms of the ease with which the bore-hole observations can be seen in a three-dimensional setting. Ophiolites also offer the unique opportunity of precisely positioning drill holes to examine specific features of interest within the stratigraphy that would be difficult if not impossible to locate in an ocean floor setting.

6.5 Implementation

- Use and development of existing rock-drill technology
- Nuturing of IODP proposals
- InterRidge-IODP workshop
- An official IODP liaison

6.6 An International Crustal Penetration Drilling Project

Understanding global geochemical fluxes from the Earth's interior to the crust, oceans and atmosphere, the relationship between the seismic structure of the ocean crust and its stratigraphy, as well as the economic potential of the oceans requires a full knowledge of the composition and structure of the ocean crust and shallow mantle. This goal can only be achieved by drilling representative end-member crustal types formed in a variety of tectonic settings. Drilling in one ocean basin or one type of ocean crust alone cannot achieve this objective. This drilling must include total penetrations into the mantle at both fast and slow-spreading ridges, as well as drilling long partial sections in tectonic windows representing the diversity of oceanic environments. This, then, rather than a single deep drill hole is the goal of an International Crustal Penetration drilling project that the working group will promote through IODP.

Deep holes in the ocean crust and mantle require proper engineering and planning, staged developments, clear intermediate milestones, and a good long-term scientific plan. This is a Complex Drilling Program ("CDP" - as outlined by the IODP planning structure) that will need a working group with the best experience available in ocean lithosphere drilling, insight and knowledge of the ocean crust for planning.

The working group, through international meetings and planning sessions will develop a long term plan for the drilling, and will organise the preparation of specific drilling proposals for submission to the ocean drilling program, monitor the progress of the program, and identify and encourage key groups of proponents.

7. Global Exploration

The following are important areas of global exploration which should be addressed by InterRidge in the next decade:

7.1 Global bathymetry and tectonics

There are still large sections of the global mid-ocean ridge system that have not yet been explored with even the most rudimentary single-swath multibeam map. Given the fact that at any one time, most of the global spreading segments are quiescent, we need to better determine the proportion of the spreading centre that is most active, and whether there is a true ´cycle´ of volcano-tectonic activity (a largely untested paradigm – logical but unproven).

7.2 Global distribution of hydrothermal activity and global vent biogeography

Our knowledge of the biodiversity of the spreading centres is also strongly limited by the fact that well over 80% of the global ridge system has not been surveyed in enough detail to be able to find present hydrothermal activity, should it exist. Moreover, existing surveys have been concentrated along eastern Pacific ridges and the northern Mid-Atlantic Ridge. Except for a few sites clustered near the Indian Ocean triple junction, a 30,000 km stretch of mid-ocean ridge that includes the southern MAR,

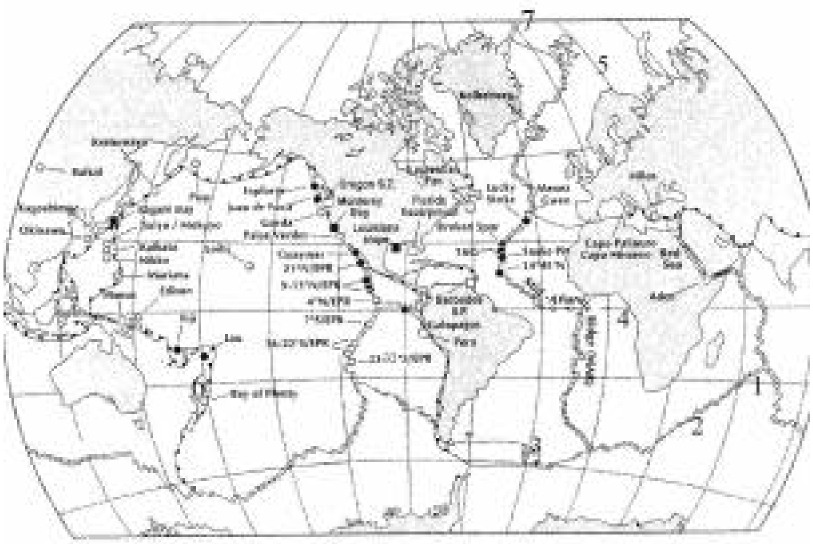

Fig.1 Distribution of confirmed hydrothermal vents (circles) and cold seeps (squares) in the world oceans. Recent discoveries include Kairei and Edmonds vents (1), plumes along the SW Indian Ridge (2) and the Scotia Arc (3) and cold seeps off Angola (4), the Hakon-Mosby Mud volcano (5), volcanoes in the southern Harve Trough (6), and plumes on the Gakkel Ridge (7). Closed symbols represent sites from which there are reproductive and dispersal data (Tyler & Young 1999).

all the Indian Ocean ridges, and the EPR south of 38°S is unsampled for hydrothermal biology or fluids. Future progress in understanding global trends in biogeography or hydrothermal chemistry will require a comprehensive catalogue of the distribution of active hydrothermal systems along the global spreading system. A priority is the development of tools and exploration strategies to gather this necessary information as part of `routine´ marine ship operations. For example, the most effective surveying strategy appears to be routine mapping of the ridge water column, either as dedicated studies or as ancillary data gathering in conjunction with other geological or geophysical operations. A new autonomous deep-float sensor system that could be deployed by ships of opportunity would be very useful. A previous InterRidge Working Group, "Global Distribution of Hydrothermal Activity," made significant inroads into the problems of global vent biogeography. This work will continue under the auspices of the Census of Marine Life and the subproject ChEss (Chemosynthetic Ecosystem Studies). The work is aided by the technological developments in the areas of long-term monitoring, remote observation and sampling (ROV etc.) and hydrothermal sniffers. The state of play in terms of known vents is shown in Figure 1.

7.3 Acoustic remote sensing

We need to strongly encourage the development of acoustic remote sensing techniques to determine noisy volcano-tectonic activity along the entire spreading system. A particular priority is to instrument the Indian Ocean (building upon existing test-ban monitoring stations)

7.4 Global fluxes

Many fundamental flux budget questions (***e.g***. mid-ocean ridge release of He, S, methane,…) require accurate estimation of currently emitted fluxes (and recent paleo-fluxes) from the entire mid-ocean ridge system, yet many basic measurements have been well-made in only a few locations. For example, if ridge degassing occurs to any significant degree by 'explosive' volcanism, then current quiet degassing estimates may be off by a large degree (and too low). At least a factor of two accuracy is needed in global inventories to address flux budget questions; this demands more basic exploration/mapping coverage of the system.

7.5 Off-axis volcanism and extinct spreading centres

Once we move away from the most active part of the neovolcanic zone, we know almost nothing about the volcanic and hydrothermal activity or tectonic evolution of the ridge axes. InterRidge needs to encourage exploration of off-axis regions, of the evolution of ridge segmentation, of the cessation of seafloor magmatism (on a normal spreading segment, and dying propagating/ridge-jump segments). All of these studies will provide glimpses into the workings of the spreading centre which are not available from a robust, neovolcanic zone.

7.6 Implementation

All global exploration strategies would greatly benefit from the development of effective tools that make this information gathering a more routine task that does not require dedicated cruise(s). For example, development of an AUV system that can be deployed during oceanographic/biological cruises to collect hi-resolution bathymetry/gravity/magnetics information (of opportunity) and likewise, routine deployment of a hydrothermal AUV detecting system during geological/geophysical cruises should be encouraged. The development and increased deployment of seafloor drilling capability is also an aim that InterRidge should actively pursue. All of these developments will however have only limited effectiveness in the absence of standards allowing the easy deployment of equipment form a variety of ships furnished by a variety of nations. These standards cover such diverse areas as cable connectors, voltages, acoustic transmission protocols, service connections for containers.

Organizational Structure of InterRidge in the Next Decade

Introduction

The present structure is very effective and will in general be continued. Some changes in the nature of the working groups is needed to focus them more towards long-term science planning, as their initial mandate of fostering of contacts is already well advanced. The rotation of InterRidge Office amongst the member nations was seen by all as a good thing. In the next decade InterRidge must redouble its efforts in strengthening contacts to the less industrialised or non-coastal nations, heightening the appreciation that the world's oceans are relevant to the lives of all the peoples on Earth.

Working Groups

These are the real success story of InterRidge up to present. They have proved very effective at both fostering international collaboration and, through the organisation of workshops, in defining clear program plans for the attainment of new ridge research objectives. Without InterRidge it is clear that many of these projects would not have been achieved. A new structure using Theoretical Institutes to assess the state of research in a particular area and to raise the international awareness of this research area is a further tool which will become important in the next decade.

Databases

InterRidge presently maintains databases on research vessels and vehicles, research cruises, location and general information on known hydrothermal vent areas, vent biological data, and ridge related references, all of which are of immense importance to the international ridge community. Particular additional activities which will become important in the next decade are the creation of a cruise report databank for ridge cruises and the identification of the scattered national databases in a coherent structure. To increase the scope of the InterRidge-hosted databases significantly is certainly beyond the limits of most projections of the InterRidge budget. We envisage NDIR database activities consisting of:

- Automating the input, modification and access processes for the presently-existing databases as much as possible or integrate their content into existing external databases as appropriate.
- Creation of a portal to other databases with ridge-related content consisting of brief descriptions and direct links.

Finances

The present funding structure of InterRidge, with the membership categories Principle (US$20.000, two steering committee members, able to bid for hosting IR office), Associate (US$5.000, one steering committee member) and Corresponding (no financial contribution, receive IR information) does not at present cover the running costs of InterRidge, the Office host has had to be inventive in providing additional funds. In the future, to enable InterRidge to achieve one of its main goals for the next decade of increasing and assisting the participation of developing countries, it will be necessary to increase the amount of money available to support delegates from these countries at Working Group meetings and Workshops. To achieve this goal InterRidge will have to solicit much more actively than at present support from both intergovernmental agencies and the private sector.

Outreach

InterRidge has a major role to play in the education of the public and governments about the global significance of ridges. Thus, the outreach activities are of high priority both for contacting the public and also for informing and involving governments in all parts of the world. Particular resources which InterRidge will provide are web-based presentations on InterRidge itself and on what a ridge is and why it is important. Press releases and scientific resources (suggested codes of conduct, policy for ridge environmental protection etc.) will be provided on the InterRidge server. All InterRidge scientists should be provided with the material necessary to act as ambassadors for InterRidge in any country in which they should find themselves.

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 7

-Matters forwarded from iSAS-

Interim Science Advisory Structure – Recommendations to IODP

September 2003

The interim Science Advisory Structure has been functioning during the transition period between ODP and IODP to provide science advice and program planning preparatory to the start of IODP in October 2003. Meetings of the interim service panels and interim Planning Committee have generated a number of recommendations concerning program administration and technical procedures. A number of iSAS recommendations have already been accepted and acted upon, while several are still pending. This document describes pending recommendations and their current status, and is intended to serve as the official transmittal of these recommendations to IODP and the SAS.

interim Planning Committee (iPC) RECOMMENDATION

1. Develop a set of environmental principles for IODP

iPC Consensus 3-4: iPC recommends that IWG develop a set of environmental principles for addressing potential public concerns about the impact of IODP activities, for raising the awareness of all IODP participants toward such concerns, and for providing clear and consistent operating guidelines for all IODP contractors.

2. Adopt the following principles of scientific investigation

iPC Motion 3-14: the iPC recommends that IODP adopt the following principles of scientific investigation.

1. The Integrated Ocean Drilling Program (IODP) is an international scientific research program that investigates important questions in the study of the Earth.
2. Science plans for IODP will be formulated and developed by the international scientific ocean drilling community through the IODP science advisory structure.
3. IODP investigations will be based on unsolicited proposals that address objectives of the IODP Science Plan or other outstanding new research ideas.
4. The IODP science advisory structure, composed of internationally representative committees, panels and working groups, will provide science advice to IODP management through a planning committee and policy advice through the executive authority.
5. The executive authority of the science advisory structure will be the lead policy-making body of IODP and will establish science committees and panels as needed.
6. All panels and working groups providing scientific and technical advice to IODP will report through a lead science planning committee to the executive authority.
7. The lead science planning committee will provide scientific and technical advice to IODP, guidance to proponents, and evaluation of proposals to conduct future drilling projects. The lead science planning committee may recommend policy changes to the executive authority.
8. The IODP science advisory structure will evaluate proposals for scientific ocean drilling in a fair and unbiased manner that avoids conflicts of interests.

9. The IODP science advisory structure will provide advice to IODP management regarding scientific priorities of proposed drilling and of technical needs.
10. IODP policies and procedures and the recommendations of the IODP advisory panels and committees will be openly available to the public.
11. IODP scientific ocean drilling projects will be undertaken by teams of scientists selected by IODP. IODP management and the platform operators in consultation with the science advisory structure will make decisions concerning the scheduling and staffing of drilling projects.
12. IODP will provide open access to all samples and data collected and produced during a drilling project once the members of the scientific party have had a reasonable opportunity to complete their initial studies.

3. Supports the concept that robust international participation is crucial to the long-term success of IODP

iPC Motion 4-17: The iPC supports the concept that robust international participation is crucial to the long-term success of IODP. The iPC further recognizes the potential scientific contributions of scientists from countries and/or consortia seeking membership in IODP and therefore supports their involvement at the Science Planning Committee level, at least as observers, until such time as their funding commitment to IODP is assured.

4. Develop mandate for Operations Committee (OPCOM)

iPC Consensus 3-16: the iPC establishes an *ad hoc* working group to develop a mandate for an operations committee in the future IODP advisory structure. The working group will consist of Keir Becker, Hisao Ito, Philippe Pezard, Nick Pisias, Alister Skinner, and Asahiko Taira, and they will report their recommendations at the next iPC meeting in March 2003.

iPC Motion 4-18: The iPC accepts the revised Section 4 of the IODP OPCOM mandate, on participants counting toward consensus and quorum, as proposed by the OPCOM working group.

iPC Consensus 4-19: The iPC accepts the revised Sections 1, 2, 3, 5, and 6 of the IODP OPCOM mandate proposed by the OPCOM working group.

5. Terms of service for SPC chair and vice-chair

iPC Motion 4-22: The iPC recommends that the Science Planning Committee should have a chair and vice-chair who serve a total term of four years, with the chair replaced by the vice-chair and a new vice-chair appointed every two years.

interim Site Survey Panel (iSSP) RECOMMENDATIONS

1. Develop a two-tiered approach to site surveys in support of riser-based drilling:

iSSP Recommendation 02-1-1: The iSSP recognizes that the site-survey data required for riser drilling is considerably more comprehensive than previously required for non-riser drilling. In particular, high-resolution, 3-D surveys of the shallow subsurface will be required for safety purposes and most likely to satisfy regulatory agencies as well. This will require a two-tier process, with separate requirements to satisfy (1) scientific criteria for site selection in the proposal and (2) safety and regulatory criteria for drilling. We recommend that high resolution, 3-D survey data in support of drilling fall under the purview of IODP and be included in the planning and funding process.

iPC Consensus 2-4: The iPC has received and discussed iSSP Recommendation 02-1-1 on the need for a two-tiered approach to site surveys in support of riser-based drilling. We note that the IWG has agreed that appropriate science operations costs include on the need for a two-tiered approach to site surveys in support of riser-based drilling. "engineering or geophysical surveys required for hole design or evaluation of drilling safety during final site selection." We also note, however, that the need for complex, high-resolution, 3-D imaging in support of IODP activities may extend beyond riser-based drilling. Therefore, the iPC urges the iSSP to continue examining this issue.

2. A thorough evaluation of the requirements and procedures of an IODP seismic data bank:

iSSP Recommendation 02-1-2: The future IODP data bank is to have the capability of accessing all future data and interpretations for riser, non-riser and MSP projects remotely accessible in digital/electronic form, and to have all shipboard data packages assembled in the form of "projects." Importing existing data, handling proprietary data and largely analog data are handled within such a system. We recommend that a systematic review of how this data bank can best serve the processes of proposal and site-survey data review and support of drilling activities be undertaken immediately. This includes a re-evaluation of the necessary data types to be imported, managed and maintained by the data bank. Technical assistance required for support and management of the data center also needs to be carefully assessed.

iPC Consensus 2-5: The iPC recognizes the need identified in iSSP Recommendation 02-1-2 for a thorough evaluation of the requirements and procedures of an IODP data bank. We request that the iSSP complete such an evaluation and report the results at our next meeting in August 2002. The iSSP report should include recommendations concerning (1) the requirements for digital versus analog data, (2) allowable data formats, specified by type (i.e., seismic, bathymetric, hydrographic, etc.) and form (both analog and digital), (3) the mechanisms and timing of communications with IODP panels and proponents, and (4) facilities, hardware, software, and personnel required for creating and operating an IODP data bank that meets the needs of a diverse, international community.

iSSP Reply:
Regional characterization of an area to develop the scientific rational of a proposal is the responsibility of the proponents.
Site specific survey for safety, engineering is the responsibility of the drilling program.
Engineering or geophysical survey required for the whole design or evaluation of drilling safety during the final site selection (by iSSP meeting minutes July 2002)

iPC Consensus 3-3: the iPC approves the iSSP plan to form a working group for developing the procedures and requirements for an IODP databank. The working group should prepare a report for the next iPC meeting in March 2003.

iPC Motion 4-7: The iPC receives the iSSP data bank working group report and forwards it to IODP, and we thank the iSSP for completing the report on time.

iSSPs has established a working group—Matrix Working Group—per iPC's direction.
The Matrix WG will report to iPC at its final meeting in September 2003.

<u>interim Scientific Measurements Panel (iSciMP) RECOMMENDATIONS</u>

1-a) Using digital core images for archiving purposes in IODP

SciMP Recommendation 01-2-02: SciMP recommends that iSciMP investigate using digital core images as the method for archiving core images in IODP.

iPC Consensus 2-3: The iPC accepts SciMP Recommendation 01-2-02 on using digital core images for archiving purposes in IODP, SciMP Recommendation 01-2-10 on maintenance of micropaleontology reference centers in IODP, and iSciMP Recommendation 01-1-1 on development of an IODP sample and data distribution policy. The iPC further encourages the iSciMP to address these topics at its next meeting.

1- b) Maintenance of micropaleontology reference centers in IODP

SciMP Recommendation 01-2-10: SciMP recommends that the role and maintenance of the Micropaleontology Reference Centers in the IODP structure be addressed by iSAS. Specific topics of concern include adequately supporting curation of the collections and exploiting curator's taxonomic and stratigraphic expertise in advancing program goals (*e.g.*, creation and vetting of dictionaries for paleontological applications, assembling reference sample sets, creation of digital image atlases, creation of stratigraphic databases). It is recognized that achieving these goals will not be likely under the current *ad hoc* funding of the MRC effort.

Accepted by **iPC Consensus 2-3** (see above)

1-c) Development of an IODP sample and data distribution policy

iPC Motion 1-06: The interim Planning Committee recommends that IODP adopt a sample and data distribution policy based largely on current ODP policy. The interim Planning Committee requests the interim Scientific Measurements Panel (iSciMP) to review the current ODP sample and data distribution policy, as a panel and through a working group if necessary, and report to the interim Planning Committee with a revised policy for review, discussion, and possible adoption.

iSciMP Recommendation 01-1-1
iSciMP recognizes the novel difficulties presented by IODP, particularly with respect to potential commercial spin-offs associated with sampling the deep biosphere. Given the open access and sharing principles of IODP, iSCIMP requests that IWG address those complex issues urgently, possibly through a specialist sub-group. Feedback to iSCIMP on this will help iSCIMP address iPC Motion 1-06 on developing a sample and data distribution policy for IODP. The ownership of samples and sub-samples (often at the molecular level) is probably pertinent.

Accepted by **iPC Consensus 2-3** (see above)

Action Items of June 2002 iSciMP meeting**:**

1) Sanny Saito and Dave Smith will modify Sample and Data Distribution Policy for IODP. Due July 15 to Eiichi and Jamie for distribution for comments.

iPC Motion 3-15: the iPC accepts the sample and data distribution policy from iSciMP as a working draft. We remind the iSciMP that the IWG has requested a report from the iPC on the final draft policy in January 2003.

iPC Motion 4-9: The iPC approves the sample and data policy received from iSciMP and forwards it to IODP.

iSciMP Action 03-01-4: Revisit IODP Sample and Data Policy with regard to linking obligations to publication policy.

2-a) Archiving of core images

iSciMP Recommendation 02-1-1: iSciMP notes that archived, accurate color renditions of core are essential for IODP science and legacy. iSciMP recommends that this is most effectively accomplished by the current ODP methods of a color film archive with color accuracy obtained by scanning and digital correction.

iSciMP Recommendation 02-1-2: Digitally acquired core images may serve as the core image archive when CCD brightness, dynamic range, and size of color space equals or exceeds that of color film.

iPC Consensus 3-5: the iPC receives iSciMP Recommendations 02-1-1 and 02-1-2 on the archiving of core images, iSciMP Recommendation 02-1-3 on the hard-rock working group report, iSciMP Recommendation 02-1-4 on shipboard reference collections, and iSciMP Recommendation 02-1-5 on the OD21 core description and database visualization system. We hereby forward these recommendations to IODP.

2-b) Accept the hard-rock working group report

iSCIMP Recommendation 02-1-3 iSCIMP endorses the principles and goals articulated by the SCIMP Hard Rock Working Group report (May 2002) and recommends that these goals be realized for all rock and sediment types.

Received by **iPC Consensus 3-5** (see above)

2-c) Shipboard reference collections

iSCIMP Recommendation 02-1-4 To improve the stratigraphic quality and consistency of shipboard biostratigraphy in IODP, iSCIMP recommends that shipboard reference collections of Mesozoic and Cenozoiccmicrofossils as well as digital image atlases and stratigraphic databases are needed and should be available for all IODP platforms and laboratories.

Received by **iPC Consensus 3-5** (see above)

2-d) OD21 core description and database visualization system

iSCIMP Recommendation 02-1-5 iSCIMP applauds the progress made in developing the OD21 integrated core description and data visualization system. iSCIMP recognizes the value of a common core description and data visualization system for the IODP, and that the OD21 integrated system could become the common system used by all IODP platforms and laboratories

Received by **iPC Consensus 3-5** (see above)

3. Establishment of ad hoc database working group

iSciMP Recommendation 02-2-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

iPC Consensus 3-16: the iPC establishes an *ad hoc* working group to develop a mandate for an operations committee in the future IODP advisory structure. The working group will consist of Keir Becker, Hisao Ito, Philippe Pezard, Nick Pisias, Alister Skinner, and Asahiko Taira, and they will report their recommendations at the next iPC meeting in March 2003.

iPC Consensus 4-10: The iPC approves iSciMP Recommendation 02-2-2 to establish an *ad hoc* database working group.

Recommendation 03-01-2: iSciMP recommends to iPC acceptance of the Database Working Group report, and requests iPC distribute it to the IO1s and IMI as soon as possible. The full report of the WG is found in Appendix 4.

4-a) Establish a database operator in IODP

iSciMP Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

iPC Consensus 4-12: The iPC receives iSciMP Recommendation 02-2-1 on establishing a database operator in IODP, Recommendation 02-2-4 on standardizing the diameter of drill pipe used on IODP platforms, Recommendation 02-2-5 on development of the JAMSTEC anti-contamination drilling and sampling tool, and Recommendation 02-2-6 on formalizing the link between iSciMP and the iSSEPs, and we forward these recommendations to IODP.

4-b) Standardize the diameter of drill pipe used on IODP platforms

iSciMP Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.
Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Received by **iPC Consensus 4-12** (see above)

4-c) Endorse the development by JAMSTEC of the anti-contamination drilling and sampling tool

iSCIMP Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anticontamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.
Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining noncontaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Received by **iPC Consensus 4-12** (see above)

4-d) Formalize the link between iSciMP and the iSSEPs

iSCIMP Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.
(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.
(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives
(e) ISAS policy regarding conflict of interest will be closely adhered to.

Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future. It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Received by **iPC Consensus 4-12** (see above)

interim Technical Advice Panel (iTAP) RECOMMENDATIONS

1. Conduct a study of pipe diameter capabilities on the non-riser vessel

iTAP Recommendation 03-1: iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (*e.g.*, core quality, core volume, tool deployment) and costs of outfitting the JRreplacement to be able to handle up to 6-5/8” drillpipe. iTAP will provide a recommended work statement to ODP.

iPC Motion 4-13: The iPC accepts iTAP Recommendation 03-1 on conducting a study of pipe diameter capabilities on the non-riser vessel.

2. Develop a hole problem risk mitigation plan

iTAP Recommendation 03-2: iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program. The plan should include near-real-time analyses during the drilling program that uses real-time drilling parameters. These parameters should also be captured into the IODP database to be used to improve future drilling plans.

iPC Motion 4-14: The iPC accepts iTAP Recommendation 03-2 on developing a hole-problem risk mitigation plan.

3. Ask ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation

iTAP Recommendation 03-3: iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP. iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

iPC Motion 4-15: The iPC accepts iTAP Recommendation 03-3 on asking ODP to evaluate the termination of each borehole drilled by the program, as part of its ongoing legacy documentation. The iTAP will define the scope of this evaluation and would like to review the results at its next meeting in July 2003.

4. Development of Project Management System Working Group

iTAP Recommendation 03-4: iTAP recommends the formation of an IODP working group that will develop a project-based management planning system. The system will be similar to those used by the petroleum exploration industry. It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project. This Project Management Working Group would be charged with developing the project management system by June 2003. Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representative.

iPC Motion 4-20: The iPC accepts iTAP Recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iSSEPs, iPC or SPC, the OPCOM working group, CDEX, and industry project managers. The system should be developed by June 2003.

5. Development of Project Scoping Working Group

iTAP Recommendation 03-5: iTAP recommends the formation of a Detailed Planning Group (or a Project Scoping Group) to begin the scoping process for complex drilling programs that are currently planned to address seismogenic zone objectives, as an interim measure. The scoping process includes project description (based on the existing proposals in the system), risk analyses, preliminary cost estimates, and project planning. Proposed membership: proponent representative(s), CDEX representative, project management advisor, risk identification specialist, well engineer.

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

<u>POLICY STATEMENT ON ANCILLARY PROGRAMS in IODP</u>

(approved by iPC e-mail vote in June 2003)

Scientific and educational programs are encouraged to develop projects that are ancillary to the IODP Annual Program Plan, and apply for permission to execute such projects as part of IODP research expeditions. Proposals for such ancillary programs must be approved by the Science Planning Committee Chairs in consultation with the Co-Chief Scientists of the drilling project(s) affected, the IODP Science Policy and Planning Oversight Committee, and by IODP Management International Inc prior to the development of the annual program plan. For the purposes of assessing proposals for ancillary projects, it is understood that:

1. Ancillary projects must be conducted at no extra cost (in time or money) to IODP scientific operations,
2. Ancillary projects will in no way interfere with, or require the alteration of, drilling plans approved by IODP;
3. Sufficient space must be available on the project drilling platform(s) to accommodate needed personnel, equipment, and/or laboratory facilities without interfering with primary IODP drilling, sampling and related operations;
4. Permission to undertake at-sea activities required by ancillary programs must be obtained from the on-site operations manager of the IODP project on a day-by-day basis. Such permission can be rescinded at any time as required by operational considerations.

IODP Sample and Data Policy

1. Overview of the Policy

This document outlines the policy for distributing IODP samples and data to research scientists, curators, and educators. This document also defines the obligations that sample and data recipients incur.

The specific objectives of the IODP policy are to:

- ensure availability of samples and data to scientific party members so they can fulfill the objectives of the drilling project and their responsibilities to IODP;

- encourage scientific analyses over a wide range of research disciplines by providing samples to the scientific community;

- preserve core material as an archive for future description and observations, for nondestructive analyses, and for sampling; and

- disseminate scientific results from post-drilling project research.

2. Sample and Data Distribution

IODP samples are generally distributed for research projects that can be completed within two to three years. During the moratorium period, samples are available exclusively to the drilling project's "scientific party" that has been formally approved by IODP, and whose requests have been approved by the Sample Allocation Committee (SAC, sec. 4).

The science party is defined as all scientists selected by IODP to produce initial, openly shared data associated with a particular drilling project within the moratorium period.

After a moratorium period, samples are given or loaned to persons in the following three categories whose requests have been approved by the IODP Curator:

- scientists who wish to conduct research on IODP materials and to publish the results, but who are not necessarily associated with a specific drilling project and;

- curators of museums and collections; and

- educators.

Archived data produced from samples taken for analyses, data acquired from boreholes by downhole measurements, and site survey data collected by IODP are available during the moratorium to the entire scientific party. After the moratorium expires, all project data are made available to everyone.

3. Moratorium Period

The purpose of the moratorium is to ensure adequate time is allotted for scientific party members to conduct drilling project-related research before the cores and data are made available to the general scientific community. To accommodate the variability in duration of specific drilling projects, the period one year after the release of samples or data to the scientific party is designated as the "moratorium period". The release date, relative to the drilling project, may be delayed post-drilling or staggered during drilling as appropriate to the scientific objectives as defined by IODP. Only members of the scientific party are permitted to receive core samples and associated data during the moratorium period. Other requests for samples will be considered after the moratorium has expired.

4. Drilling Project Sampling Strategy

For each drilling project, a SAC is constituted, comprised of the Co-Chief Scientists, the IODP Staff Scientist, and the project Curator. During the drilling project, the Curator’s authority and responsibilities to the SAC may be ceded to the drilling project Curatorial Representative.

The SAC establishes a project-specific sampling strategy and makes decisions on project-specific sample requests received before the drilling project, during the drilling project, and within (but not after) the moratorium. Approval of such sample requests requires endorsement by a majority of the SAC. In the event of an evenly divided vote, a decision will be made by the IODP Curator. Appeals to this decision can be made to the Curatorial Advisory Board (CAB).

5. IODP Review and Approval of Sample Requests

The CAB is a standing body that consists of two IODP senior managers and three members of the scientific community (selected by the IODP Scientific Measurements Panel) who will serve overlapping four-year terms. Every effort will be made to ensure that CAB membership represents a variety of scientific disciplines.

The CAB has two main functions:

It acts as an appeals board vested with the authority to make final decisions regarding sample distribution, if and when conflicts or differences of opinion arise among any combination of the sample requester, IODP Curator, and the SAC.

It reviews and approves requests to sample the permanent archive and requests for loans of core material for outreach and education.

6. Scientific Results Dissemination (Publications)

The responsibility and authority for making decisions regarding the publication of post-drilling project research to fulfill the IODP obligations, lies with an Editorial Review Board (ERB) and the IODP manager responsible for publications.

An ERB is established for every drilling project and remains active for 30 months post-moratorium. The primary purpose of the ERB is to maintain an independent and effective peer-review system for the publication of drilling project results. The ERB is comprised of the Co-Chief Scientist(s) for the drilling project and the IODP Staff Scientist. These individuals may select external scientists/specialists to serve with them on the board. The need for external ERB members will be determined based on the Co-Chiefs' and Staff Scientist's workloads and expertise.

7. Sample- and Data-Recipient Responsibilities

All scientific party members incur obligations to IODP that they must fulfill by using samples or data from the drilling project to conduct post-project research and by publishing associated results in agreement with the other terms of this policy. Manuscripts for publication must be submitted within 20 months post moratorium.

All scientists who receive samples or conduct nondestructive analyses from cores after the moratorium are obligated to publish a paper in a peer-reviewed scientific journal or book that publishes in English, or submit a progress report to the IODP Curator outlining the status of the samples and/or the data no later than 36 months after receiving them.

All publications incorporating IODP data or samples must explicitly acknowledge IODP and be submitted to the IODP Curator along with any applicable data.

Those not meeting the above obligations will be restricted from obtaining future samples and data and may not be allowed to participate in future drilling projects. Obligations incurred during the Ocean Drilling Program (ODP) will be carried forward into the IODP.

Report of the iSciMP DatabaseWorking Group

2-3 June 2003

Introduction

As the Ocean Drilling Program comes to an end and a new era of ocean drilling begins with the Integrated Ocean Drilling Program (IODP) new opportunities to explore our Earth will arise. The "I" in IODP will present the most challenges especially for the data management and the integration of database services throughout the new program. The task of the interim Scientific Measurements Panel's (iSciMP) Database Working Group (DBWG, hereafter called the Group) was to present a possible model for database services, which the Group refers to as the IODP Information Services (IIS). The model comprises the management of the data collected onboard the various platforms (including downhole logging, site survey information), legacy data from DSDP and ODP, and "landborn" data, derived from post-cruise research and publications. The model includes the integration of those data and other IODP relevant information types into a common, program-wide IODP information system accessible by IODP researchers and the public. This report presents the results of a meeting held 2-3 June at which the Group discussed future IODP database and data management activities. We begin the report with a preliminary "Mission Statement", or "Mandate", for an envisioned IODP Information Services Center (ISC), which will play a key role in the successful function of the IIS. This is followed by a set of recommendations for the functions and structure of the proposed ISC, including expectations for each of the IODP Implementing Organizations (IOs), their relation to the ISC, and a number of database management issues.

The DBWG Report makes specific recommendations, however it does not specify exactly how the recommendations should be implemented. This is done intentionally. There are many possible configurations and designs that will include all of the Group's recommendations, but the Group felt it was not its charge to define the specifics. Rather, the Group would present concepts that it believes will make for a successful IODP database management structure.

The proposed model for database management for IODP is highly flexible. This report encompasses the data collected by the various operational platforms with respect to cores (e.g. data currently collected by ODP), ODP and DSDP legacy data, post-cruise data, publications information, downhole measurements, seismic images, engineering data, and much more. However, the system is versatile and should include links to the Site Survey Data Bank and downhole logging database

Participants in DBWG meeting (members of Working Group unless otherwise indicated):
Jennifer Anziano (JOI), David Becker, Michael Diepenbroek, David Divins, Colin Graham, Hisao Ito (iPC), Shin'ichi Kuramoto, Kate Moran, Saneatsu Saito, and Kyoma Takahashi.

IODP Information Services Center Mandate

The IODP Information Services Center provides for the ready access of all IODP data to IODP researchers, the international science community, industry, educators, media, and the public in a timely manner. This is achieved through the coordinated actions of the Center and the Implementing Organizations in the development and implementation of common program policies, standards, and effective mechanisms for the collection and distribution of IODP data.

Recommendations:

1) Structure of IODP Information Services

The Group recommends that an IODP Information Services Center (ISC) be established to provide database services within a distributed networked system and not within a centralized system. The system, termed the IODP Information Services, is composed of the database management activities of each of the IOs, a database of legacy data (DSDP and ODP, where these data will be maintained is not specified), and, at its heart, the Information Services Center operating directly under the IMI (Figure 1).

The primary functions of the ISC should include:

- *a **clearinghouse function** provided by ISC management, technical, and communications staff with appropriate network and computer infrastructure to provide integrated access to the program-wide information; and*
- *a **coordination function** provided by an assemblage of information services staff from each of the IOs as well as the ISC, site survey data bank services staff, and scientific drilling legacy data staff.*

Discussion:

The Group envisions two major challenges to the new ISC. First, providing integrated access to all IODP data, ODP legacy data and DSDP legacy data. Second, working with the information services staffs of the IOs and those of other data providers to ensure that data structure and access standards are in place and followed.

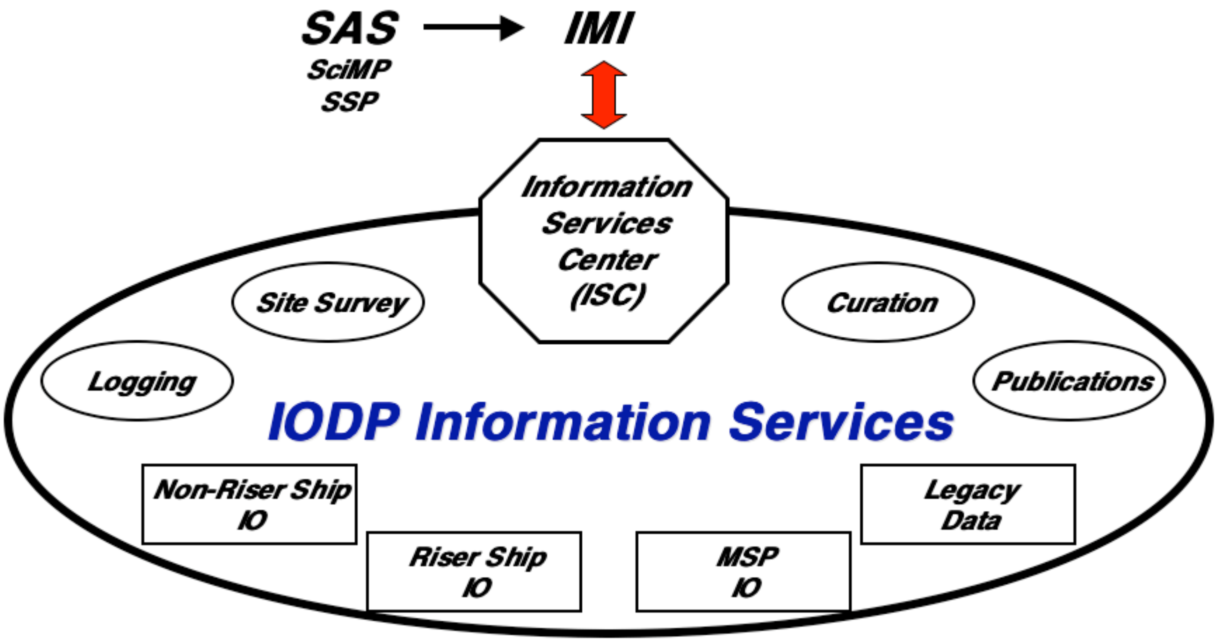

Figure 1. Proposed structure of IODP Information Services (IIS).

In a distributed environment, data resides on multiple computer systems in multiple formats at multiple locations. The challenge to the ISC will be to provide any data user a single point of entry into the myriad of IODP databases, text libraries, and catalogs (one stop shopping). In such a situation, the user relies on the **clearinghouse** to provide the access using simple point and click routines and a minimum of passwords. Thus, special computer programs (routines) need to be in place in order to access files, databases, catalogs, text libraries, etc. located on disparate computers around the world. This is a nontrivial task, to say the least. The Group felt that by identifying a **clearinghouse function** for the ISC specific tasks could be identified that would be the sole responsibility of the ISC, to which audits and performance measures could be made.

Since no contractual arrangements are envisioned between the ISC and IOs, the success of the ISC would rest, in part, on its ability to work in a cooperative sense with the IOs in order to successfully deliver information services to the scientific community. As such, the Group felt that a "dictatorial" (top down) management approach between the ISC and the IOs would not succeed. Rather, a **coordination function** for the ISC was envisioned as having a higher probability of success. To that end, the Group recommends the ISC take a proactive approach to establish data collection, storage, retrieval, and access standards with the complete involvement of the IOs. A SciMP subcommittee could be used to oversee this interaction.

2) IODP Information Services Center Responsibilities

The Group recommends that the ISC have the following specific responsibilities:

- *provide integrated access to all IODP data (e.g. shipboard and shore-based)*
- *develop & maintain:*

- *the central program-wide web-based portal to stakeholders (scientists, educators, industry, policy-makers, public). Note: this portal should be dynamic & open to other international information systems & communities (e.g. physical oceanograph)*
  - *portal user interfaces that are scalable for different stakeholders*
- *following SAS advice, adopt & maintain standards to:*
  - *capture, storage, and distribution of data and metadata on each platform and of shore-based data. Required developments and implementations should be largely based on ISO, OGC, W3C standards and recommendations (for more information see http://www.fgdc.gov/standards/related_activities.html)*
  - *foster publication of data within IODP information services, e.g., using Digital Object Identifiers (DOI, http://www.doi.org)*
- *perform regular (360 degree) evaluations of the performance of the clearinghouse and the IOs in the delivery of IODP information services*
- *oversee the archiving of IODP legacy data (e.g, in partnership with recognized data centers)*
- *maintain and provide access to the program's publications database and integrate IODP information/data with IODP publications, e.g., using DOIs*
- *provide access to IODP curatorial information*
- *coordinate the development of data capture interfaces for specific platforms on an as-needed basis*
- *coordinate communications among the platform operator's IT/IS managers to share new ideas, resolve problems, and to adopt new information technologies.*
- *maintain links with other data groups (e.g. WDC, NGDC, ICDP, DEOS) and disseminate relevant information among IOs.*

Discussion:

The ISC should be the central location through which all publicly available IODP data and information are made available to IODP stakeholders. This is best accomplished through a portal that is both flexible and dynamic. The user interface should be scalable, that is, it should be able to accommodate both the novice and the experienced users, and most importantly, the user should always be able to find something related to their search. The portal will be based on levels of metadata, middleware, and user interface hardware and software. Implementation should be based on international standards (such as the ISO/TC 211 family of standards - http://www.isotc211.org/), which specify all necessary components for an effective geospatial data infrastructure, including "discovery", access, and exchange of IODP related data. Construction and maintenance of an IODP thesaurus, derived from metadata contents and related information inventories, will be one of the key elements to facilitate data and information access for the different stakeholders. By implementing such a design for its database management system IODP will be consistent with other oceanographic information systems, thus increasing the versatility and usefulness of IODP data for our understanding of the earth's systems and history.

The ISC should be tasked to follow the advice of the Science Advisory Structure (SAS) for the approval and adoption of metadata and data capture formats to be used on each of the operational platforms, as well as those formats used for upload of data sets into the IOs systems and distribution via the ISC portal. This The ISC will maintain these standards and make sure that all data are accessible in the proper format. It is the adherence to agreed-to-standards that makes a distributed database management system work.

Regular performance evaluations should be carried out to determine how well the clearinghouse is meeting the needs of the IODP stakeholders and responding to their requests. The Group believes that this is an extremely important responsibility of the ISC. The ISC is a service organization and as such is responsible for providing information and data to the public in a form and manner that meets the needs of the public. Regular evaluations and reviews are essential to providing the best service possible.

IODP has spent time preparing for the beginning of drilling operations. The Group believes that now is the time to begin thinking about the end of drilling operations and providing for the legacy of IODP. There are many lessons to be learned regarding the preservation of legacy materials from the previous ocean drilling activities. Regular transfer of data to the appropriate archiving agencies during IODP should be the practice of the ISC in cooperation with the archiving agencies.

The data generated by IODP will include more than the data collected on the operational platforms. The data include “prime data” to be collected by IODP and then processed on shore, data published in the scientific literature, and publications that will be based on IODP data. The ISC should be charged with the responsibility to implement an information service that includes links to the publication information as well as access to the actual data. The Group recommends including Digital Object Identifiers to reference all IODP-related data publications. The DOI system would make data publications citable and thus provide credit to both IODP and the individual researcher, which would be mutually beneficial (The International DOI Foundation (IDF) and ISCU World Data Centers are currently piloting a project to investigate the premises for this procedure).

In addition to information describing the core material and the downhole environment, curatorial information should also be included in the information services system. Information regarding who has what samples, where those samples are from, and other similar information need to be included. The ISC could also be tasked to provide database support services to the IODP core repositories as would be appropriate.

Another specific ISC responsibility should be to coordinate database management activities of the ISC and the IOs. This coordination should include routine meetings between the IOs and the ISC to discuss system operation issues, new technologies, and new ideas. The ISC will also be responsible for interacting with the IOs to assure that all the necessary metadata are generated according to the agreed upon standards.

3) IODP Information Services Standard Practice

The Group recommends that IODP Information Services include the following standard practices:

- *The ISC should be regularly evaluated following IODP project management standards to ensure that it meets the data and information needs of the IODP stakeholders as defined by the SAS*
- *An annual review of the ISC by external IT/IS experts to ensure that IODP is utilizing the best technology possible (e.g. in terms of cost, applicability or efficiency)*
- *IOs should ensure that the standard (as defined by SAS) shipboard IODP data are captured electronically by the end of the moratorium period for each project*
- *IOs will work together with the ISC to provide consistent data collected on all platforms with particular attention given to common units, calibration information, and standardization of measurements (e. g. depth, age models, etc.)*
- *IOs are responsible for performing quality control and consistency checks on all data and metadata generated on their platform for each project*
- *The ISC will provide feedback to the IOs on the quality and consistency of the metadata supplied*

Discussion:

The ISC is, as its name implies, a service organization. Its primary function is to be the public image of IODP. It is where the public will go to receive information about the program, data from the program, and publications related to the program. These are very significant responsibilities. To maintain the high standards required to make IODP a premier science and world class research program, the ISC must successfully carry out its mission. In order to meet these responsibilities a minimum set of standard practices is recommended.

The Group's recommended standard practices involve both the ISC and the IOs. IODP will only be as successful as each of its individual components. The key is to measure or monitor the level of service to the public and the stakeholders. Regular evaluation of the service provided by the ISC should be performed by the IMI, with input from the SAS. This is essential to maintain high standards and expectations for the ISC. Additionally, a review of the ISC's technical capabilities by non-IODP technical experts is recommended. This review will address issues related to efficiency and technical operations of the Center. Both of these reviews will provide the ISC with the feedback it will need to assure that IODP is represented to its stakeholders in the best manner possible.

4) IODP Information Services Standards

Standards are essential to the success of the ISC clearinghouse. The Group recommends that:

- *Based on advice from the SAS, the ISC will adopt data standards for IODP consistent with international and emerging standards such as ISO and FGDC*

- *IOs provide the ISC with access to IODP data using consistent, standard metadata catalogues (e.g. in XML following adopted IODP standards)*

Discussion:

The SAS has a very important role in the design and operation of the ISC. The distributed system design should be built on accepted standards. This is valuable for two reasons; first, IODP is more likely to be interoperable with other large global oceanographic programs, and second and more importantly, legacy data are more likely to be compliant with search mechanisms and national archiving requirements. Adoption of standards thus fosters integration, widespread dissemination, and usage of IODP related data.

5) IODP Information Services Definition of Information

Information includes, but is not limited to:

- Shipboard and shore based collected data (ODP Janus data and microbiology, drilling parameters, downhole measurements, site-specific survey, paleontology, visual core description, XRF, CT data)
- Engineering data
- Citations that include IODP information
- Curation information
- Observatory data links
- Ship schedules
- Applications
- Project description information
- Policies
- Publications…..

Integrated Ocean Drilling Program
Microbiology Working Group

Members

Heribert Cypionka, Institut für Chemie und Biologie Des Meeres
Katrina Edwards, Woods Hole Oceanographic Institution
Fumio Inagaki, JAMSTEC
Kenji Kato, Shizuoka University
Craig Moyer, Western Washington University
Kenji Nanba, University of Tokyo
David C. Smith, University of Rhode Island (co-chair)
Ken Takai, JAMSTEC (co-chair)
Peter Wellsbury, University of Bristol

Our Charge:

iPC Consensus 3-17: The iPC requests that iSciMP form a microbiology working group to examine issues related to the conditions and duration of sample storage, to make recommendations about the importance of patent rights, to formulate requirements for data reporting and publications, and to identify ways to attract more microbiologists to the program.

Note from Microbiology Working Group co-chairs: Prior to assembling the Microbiology Working Group, a Memorandum of Cooperation between the U.S. (NSF) and Japan (MEXT) was signed. The memorandum addresses issues concerning intellectual property and data rights and therefore discussions of these topics were not considered by this working group. The relevant sections of the memorandum signed on 22 April 2003 are below.

> **Section VII. Data, Information, Intellectual Property Rights**
> The Agencies take necessary measures to assure that all data, samples, and scientific and technical results of the Program's scientific and engineering activities are made widely available to the international scientific community and to the public through customary channels and in accordance with the normal procedures of the Agencies, or an identified by the SAS. Such measures should be taken in accordance with the respective laws and regulations of Japan and the United States.
>
> Information transmitted by one Agency to the other under this Memorandum is expected to be accurate to the best knowledge and belief of the transmitting Agency which may not be liable for the content or issue of such information.
>
> Protection of intellectual property and rights thereto resulting from

scientific research activities conducted under the auspices of this Memorandum will be addressed as set forth in Annex IV to the Agreement between the Government of Japan and the Government of the United States of America on Cooperation in Research and Development in Science and Technology, signed at Toronto on June 20, 1988, and extended by the Protocols done at Washington on June 16, 1993, on June 16, 1998, on March 19, 1999, and on May 19, 1999, and extended and amended by the Protocol done at Washington on July 16, 1999.

ANNEX IV—Annual Member Contributions and Rights (final two paragraphs)

An IODP member with at least one participation unit may maintain the same rights in data as the Agencies for activities conducted using the IODP science operations funds.

An IODP member with at least one participation unit is to have the right to a royalty free license for all patents resulting from developments supported by the IODP science operations funds.

1) Introduction

Interest in microbes inhabiting the marine deep subsurface has increased dramatically towards the end of the Ocean Drilling Program. As a result of this interest, microbiology became better integrated into the program. This culminated in the establishment of a well equipped microbiology laboratory onboard the JOIDES Resolution and the participation of more and more microbiologists. The purpose of this document is to lay out how IODP can capitalize on the knowledge gained during ODP and further integrate microbiology into the new program.

In response to iPC Consensus Statement 3-17, a Working Group of microbiologists was formed. This group is co-chaired by the two microbiologists that serve on iSciMP (Smith and Takai). The other members are expert in various aspects of environmental microbiology and have previous experience with the Ocean Drilling Program. The working group did not meet in person but rather worked on this document via email. Many of the issues described in the request from iPC have evolved independently, and this WG Report helps consolidate and formalize these practices, as well as make new recommendations to help ensure that the scientific goals articulated in the Initial Science Plan of the IODP ("Earth, Oceans, and Life") are able to be realized.

While the WG appreciates the significant progress the ODP has made in microbiological studies, they also feel that it is the IODP's responsibility to ensure that the microbiological measurements are continually made, and not on an ad hoc basis. Tremendous amounts of knowledge have been gained in other shipboard laboratories (e.g., the interstitial water program) even on legs for which those measurements are not fully associated with the leg objectives. It will only be after 5-10 years of continual and routine microbiological sampling and analysis that benefits will begin to become apparent. The implementation of the following recommendations will help us to reach this goal.

2) Sample Collection

A wide variety of analyses in support of the study of microbes in the deep subsurface have been employed on subsamples of recovered cores. Specific handling procedures are required for the various downstream procedures. In all cases, avoiding contamination of the cores with non-indigenous microbes, either during the drilling process or the subsequent subsampling is of paramount importance. Subsamples used for DNA and biomarker analyses should be frozen (preferably in liquid nitrogen, -196°C) as soon as possible after their isolation from the core. Subsamples that are used for subculturing must be protected from dramatic increases in temperature or from exposure to oxygen.

Subsampling Strategies:

- <u>Subcore with sterile syringe</u>. Ideally, a subcore is taken directly from the end of a core section on the catwalk. To reduce the potential for introducing contamination, the core is broken after the core liner is cut. If the core is cut with a blade or wire, the exposed end of the core must be scraped with a sterile blade prior to inserting the syringe. The ends of syringes (1, 3, 5, 10, or 50 mL) are cut off and used to take mini-cores from the uncontaminated interior of the cores. For indurated sediments, the syringes are pounded in to the center of the core using an adaptor developed at Bristol University. This method has been used extensively for the direct cell count samples. It is also very useful for samples for subculturing or molecular biology. This method yields an uncontaminated subcore that can be assayed directly or stored for later analysis.

- <u>Whole round cores</u>. Whole round samples (typically 5 or 10 cm in length) are cut on the catwalk, in the lab or in a cold room. The core liner is cut using the standard cutter and the core itself is broken or cut using a spatula or a wire. The whole rounds require additional work to remove the outer edge which is contaminated by drilling fluid.

- <u>Hard rock samples</u>. Individual rock pieces are sampled by paring away the contaminated outer edge using sterilized (flame or autoclave) chisels. The clean interior can be further processed by crushing using a stainless steel percussion mortar.

2) Sample Storage

Requirements for sample storage conditions are dependent upon the downstream assay. The following considerations are pertinent to samples that will be used in a more immediate manner (i.e. shipboard sample request) as well as those that will be shipped to shore-based laboratories or repositories for future analyses. It must be noted that even samples that are stored properly are not useful indefinitely and these samples are not a long term archive.

a. <u>Frozen samples.</u> Frozen samples are used for nucleic acids, lipid biomarkers, amino acids etc. These samples should be collected as soon as possible and immediately frozen, ideally in liquid nitrogen. This works best with subsamples taken in syringes as the core liners crack during freezing and increase the potential for contamination. The samples can be stored in liquid nitrogen or transferred to ultra low freezers (- 80°C). It is critical that the samples remain frozen until analysis. This includes shipping on dry ice (- 78°C). It is essential that the materials not thaw during transport, even briefly. Samples stored in ultra-low freezers can be maintained in an anaerobic environment by adapting the method of Cragg, *et al*., 1992).

b. <u>Anaerobic samples.</u> Samples that will be used for subculturing should be stored in an anaerobic environment until used. This can be achieved using oxygen scrubbers and gas impermeable trilaminate bags (Cragg, *et al*., 1992).

c. <u>Chemically fixed samples.</u> Samples used for microscopy (e.g. direct cell counts, fluorescent in situ hybridization, microautoradiography) are chemically stabilized in aldehyde solutions (formaldehyde, glutaraldehyde) and stored at 4 °C. Again, the particular downstream assay dictates the particular details necessary in the fixation process.

Because maintaining the proper temperature for the particular downstream analysis is essential, a temperature logger included in the shipping container can provide the researcher with the thermal history of the samples during transit.

The above discussion leads to the following Recommendation addressing the routine collection and storage of samples for microbiological analyses.

Recommendation 1: IODP should establish a repository for samples routinely collected and stored appropriately for subsequent microbiological analysis. The samples should be taken in sterile syringes (50 cm^3 capacity) as soon as the core arrives and stored as described below depending on the subsequent analysis.

a. Samples for nucleic acid analysis should be placed immediately in liquid nitrogen and transferred to ultra-low freezer or liquid nitrogen on board for storage. Alternatively, whole round samples used for this purpose should be placed directly in an ultra-low as soon a possible.

b. Samples taken for culturing work should be transferred to gas-tight trilaminate bags containing an oxygen scrubber, heat-sealed and stored at 4 °C.

c. Samples for microscopy should be preserved with an aldehyde solution (electron microscopy grade glutaraldehyde or paraformaldehyde) and stored at 4 °C.

3) Drilling Methods

Some analyses are most likely compromised by the depressurization upon ascent. To date, all microbiological samples have undergone depressurization prior to subsampling. Therefore, by default, all microorganisms that have been cultured from recovered cores can withstand exposure to a pressure of 1 atmosphere. The currently unavoidable depressurization precludes us from culturing microorganisms that are sensitive to the reduced pressure. The continued development of pressure retaining core barrels, with the ability to subsample at the in situ pressure (e.g. HYACE/HYACINTH) is extremely valuable for microbiological studies and should be supported.

Even more critical than changes in pressure are increases in temperature. This can be minimized by expediting the removal of the core from the core barrel and giving high priority to subsampling for microbiological samples. Core processing on board should be optimized to recover the core as quickly as possible in order to minimize increases in temperature. IODP should also explore the methods for insulating the core after removal from the core barrel. Because all temperature considerations are relative to the in situ temperature, better measurements of the downhole temperatures are essential.

Quality control issues have been addressed by introducing methods for quantifying the intrusion of drilling fluid (Smith, *et al.*, 2000a). The judicious use of these methods are essential to maintaining scientific integrity of our observations. Overuse of the perfluorocarbon tracer results in yielding excessively high background levels in the laboratories which results in lowering the sensitivity of the method. As with interstitial waters samples, experience has shown that the use of the extended core barrel (XCB) produces cores of inferior quality (Smith, *et al.*, 2000b) for microbiological study. Extending the range of the more desirable hydraulic piston core (APC) by "drilling over" should be used whenever possible. While this comes at the expense of time and equipment, it yields samples that are of sufficiently high quality for microbiological analyses. Hard rock samples collected with the rotary core barrel (RCB) are more problematic with respect to contamination issues. In practice, the fluorescent microspheres appear to be a more appropriate tracer for hard rock samples. The single test using the diamond core barrel system (DCB) yielded a clean sample. To date, the motor driven core barrel (MDCB) has not been tested. In general, for all drilling tools, larger diameter cores will yield more uncontaminated material for a given length of core and is more desirable. This will also yield more material from a specific horizon and allow for more the analysis of samples at higher vertical resolution.

Recommendation 2: Drilling methods that yield cores of optimal quality for microbiological studies should become standard.

a. Optimization of core processing with the goal of minimizing increases in temperature and exposure to oxygen should be implemented.

b. Continued performance, and further improvements to the methods for contamination testing (House*, et al*., 2003) while coring.

c. Routine use of the drill over method extends the useful range of the APC method and provides superior results for microbiological studies and should be implemented.

d. The continued development of the pressure retaining core barrel, and subsequent handing under in situ pressures is highly valuable to the microbiology research and must be given highest priority.

4) Data Reporting and Publications

Microbiologists are required to follow the IODP Sample and Data Policy as any other group. Because microbiologists generate some types of samples and data that are unique to their field, however, some additional issues need to be addressed.

a. Sequence data. The sequencing of nucleic acids has become the standard method for identifying microorganisms. The usefulness of the data resides in the ability to compare sequences. This is accomplished by submission of sequences to internationally recognized, publicly accessible, databases (below). In general, microbiological journals require submission of sequence data to one of these databases prior to publication. These requirements are specifically stated in the 'advice to authors'. These statements from FEMS Microbiology Ecology[1] and Applied and Environmental Microbiology[2], two pertinent journals, are included in the footnotes.

DDBJ
Center for Information Biology and DNA Data Bank of Japan
National Institute of Genetics
111 Yata, Mishima, Shizuoka 411-8540, Japan;
telephone, 81-559-81-6853
fax, 81-559-81-6849
e-mail, ddbj@ddbj.nig.ac.jp
URL, http://www.ddbj.nig.ac.jp

EMBL
EMBL Nucleotide Sequence Submissions, European Bioinformatics Institute
Wellcome Trust Genome Campus
Hinxton, Cambridge CB10 1SD, United Kingdom
telephone, 44-1223-494499
fax, 44-1223-494472

e-mail, datasubs@ebi.ac.uk
URL, http://www.ebi.ac.uk.

GenBank
National Center for Biotechnology Information
National Library of Medicine, Bldg. 38A, Rm. 8N- 803
Bethesda, MD 20894
telephone, 301-496-2475
fax 301-480-9241
e-mail, info@ncbi.nlm.nih.gov
URL, http://www.ncbi.nlm.nih.gov.

b) Culture isolates. A common goal for many microbiologists is to obtain pure cultures of microorganisms in order to perform detailed studies on their physiological capabilities, produce specific enzymes or metabolic byproducts etc. It is common practice to place subsamples of the cultures into publicly accessible culture collections. The leading journals in the field advocate this practice[2]. In keeping with the open, international cooperation established during the previous decades of scientific ocean drilling, IODP should require that cultures of microorganisms isolated from cores be deposited in a publicly accessible culture collection (e.g. Takai, *et al*., 2003).

American Type Culture Collection
P.O. Box 1549
Manassas, VA 20108 USA
(703) 365-2700
E-mail news@atcc.org
http://www.atcc.org

Japan Collection of Microorganisms
RIKEN (The Institute of Physical and Chemical Research)
2-1 Hirosawa, Wako, Saitama 351-0198, Japan
Phone: +81 48 467 9560
Fax: +81 48 462 4617
E-mail: curator@jcm.riken.go.jp
http://www.jcm.riken.go.jp/

German Collection of Microorganisms and Cell Cultures (DSMZ)
Mascheroder Weg 1b
38124 Braunschweig
GERMANY
Phone:+49 (0) 531-2616-0
Fax:+49 (0) 531-2616-418
http://www.dsmz.de

Recommendation 3: IODP should adopt policies to those that are already firmly established within the international community of microbiologists for the exchange of culture and sequence data.

a. Unique nucleic acid sequence data derived from cores and published in IODP publications or scientific journals must be submitted to an internationally recognized, publicly accessible database (e.g. DDBJ, EMBL and GenBank).

b. Subcultures of organisms derived from cores and published in IODP publications or scientific journals must be deposited in at least two internationally recognized, publicly accessible culture collections (e.g. ATCC, JCM and DSMZ).

5. Increasing Participation

Microbiologists increased their participation towards the end of ODP. Further increasing the participation of microbiologists in IODP will lead to a more rapid understanding of the role of microorganisms in the marine subseafloor. Efforts to recruit microbiologists should therefore be emphasized. In order to reach this goal it is necessary to:

- Firmly establish that microbiologists working within IODP operate within the same general guidelines as the larger community of microbiologists with respect to common practices. (e.g. sequence submission, culture collections etc.).
- Expand scope of biological research in IODP by incorporating fields not traditionally related to ocean drilling (e.g. biotechnology, evolutionary science, bioremediation, astrobiology etc.).
- Sponsor sessions on ocean drilling at international microbiology meetings
- Establish a microbiological core repository for post-expedition sampling

6. Routine Measurements

A great strength of the scientific drilling program is the database of routine measurements that is openly accessible. This allows for continued analysis of the data using whether it is using new techniques or global syntheses of data (e.g. Parkes, *et al.*, 2000; D'Hondt, *et al.*, 2002). Therefore, it is necessary to institute routine measurements that can be realistically obtained during IODP drilling projects and provide useful data to assist in the study of subsurface microbiology.

a. Biomass. There are many methods for determining biomass, each with strengths and weaknesses. After comparing the methods on samples from cores, one should be instituted as a routine measurement. The possible candidates are:

i. *Direct cell counts*. By far, the largest microbiological dataset is biomass estimated by direct cell counts of microorganisms fluorescently labeled with acridine orange (Fry, 1988). Newer fluorochromes (e.g. SYBR Green) and flow cytometry should be examined for use within the program.

ii. *Vital stains*. There are several reagents available that indicate the level of metabolic activity by generating a fluorescent product (e.g. 5-cyano-2,3-ditolyl tetrazolium chloride; Proctor and Souza, 2001) that have been applied to sediments.

iii. *Phospholipids*. Intact phospholipids can be used to estimate the total microbial biomass in sediment samples (White*, et al*., 1979; Zink*, et al*., 2003).

iv. *ATP*. Adenosine-5'-triphosphate if found in a relatively constant proportion in all living cells. Quantification of this molecule to estimate total biomass has been used successfully in cores (Egeberg, 2000).

b. <u>Metabolic Rates</u>. The addition of the radioisotope isolation van into the program greatly extends the capabilities of the microbiologists. Because these measurements should be considered in the category of 'ephemeral properties' they must be initiated on board. While labor intensive, measurements that yield rates of metabolic processes (e.g. sulfate reduction, anaerobic methane oxidation, methanogensis, DNA and protein synthesis) can substantially change our view of the activities of microorganisms in the marine subsurface. These facilities should be available and the assays should be encouraged.

7) Additional Assays

a. <u>Nucleic Acids.</u> The analysis of nucleic acids has matured to the point where they can become routine. Initially, work has been focused on genes useful for phylogenetic analysis (e.g. small subunit ribosomal RNA), it has now expanded to include metabolic genes (e.g. dissimilatory sulfite reductase (dsr), Teske*, et al*., 2003). These analyses can be conducted in shore-based laboratories so emphasis should be placed on routinely collecting and preserving samples on board the drilling platforms to later analysis.

b. <u>Biomarkers.</u> Similar to nucleic acid analysis, lipid biomarkers, especially when coupled to stable isotope analysis (e.g. Hinrichs*, et al*., 1999) are extremely useful for characterizing the subsurface community. Samples for these analyses should be routinely collected onboard and preserved for shore-based analysis.

Recommendation 4. IODP institute a routine measurement program that will be performed in support of an ongoing study of microorganisms in the marine subsurface. The data produced from these assays will be submitted to the general

IODP database and be subject to the same stipulations as other data. IODP should routinely sail a technician dedicated to the microbiology laboratory. This technician will be responsible for training sailing microbiologists in the sampling procedures and sample analysis, maintaining the equipment in the microbiology laboratory, and ensuring that an adequate inventory of supplies are on hand prior to sailing. The technician should be specifically trained in microbiological techniques and procedures, including the use of radioisotopes, for the microbiology laboratory.

Summary

Through the efforts of the Ocean Drilling Program, much has been learned about microorganisms inhabiting the marine subsurface. In order to capitalize on this knowledge and advance the field during the Integrated Ocean Drilling Program, this working group provides the following recommendations.

Recommendation 1: IODP should establish a repository for samples routinely collected and stored appropriately for subsequent microbiological analysis. The samples should be taken in sterile syringes (50 cm^3 capacity) as soon as the core arrives and stored as described below depending on the subsequent analysis.

a. Samples for nucleic acid analysis should be placed immediately in liquid nitrogen and transferred to ultra-low freezer or liquid nitrogen on board for storage. Alternatively, whole round samples used for this purpose should be placed directly in an ultra-low freezer or liquid nitrogen as soon a possible. Because these samples are not useful for nucleic acid analysis after long term storage (> 1 year) they should be made available for other types of analyses (e.g. chemical) if appropriate.

b. Samples taken for culturing work should be transferred to gas-tight trilaminate bags containing an oxygen scrubber, heat-sealed and stored at 4 °C.

c. Samples for microscopy should be preserved with an aldehyde solution (electron microscopy grade glutaraldehyde or paraformaldehyde) and stored at 4 °C.

Recommendation 2: Drilling methods that yield cores of optimal quality for microbiological studies should become standard.

a. Routine use of the drill over method extends the useful range of the APC method and provides superior results for microbiological studies and should be implemented.

b. The continued development of the pressure retaining core barrel, and subsequent handing under in situ pressures is highly valuable to the microbiology research and must be given highest priority.

c. Optimization of core processing with the goal of minimizing increases in temperature and exposure to oxygen should be implemented.

d. Continued performance, and further improvements to the methods for contamination testing (House, *et al*., 2003) while coring.

Recommendation 3: IODP should adopt similar policies that are established within the international community of microbiologists for the exchange of culture and sequence data

a. Unique nucleic acid sequence data derived from cores and published in IODP publications or scientific journals must be submitted to one of the internationally recognized, publicly accessible databases (e.g. DDBJ, EMBL and GenBank).

b. Subcultures of organisms derived from cores and published in IODP publications or scientific journals must be deposited in at least two internationally recognized, publicly accessible culture collections (e.g. ATCC, JCM, DSMZ, and CCUG).

Recommendation 4. IODP institute routine measurements that will be performed in support of an ongoing study of microorganisms in the marine subsurface. The data produced from these assays will be submitted to the general IODP database and be subject to the same stipulations as other data. IODP should routinely sail a technician in the microbiology laboratory. This technician will be responsible for training sailing microbiologists in the sampling procedures and sample analysis, maintaining the equipment in the microbiology laboratory, and ensuring that an adequate inventory of supplies are on hand prior to sailing. The technician should be specifically trained in microbiological techniques and procedures, including the use of radioisotopes, for the microbiology laboratory.

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[1]Journal statements on submission of sequence data:

FEMS Microbiology Ecology

Nucleotide sequences should be fully determined in both senses of the DNA. Sequence information will be accepted for publication only if: (a) it is relevant to a question of more general interest, (b) there is additional, complementary information, or (c) there is some particular, explicit reason for publication. All nucleotide and amino acid sequences must be deposited in an appropriate data bank. An accession number must be obtained before submission to the Editors and this fact should be mentioned in the covering letter. Authors are encouraged to use the EMBL Data Library but can also use other archives, such as GenBank. Authors should include the accession number in the appropriate Figure legend.

Applied Environmental Microbiology

It is expected that newly determined nucleotide and/or amino acid sequence data will be deposited and GenBank/EMBL/DDBJ accession numbers will be included in the manuscript no later than the modification stage of the review process. It is also expected that the sequence data will be released to the public no later than the publication date of the article. The accession number should be included in a separate paragraph at the end of the Materials and Methods section for long-form papers or at the end of the text for short-form papers. If conclusions in a manuscript are based on the analysis of sequences and a GenBank/EMBL/DDBJ accession number is not provided at the time of the review, authors may be required to provide the sequence data as a file on a floppy disk.

It is expected that when previously published sequence accession numbers are cited in a manuscript, the original citations (e.g., journal articles) will be included in the References section when possible or reasonable. Authors are also expected to do elementary searches and comparisons of nucleotide and amino acid sequences against the sequences in standard databases (e.g., GenBank) immediately before manuscripts are submitted and again at the proof stage.

[2]Journal statements on deposition of cultures in culture collections:

FEMS Microbiology Ecology. The editors expect that new and variant organisms, viruses and vectors described in FEMS journals will be made available, under written request and for their own use, to all qualified members of the scientific community. If delays in strain or vector distribution are anticipated or if they are available from sources other than the authors this should be indicated. The Editors encourage authors to deposit important strains in publicly accessible culture collections and to refer to the collections and strain numbers in the text. In the case of materials that have been distributed by individuals, authors should indicate the laboratory strain designations and name and address of the donor as well as the original culture collection identification number, if any.

Applied Environmental Microbiology. AEM encourages authors to deposit important strains in publicly accessible culture collections and to refer to the collections and strain numbers in the text. Since the authenticity of subcultures of culture collection specimens that are distributed by individuals cannot be ensured, authors should indicate laboratory strain designations and donor sources as well as original culture collection identification numbers.

Report of the iSSP
Data Bank Working Group
5 March 2003

Introduction

The anticipated transition from the JOIDES Resolution-based ODP to a more complex, multi-platform IODP has sparked a great deal of interest in how the data necessary to support scientific drilling must evolve and how those data should be stored and accessed by the scientific community. The former ODP Site Survey Panel, along with the ODP Data Bank, had occasional discussions about the future, and the interim Site Survey Panel (iSSP) has increasingly been grappling with these issues over the past year. Recognizing the need to make more rapid progress the iODP Data Bank Working Group (DBWG) was formed as a subset of the iSSP panel and liaisons from iPPSP and iSciMP. This group has met partially, or in full, three times, with the most recent meeting occurring before the iSSP meeting February 2003 in Bologna, Italy. This report presents the results of our meetings with the idea that our recommendations will help shape the request for proposal for the successor IODP Data Bank. Following our meeting structure and as a direct response to the iPC consensus statement 2-5, the report is organized to address points 1-4 in that statement. As a preface, we include a Data Bank mission statement, which will hopefully demonstrate our intended purpose and philosophy.

Participants in DBWG meetings (members of iSSP unless otherwise indicated):
David Divins (iSciMP), Andre Droxler, Nobu Eguchi (iSAS), Kirk McIntosh, Daniel Quoidbach, Craig Shipp (iPPSP), Tetsuro Tsuru, and Joel Watkins (iPPSP/iSSP liaison)

Data Bank Mission Statement:
The fundamental mission of the IODP Data Bank is to receive, catalog, and store data necessary to support science and safety for IODP drilling activities. An equally important mission of the Data Bank is to maintain a system to disseminate these data as effectively as possible to IODP panel members and to participants on the various drilling platforms. While the DBWG and iSSP recommend that access to these data be as broad as possible to encourage community involvement, the Data Bank must also control access to its contents, under the guidance of the IODP CMO, to protect the proprietary nature (at various levels from commercial to first rights of investigators) of many expected data sets.

iSSP DBWG Recommendations

1. Requirements for digital vs. analog data submissions:

We recommend that data submitted to the IODP Data Bank (DB) be in a digital form unless this is not possible for the proponent(s) to accomplish. This means that data including survey data, maps, and reports that are computer generated or processed should be submitted in a digital format (to be discussed below), and it also means that if only analog versions of the data exist, then these should be scanned by the proponents and submitted as digital data files. Only in the case that required data do not exist in a digital form **and** the proponents do not have facilities to scan the data would it be acceptable to submit paper copies to the DB. As this will inevitably take place, however, the DB must be equipped with computers and large format scanners.

Another important aspect of digital data submission is the question of what formats are most desirable and most useful to the DB and the community it serves. Specifically, there is a basic divide between digital **images** (e.g., PostScript, Tiff, JPEG, etc.), whose primary purpose is to be viewed as is, and digital **data** (e.g., gridded or tabulated data in ASCII or binary, seismic data in SEG-Y, etc.), which may be used to create images, may be numerically analyzed, or manipulated and then viewed. In part the recommended format will depend on the software/hardware infrastructure that is adopted by IODP and the DB. If possible, we recommend a GIS capable software system, which would allow the most versatile display of text, digital image files, and digital data files and would still be web-accessible for easy remote viewing. We discuss software capabilities further in #4 below, but these systems do exist and are used in the oil industry.

In our preferred configuration the DB would receive digital **data** files of geophysical survey data and map data (in gridded files) as well as digital **image** files of fully annotated survey data and maps presented at a scale that reveals details necessary for scientific evaluation. The data files would be loaded in a GIS-capable, web-accessible, software system (similar or related to Landmark or GeoQuest seismic interpretation packages), and the image data and text files would also be loaded into this system for viewing. The digital data files would be used for in-depth evaluations by panel members (e.g., SSP, PPSP, and SSEP), and by the actual drilling leg participants. The image files would be used more as a quick data reference but would be a significant improvement over the few, tiny images that are possible to fit in page-limited drilling proposals.

We suggest that data be submitted as a standardized “REPORT” type package of figures and information, possibly with the submission of the pre-proposal or with full proposal submission. The REPORT would include a specific set of maps (regional and site-focused), key seismic profiles, and other appropriate data. These data would be submitted as images (.ps, .pdf, etc.), and their main purposes would be to provide a quick reference of data quality and availability, allow for early stage review by SSP and PPSP, and they would be available for other panels such as SSEPs, when better data displays are necessary to evaluate the proposed science. REPORTs would be web-accessible to panel members (with correct permission or password) and could also be included on CDs produced for the panel meetings. To get an idea of what we mean by the term REPORT, a preliminary template, based on U.S. Minerals Management Service (MMS) requirements, is provided below. Not all items below would be appropriate for all drilling environments/objectives, and not all required items would be expected to be submitted simultaneously or even in the early stages of the proposal review process:

1) **Location Map** (page-size). Location map should show approximate location of study area with proposed drill locations, possibly including seismic coverage and bathymetry.
2) **Contoured Bathymetry Map** (typically 1:12,000 scale). Contours are to be labeled in meters below sea surface and contour interval is to be such that seafloor shape is fairly portrayed without impairing easy use of the map. Typical contour intervals expected on the continental shelf range from 1 to 10 meters; 10-meter or greater intervals are typical on much of the continental slope.
3) **Geologic Features/Geohazards Map(s)** (typically 1:12,000 scale). Geologic features/geohazards maps are to show all detected natural and man-made features (including all unidentified magnetic anomalies) that could adversely affect the planned drilling operations
4) **Data Examples.** For example, one annotated data example for each survey tool operated could be included to demonstrate typical data quality and geologic conditions. Additional data examples shall be added to help illustrate and explain the interpretations and conclusions reached. The data examples (and maps) should be submitted in as .ps, .pdf, or other electronic format, and should be produced at a size that will show sufficient detail for evaluation (generally page size at minimum).
5) **Shallow Structure Map(s)** (typically 1:12,000 scale). At a minimum, one shallow structure map is required at sites where strata are not horizontal or not continuous over the study area (that is, either the shallow horizons are dipping, faulted, or have been locally eroded
6) **Isopach Map(s)** (typically 1:12,000 scale). At a minimum, an isopach (thickness) map is required on the continental shelf if inferred weak surficial strata overlie a potentially stronger substrate. This will help to indicate areas that may need further analysis to determine jack-up punch-through potential.

2. Allowable Data Formats

The DBWG recommends accepting data in formats as described in the table below. We have tried to account for all typical types of data that are required to support scientific drilling. We have assumed adoption of a GIS-type, web-enabled software system, which favors submission of digital data (e.g., x, y, z in ascii files) rather than images for map-type data sets. In addition to the actual data, metadata describing the data formats, acquisition and processing parameters, map projections, etc., will have to be submitted. Metadata forms to recover this information have been developed by the current ODP Data Bank and will be used for this purpose.

Data Type	Format	Media
Seismic Data - Hi-Resolution - Deep Penetration	**SEG-Y Files*** Paper Profile *DB will **not** process seismic data. Data must be submitted as stacks or migrations along with supporting metadata.	**DLT** **8MM** **CD-ROM** **DVD-ROM** **FTP** **IBM Cartridge Tape** Paper copies

Seismic Velocities - Time-Depth Curve - Check shots - Velocity Model - Stacking Velocity	**Image file for velocity model** ASCII Files (clearly annotated) Table of values	**E-mail** **FTP** **CD-ROM** Floppy Disk
Sub-bottom Profiler - chirp, parasound, etc. - 3.5 kHz	**Image File** SEG-Y Paper Profile	**DLT** **8MM** **CD-ROM** **DVD-ROM** **FTP** **IBM Cartridge Tape** Paper copies
Maps - Swath Bathymetry - Side-looking Sonar - Contour Map - Other	**Image File (PS, Tiff, etc)** **Document File (.pdf, .doc, etc.)** Paper Map	**E-mail** **FTP** **CD-ROM** Floppy Disk
Gridded Data - Magnetics - Gravity - Bathymetry	**Grid data file** ASCII XYZ file Image File	**E-mail** **FTP** **CD-ROM** Floppy Disk
Digital Images - Seabed Conditions	**Image File (PS, Tiff, etc)** **Document File (.pdf, .doc, etc.)**	**E-mail** **FTP** **CD-ROM** Floppy Disk
Heat Flow - Tables of values - Plots/graphs of values	**ASCII Table** **image file (PS, Tiff, etc)**	**E-mail** **FTP** **CD-ROM** Floppy Disk
Document Files - Core Descriptions - Ice Conditions - Current/Tide Data - Sample Descriptions	**RTF File** **PDF File** Word Document	**E-mail** **FTP** **CD-ROM** Floppy Disk
Log Data	**LAS format files**	**E-mail** **FTP** **CD-ROM** Floppy Disk
OBS Microseismicity	**ASCII File** (clearly annotated) Image File	**E-mail** **FTP** **CD-ROM** Floppy Disk
Navigation	**UKOOA** MGD77 ASCII File (clearly annotated) SEG-P1	**E-mail** **FTP** **CD-ROM** Floppy Disk
Video (e.g., seafloor images of target area)	**Digital video (mpeg?*)** Restricted to immediate drilling area. *This category requires further research to determine the	**DLT** **8MM** **CD-ROM** **DVD-ROM** **FTP**

	optimum formats.	

3. Mechanism and timing of communications with IODP panels and proponents.

The DBWG recommends continuing the current policy of early review unless it proves to be unworkable when proposal numbers increase. Currently iSSP gets pre-proposals that have been reviewed by SSEPs and a full proposal has been requested. The purpose of an early iSSP review is to give proponents a preliminary idea about what sort of data are likely to be required and allow them to start planning/proposing surveys. The iSSP plans to encourage proponents to submit data to the Data Bank as it becomes available rather than waiting until later stages of the review process. This will become particularly important for the more complex programs involving deeper drilling (riser and non-riser) in complicated structural settings. Early data submission and evaluation allows more time to acquire additional necessary data (i.e., to image the target) and helps to avoid data related drilling delays.

The iSSP suggested a possible further improvement of this system during the Bologna meeting (February 2003). A new working group (the MATRIX working group) is, among other things, investigating the possibility of creating an automated, preliminary review system, which would be made part of the proposal submission web page. This preliminary review would be based on proponent answers (multiple choice) to key questions about the tectonic environment, target depth, and sediment thickness at the proposed drilling sites. The results, i.e., expected data requirements, could be available instantly, although a disclaimer would indicate the preliminary nature of the results and the requirement of further human participation (iSSP panel) in the process.

4. Facilities, hardware, software, and personnel for Data Bank

As noted above in #1, the DBWG recommends that IODP adopt a GIS-capable, web-accessible, software system. These types of systems are available from vendors such as Schlumberger and enable groups to view seismic data, gridded map-type data, image files, and text documents remotely using only a standard web browser. This type of system is particularly attractive because it allows seismic users to zoom, change the display type (wiggle/no wiggle/variable density/etc.), the color palette, and even manipulate the gain level. Map and log data can also be accessed remotely and manipulated to create optimum views. Another attractive point of these systems is that they are mature and functioning and could be put in place with a minimum amount of delay. There is also flexible implementation of these systems such as an ASP (application service provider) model where the data storage, data server, and application server are all maintained by a commercial service company. A similar system can also be implemented within an IODP facility with the service company providing mainly the software packages and technical support for installation and maintenance.

Although we were unable to research the available products thoroughly at this point, a representative of Schlumberger, Shigemi Matsuda, made an informative presentation to the DBWG at our one-day meeting in Bologna. Mr. Matsuda is responsible for the operations at the National Data Repository in Japan, which services the Japan National Oil Corporation's worldwide operations. We want to make clear that we are not endorsing this proposed plan but use it here for informational purposes, i.e., what is available and approximately what it costs. We suggest that full demonstrations of functionality be required in the process to evaluate any IODP Data Bank proposals. This is in part to demonstrate how effectively the systems work and also to help identify those specific product offerings that are necessary to operate the Data Bank.

We include below information from Mr. Matsuda's presentation as an example of a possible Data Bank implementation. We note that Mr. Matsuda expressed interest in operating the IODP Data Bank, with the intention of co-locating it at the current Japan National Data Repository (NDR). The information is provided largely in a table format and describes the hardware, software, personnel, and approximate costs that may be required to operate the IODP Data Bank and provide broad but secure access to the data holdings via the internet (WWW). This information was gathered from a document Mr. Matsuda provided to the DBWG; the full contents of Mr. Matsuda's presentation are available from the DBWG.

Information Technology

Network, Security, and Internet Access

Schlumberger Network Solutions group provides Schlumberger Connectivity Center (SCC). Depending on the number and types of external connections that are needed, two or more firewalls are necessary. Customer connections and services are protected and isolated on separate firewalls. A Xylan switch is needed to provided the paths between the multiple firewalls. All external connections are terminated on a router outside the firewall.

SCC Cost

Item	Description	Cost Estimate
Firewall SW and HW	Internet Gateway: Firewall HW&SW Services Gateway: Firewall HW&SW Sinet Gateway: AN Router upgrade FM management tool: SVR router Others	$52,000- (lease possible)
SCC setup	SCC customer connectivity setup charge	$8,515-

Data Preparation and Data Loading

Digitizing

Those data provided on paper must be digitized before loading into Database Software.

- Seismic Profiles
- Paper Maps
- Reports

Seismic line and Shot point location, well locations, contour lines, culture data, etc., often required digitization in order to load them to database then upload on WEB based GIS-map.

Data Loading

Due to the fact that most of the data types (cultural, navigation, E-docs and maps, Gravity & Magnetics etc) can be handled in Finder (GeoQuest Data Management Software) and there will not be huge volumes of seismic bulk data, there is likely no need to have a dedicated seismic archive system. The main idea is to use Finder to manage all the data types mentioned in the data formatting guidelines even for seismic bulk data and well logs which can be handled as E-Doc and associated with seismic lines and well locations.

Software Required

Item	Description	Est. Cost
Digitizing MAP/LOG software	to digitize hard copy map and log	$ 18,000-
Graphic software	to edit graphics	$ 2,000-
Finder	GeoQuest Database software offers a broad data model and an array of visualization tools.	$ 134,055-
	Cost Estimate	$154,055-

Hardware Required

Sun Blade 2000 Workstation System	Finder database server	$ 25,800-

Color A0 Scanner	to scan and digitize big size map and long size logs with color
Desktop Scanner	to scan and hardcopy document and standard size maps
PC	to run scan and digitizing software
Cost Estimate	$30,000-

Facility

Data Storage Room

Storage space is needed to receive physical data, including the proposals and data from the proponents, plus data inherited from the ~100 currently active projects in ODP being stored at the Data Bank in Lamont. The types of data anticipated include the following:

Hardcopy reports, maps logs

- Hardcopy document
- Reports, Maps and Logs in both black & white or color.
- Electronic document

Logging data

- These formats will be acceptable: LIS, LAS, DLIS, SEGY (VSP only). Other formats may be loaded as documents

Seismic data

- Navigation data - Provided in digital UKOOA format
- Bulk trace data - Post-stack SEGY format data.

Work Space and Computer Room

Space required for Data Preparation and computer room where important database and web server machines can reside securely.

Software Required

ASSET management Software	to control and manage data reception, return, rental and duplication, etc..
Resource	Librarian/ Clerk
Cost Estimate	?

Hardware Required

STORAGE space	Room to store physical data
Data Container	For example cabinet
Workspace	Room to do data preparation and desk work
Computer Room	Dedicated computer room for servers
Cost Estimate	?

Human Resources

The following personnel to be considered as minimum to run New IODP Data Bank as described in this proposal.

	Qty	Role	Fulltime or Part time
Project Manager	1	Report progress of the project. Communicate with CMO and Panel of scientists and proponents	Fulltime preferred
System Engineer	1	Regular back up of the system, Firewall rule change, system upgrade	Part time OK but quick response required in case of emergency
Database Administrator and Data loader	1	Database and Web User Management, Data Backup regularly QC-data Digitizing and Data load to database	Part time OK
Librarian	1	Data reception and shipment	Part time OK

Cost Estimate for IODP Data Bank located at Japan NDR

	Initial Expenditure	Monthly Payment
Data@Work purchase and Set up	$ 150,000-	-
PC server for Data@Work	$ 5,000-	-
Firewall Software and Hardware	$ 52,000-	-
SLB Connectivity Center	$ 8,515-	$ 4,000-
Finder Data Management Software	$ 0-	-
Digitizing Job	-	As per NDR price Book
Data loading	-	As per NDR price Book
Finder server workstation	$ 25,800-	-
Data Bank Monthly Maintenance Charge	-	$ 16,800-
Total	**$ 241,315-**	**$ 20,800- /month**

Matrix Working Group: Summary sheet

	Information/data (common data)	Special requirements	When needed
Basic needs	Lat/Long Water depth Depth of penetration Tectonic/depositional setting Nearby wells	***Man-made hazards*** ***HC shows*** ***Environmental ristrictions***	
Surface	3.5KHz	Video/photography	"Hard" irregular rock outcrop
		Side-scan	***Suspect gas seep, Bottom founded***
		Swath bathymetry	Active margin, bare rock, tectonic window, All riser
		Surface samples	Paleo (sed), bare rock and tectonic window (rock), re-entry sites ***Surface slope >10°***
		Geotechnical properties	***Bottom-founded rig (MSP)*** ***Anchored-suspected hard bottom (MSP)***
Sub-surface	Lithologic projection Structural configuration (Seismic types be defined: see below)	***Shallow drilling hazard assessment***	***PPSP TO REVIEW***
		Heat flow	***Suspected HC provinces, suspected high heat flow***
		High resolution magnetic (hazard)	***Bottom-founded rigs, anchored rigs (pipeline?)***
		Velocity profile (time-depth control)	All riser, only passive & active margin >200m non-riser, ***Case by case***
		Gravity/Magnetic	All riser(influenced by basement), non-riser tectonic window

Other		*Currents *Ice *Weather window *Tidal	
		Pour pressure ***Fracture gradient*** ***Pressure prediction***	***Riser, suspected over-pressure***
		Maturity	***Potential HC provinces*** ***>2km sediment***
		Well program	***Riser, over-pressure w/o riser***
		Waste disposal	***Returns to sea floor*** ***EEZ drilling as required***
		Abandonment	***Riser***
		Environmental survey	***EEZ drilling as required***

Seismic: (soft rock: sediment)
based on penetration depth

less than 100m	2D SC high resolution (including Boomer) or 3.5kHz if it images the objective or 3.5kHz/low resolution if images the objective ***Cross lines***
101 – 1000m	2D grid MCS (passive and active margins), X-line SCS (away from margins penetration <400m), >400m with grid MCS
more than 1001m	2D grid MCS, Spacing and 3D (case by case), ***3D (horizontal riser)***

Project Management System Working Group (PMSG)

Draft document 03, 4 June 2003

Recommendations for the Integrated Ocean Drilling Program (IODP)

Prepared for
Ted Moore and Jimmy Kinoshita,
Co-chairs IODP Planning Committee (iPC)

June, 2003

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Executive Summary

A tentative Project Management System (PMS) has been prepared for use in IODP projects (normally drilling legs). It consists of a phased approach, with reviews at specified intervals providing the assurance that the proponents are ready to proceed further with planning. It makes maximum use of current (ODP) practices and allows for flexibility in application, depending on the platform selected for specific projects (Riser, Riser-less or Mission-specific) and the complexity of the planned activities.
The main objective of the PMS is to provide IODP management and its funding bodies with assurance that minimum acceptable standards are met with at all stages of project

planning, that value for money is achieved and that all aspects related to the operations are considered, including health, safety and environmental issues.
It is recommended that the PMS document presented here should be used as a basis for pilot application for one of the first IODP projects (eg Nantroseize). The proposal is founded to a large extent on standard industry project management practices developed in recent years, and the extent to which it can be implemented in practice in IODP needs to be confirmed with a “road-test”. After a relatively short interval (say, 18 months) the PMS performance should be evaluated, and modifications proposed as appropriate.

Introduction

Over the past 35 years, DSDP and ODP have proved to be hugely successful international research programs based on worldwide ocean drilling, and have made major contributions to the scientific understanding of planet Earth. This success has been in large part due to the enthusiastic participation in the program of the scientific community in many countries and the responsiveness of the DSDP/ODP programs to their various needs. We assume that in the framework provided by the Initial Science Plan, the paramount objective of IODP will be to continue to serve the scientific needs of the international community, as prioritised by SPC.

In contrast to ODP, IODP will involve multiple platforms operating concurrently, comprising a riser and non-riser drilling ship as permanent program elements, and a variety of “mission-specific” platforms (MSPs) to be chartered according to the needs of the scientific objectives. Many IODP programs will involve issues dissimilar to those for which ODP has built up an enviable expertise, for instance drilling in pressured/potentially petroliferous environments, in shallow waters, in extreme climates, etc. This means that IODP will be much more challenging from an operational management point of view than either DSDP or ODP have been. During the past decades, the energy exploration industry has developed and made use of processes for the efficient execution of complex operations in difficult environments, and it was widely felt that (i) their expertise in this area should be accessed and (ii) a project management system (PMS), making use of experience built-in to those currently employed in industry, should be prepared for and modified for use in IODP.

With this in mind, a proposal was submitted to iPC at the meeting held in Austin, Texas in March 2003. This proposal, iTAP recommendation 03-04, was passed on 20 March 3003 as iPC Motion 4-13 (by 15 votes with 1 abstention), and mandated a small working group to prepare a proposed PMS for consideration by the IODP Central Management Organization by early June 2003. The motion, which establishes the terms of reference for the group, reads as follows:

> “The iPC accepts iTAP recommendation 03-4 and establishes an IODP working group that will develop a project-based management planning system. The group will include members from iTAP, iILP, iPPSP, iPC or SPC, the OPCOM working group, CDEX and industry project managers. The system should be developed by June 2003.”

The working group sees its main objective to prepare a PMS that will enable IODP, and particularly OPCOM, to assure delivery of the scientific objectives, to the greatest extent possible given operational and fiscal constraints. We thus see the PMS as a procedure guideline to ensure safe and efficient execution of the scientific program, primarily for use by project teams, as well as by OPCOM and other IODP management groups in their supervisory roles, for the benefit of the international scientific community.

Composition of PMSG

Jamie Austin	SCICOM/iPC	University of Texas, Austin, USA
Tim Byrne	iSSEPs	University of Connecticut, USA
Keir Becker	SCICOM (ODP)	RSMAS, University of Miami, USA
Harry Doust*	iILP	Free University of Amsterdam, Neth.
Hisao Ito	iPC	Geological survey of Japan
Barry Katz	iPPSP	ChevronTexaco, Bellaire, Tx, USA
Yoshihisa Kawamura	CDEX	Jamstec, Yokosuka, Japan
Kate Moran	iTAP	University of Rhode Island, USA
John Thoroughgood	iTAP	British Petroleum, Aberdeen, UK

* = chair

Philosophy

The working group made the assumption that a PMS for IODP should accommodate the following criteria:

- It should satisfy a paramount requirement to deliver IODP science objectives as set out in the ISP, as much as possible according to SPC priorities and in a safe, cost efficient and environmentally-friendly manner
- The resulting document should be thorough, but simple, concise and intuitive.
- It should not be too prescriptive, rather sticking to “minimum acceptable needs” and allowing for flexibility in application for different platforms and by the various national authorities.
- It should satisfy the needs of (i) overall planning for synchronous operations with multiple platforms and (ii) the needs of individual well plans/design.
- It should model itself on current project management systems, as developed in industry, to the degree that such systems can be adapted to meet IODP needs.
- As much as possible, it should follow existing (ODP) processes and incorporate existing procedures (or those currently in development).
- It should include a clear process map, indicating the steps needed to be followed, including the stages at which support / review and approval should be sought.

Needs for a Project Management System in IODP

An IODP PMS is needed to ensure that all defined procedures are followed and that very close coordination between proponents, SAS and contractors is assured. As noted above, the activities of IODP will be extended to marine environments in which ODP have not operated, but where the energy industry has carried out extensive operations. Access to industry experience is likely to be crucial, both in terms of this experience, but also in terms of management and planning of complex operations. However, as the primary goal of IODP is to pursue pure scientific objectives, industry experience must be adapted to IODP needs.

In view of the up-coming operational schedule for the multiple drilling platforms of IODP, an urgent need is seen to establish terms of reference for complex project planning. Such a foundation is needed to enable detailed planning groups (DPG's) or project groups, to define the needs for the various activities (leading to riser, non-riser and MSP legs) and commence planning for drilling. Currently, IODP needs processes to underpin:

(i) Design and maintenance of a schedule for the up-coming complex drilling programs, including the provision of advice on efficient scheduling, logistics and planning.

(ii) Design and planning for individual projects (legs or wells), including well engineering, sampling requirements and down-hole program, etc.

Some programs, especially those for the riser vessel, but also some MSP and non-riser programs, which may be part of complex drilling programs or CDPs, will require more and longer planning steps than others. The current PMS initiative is intended to provide a management framework in support of planning for all of these initiatives, and must therefore be flexible enough to accommodate all such situations.

Existing elements of the process

Existing processes have evolved during more than 2 decades of DSDP and ODP activity and work well for planning of the single, non-riser platform operations. As much as possible, the existing procedures developed by, or being developed by, each group should be integrated into the proposed IODP PMS. These procedures are as follows and, unless stated otherwise, we recommend that they continue unchanged in the PMS, each group being responsible for carrying out and reporting on its task at regular and defined intervals:

- **SAS (Science Advisory Structure) Office**: Unsolicited pre-proposals and proposals are submitted to SAS, who forward them to SSEPs panels for evaluation of their scientific objectives and merits. When ready, **SAS EA** incorporates them in the overall IODP science plan. In the future, the SPC Chair and Vice-Chair, working with the SAS panels and OPCOM, could coordinate the evaluations and advice received.
- **SSEPs (Science Steering and Evaluation panels)**: SSEPs are responsible for the scientific evaluation of submitted proposals and their evolution to a stage at which they can be incorporated in the program plan. In many cases, this involves an iterative process of concept and documentation improvement. Prior to submission to SPC, projects are grouped according to the following criteria:
  1. consistency with the Initial Science Plan
  2. quality of the scientific hypothesis or objectives
  3. breadth of scientific impact
  4. probability of success (i.e., of achieving the scientific objectives).

  When a full proposal stage has been reached, and it is considered by SSEPs to be mature and ready for operational planning, it is sent out for external review, grouped and forwarded to SPC. Eternal review must taken place, at least once, before a proposal can be sent to SPC for ranking. Timing may vary from about 1.5 years to 3 years, but in some cases may be longer.

- **SPC (Science Planning Committee)**: Proposals forwarded from SSEPs are ranked at bi-annual SPC meetings, and forwarded to advice panels, such as PPSP and SSP for evaluation of operational requirements, e.g., safety and site-preparation.
- **PPSP (Pollution Prevention and Safety Panel)**: PPSP currently maintains a 3-tier risk-ranking framework:
  1. low risk – young ocean crust with sedimentary cover < 1 km - handled by e-mail
  2. moderate risk – handled as for current ODP legs
  3. high risk – areas of thick sediments, where subsurface fluid flow or hydrocarbons can be expected - requiring the route proposed for riser drilling (see below)

  For each expedition, PPSP nominates a "watchdog" to facilitate the evaluation process. To satisfy requirements, PPSP requests general location data, a summary of potential hazards, a detailed well prognosis, well drilling and evaluation program, planned discharges (if any), special metocean data (if appropriate), etc.

  A special process is proposed for riser sites: 3D seismic is recommended and a 3-step review process is proposed: (i) **detailed planning workshop** with broad representation from scientific and planning groups, to be held within 6 months of SPC project approval (ii) **preview by PPSP** to identify issues that may need to be addressed, to be held 6 – 18 months following (i) – the deliverable is a list of further work/data required (iii) **formal safety review by PPSP**, to be held 6 months to a year after (ii), at which a final recommendation on drill site(s) and depth(s) of penetration is given. In total, a three-year period will probably elapse between SPC approval and completion of the safety review. A **post-drilling review** is also recommended. As part of this process and at any time, PPSP may recommend adjustments to the final location or well total depth.
- **SSP (Site Survey Panel)**: Upon receipt of a proposal, SSP evaluates the readiness of the seismic and other site data for adequate scientific characterization (NOT SAFETY) of the objectives (note that SSP has a chance to look at proposals for site-survey readiness BEFORE they go to SPC for ranking). They classify the data into three categories:
  1. most or all of the required data in the IODP data bank – ready to proceed
  2. data exists, but is not yet in the data bank – probably ready for operations within 2 years
  3. essential data not accessed – probably not ready for drilling for at least 2 years
- **SciMP (Scientific Measurements Panel), TAP (Technology Advice Panel), ILP (Industry Liaison Panel):** These panels provide advice to IODP and project proponents on short term (project-specific) and longer-term (approximately 5 - 10 years) needs, primarily for scientific measurement and drilling/operations technology (down-hole services, completion techniques, etc). Technical challenges associated with anticipated future science objectives form a major area of concern. The ILP provides a link to developments in Industry
- **SPC/EA/SAS Office**: These are responsible for the development of and success of the annual science plan, which is then transmitted to the Science Planning and Policy Oversight Committee (SPPOC) for approval and finally to the CMO for

implementation. They trigger commencement of operational planning by the IOs and centralized management, through OPCOM (see below).

- **PPGs (Project Planning Groups):** These are convened on an *ad-hoc* basis to study and report on scientific or operational themes as needed
- **OPCOM:** OPCOM is responsible for recommending the optimal means to implement IODP drilling projects. Following SPC ranking, OPCOM will
  1. consider which platform(s) is(are) most suitable to execute the project
  2. indicate budgetary and logistical constraints
  3. coordinate advice from the various SAS panels on safety, environmental and technological factors
  4. develop options for the drilling schedule in the currently planned year(s) and for future years, as necessary for CDPs.
  5. monitor and, as necessary, modify the short- and long-term drilling programs.

  OPCOM thus acts as the bridge between science planning and operator and management implementation, responsible for deciding which platform(s) will carry out the project and initial scheduling recommendations based on SPC prioritisation. OPCOM plays a central role in operational planning.
- **IOs (Implementing Organizations):** These carry out the actual drilling operations and should supervise any other operational needs (e.g., sub-contracts for site-specific seismic surveys necessary for either engineering concerns or safety) during the project life. To be considered, IOs have to satisfy IODP selection criteria. IOs carry full responsibility and accountability for operational performance, and will do so according to their internal procedures. In IODP, these will include extra safety and environmental standards (however, each IO will have its own safety panel, for instance). In IODP, we recommend that the formal links between IOs and SAS panels should be strengthened (e.g., through membership of Project Management Teams and/or DPGs). In exceptional cases, for example when considering safety and pollution prevention, IOs may override recommendations from IODP advisory panels.

Recently, **CDEX** has prepared an operational planning framework for *Chikyu* (riser-drilling) operations: The component steps essentially follow the above process, but the operational planning activities have been clustered into planning phases with specific timing (total approximately 4 years), as follows:

- “pre-planning”: proposal submission, consideration by SSEPs and ranking by SAS.
- Phase 0: 17 months: Planning and preparation for seismic data acquisition, followed by data acquisition, processing and interpretation/evaluation
- Phase 1: 13 months: A second and final phase of seismic data acquisition, processing and interpretation
- Phase 2: 22 months: Drilling planning and budget preparation (including project review), material/supply ordering, selection of contractors, permit acquisition, establishment of local supply base. Final HSE (health, safety and environment) audit.
- Phase 3: Drilling operations.

The above process explicitly recognizes the enhanced science and safety requirements needed to support riser-ship drilling, and the seismic acquisition that underpins it. It is

supported by a decision-making tree for operational planning, which is broken down into six phases, as follows:
(i) Pre-survey, essentially definition of objectives and desk study of existing data
(ii) Survey planning, where further seismic, seabed or Metocean data are required
(iii) Survey operations, during which such surveys are carried out
(iv) Onshore data processing
(v) Interpretation and reporting, when results are presented to operators
(vi) Drilling and post-drilling operations
The extent to which the above is proponent responsibility and how much of it is borne by the IOs may vary. Currently, only site-specific engineering and safety-related seismic surveys are IO responsibilities and a POC program expense.

Industry project management

Industry project management standard practice is designed to ensure confidence in both decisions supporting an activity and subsequent execution of a project, so that the stakeholders (including the funding bodies) are assured that risks and uncertainties are understood and acceptable and that objectives an be achieved within budget. The processes used provide a simple, but thorough means to ensure that all of the important issues that could impact a project are considered at appropriate stages, satisfactorily addressed and included in the operational plan. Movement from one phase to the next depends on approval from a review panel convened to specifically endorse "readiness to proceed". Some of the issues that need to be addressed at each stage are noted below

- Concept-building and appraisal
  - Is the project worth carrying out and is it feasible?
  - Have all reasonable alternatives been considered and evaluated?
- Selection of project (selecting the concept)
  - Are the steps in the process defined?
  - Are the data needs (e.g., for site preparation/safe drilling) adequate?
  - Are the staff needed to realize the project available and ready?
  - Are reporting relationships understood and unambiguous?
- Definition of project
  - What is the basis for design and the project specification?
  - Does the operational plan look realistic and achievable?
  - Have all the collateral issues been considered and understood?
  - Are contingency plans in place?
- Execution of planning
  - Finalize design and prepare for operations
  - Individual well and multi-well/platform operations
- Operation of the project activity
- Evaluation of the operational performance
  - Is there a context for operational learning?
  - Were the scientific objectives met, etc.?

Naturally, IODP will not be involved with several aspects of this process, as industry projects cover all aspects of E & P activities from initiation to commencement of production. Nevertheless, these generic project stages are equally applicable to IODP's areas of concern, from idea creation to successful completion of an ocean drilling expedition or project. One important element is that, in industry, the responsibility and accountability for a project will typically remain with one group throughout its history. We recommend that as much as possible this is replicated in IODP, so that although responsibilities are spread across number of organizational groups, a single project coordination group exists (often comprising proponents and others in a DPG). This means that a high degree of clarity will be needed in an IODP PMS.

Need for independent review

In industry, the various phases of a project are separated by “milestone reviews” or “tollgates”, during which objective and independent groups evaluate the actions taken by the project team and their plans for the next phase(s). The deliverable of such reviews is a statement of “Permission to proceed” (or not). The release of funds to execute the next phase depends on and follows such reviews.
The topics covered in milestone reviews are typically those specified in the previous section, comprising elements of “look-back” (what has been achieved, are the objectives clearly stated?) and “look-forward” (are you ready and prepared to accomplish the next phase efficiently?). Some review types that would be relevant to IODP are listed below:

- **Milestone reviews**: at the end of each phase, “permission to proceed” is sought to
  - ensure that elements of the project planning are fully addressed and balanced (checklists could be prepared for this)
  - define risks to the IODP community (IODP integrity, cultural, natural, operational, technical) and identify their possible mitigation
  - identify areas for improved planning / execution
- **Peer assists and workshops**
  - peer assists form essential bases for performance improvement in industry and are widely used, for instance to facilitate efficiency in well delivery
  - project kick-off workshop meetings with all staff to be involved (scientific staff, operators, contractors, etc); intensive structured workshops with expert help, to identify most efficient way to achieve objectives, optimise planning, etc.
  - the involvement of industry advisers should be considered (this is a task for ILP)
- **Ongoing advice**, *ad-hoc* or continuous, is used for
  - help in planning complex, multi-platform sequences
  - evaluation of the consequences of delays in planning/execution
  - identification of efficiency improvements

Among some of the more prominent shortcomings in project management that have been identified in industry reviews are several that could be expected to arise in IODP:

- Technical definition is often not adequate for the decisions being taken
- Contingency plans for critical areas are frequently lacking
- Cost estimates are often incomplete and/or not integrated fully
- Staff skills involved may not be sufficient to guarantee success
- Some elements of the project plan may be overworked in comparison to other, equally important, elements
- Cooperation and communication may suffer if responsibilities, reporting relationships and documentation requirements are not clear.

Initially, OPCOM should be responsible for defining the terms of reference (ToR) for reviews. In the longer term, the ToR should become standard.

Recommended process

We are convinced that the complex nature of IODP planning, involving multiple, perhaps partially dependent platforms operating concurrently, with the lead-times that this implies, means that consideration of operational feasibility should be introduced into project planning as early as possible. In order to shorten the planning process and achieve greater flexibility, we believe that at least partially this should overlap with and be integrated with the science evaluation process. This applies particularly to projects that require extra seismic data and/or technology development needs.

The Project Management System (PMS) road map we propose is enclosed as a Powerpoint file, accompanied by the objectives at each step. Up to seven distinct phases are defined, as follows:

(I) **Initiation**, during which science project proposals are received and matured

(II) **Appraisal and evaluation**, during which mature proposals are accepted and ranked

(III) **Selection**, during which the scientific proposal becomes an IODP project and operational planning commences

(IV) **Survey definition**, a phase largely contingent on the need to acquire more data

(V) **Survey execution and incorporation**, a follow-up phase to (IV), also largely contingent on the need to acquire more data

(VI) **Operation**, during which the drilling activities are carried out

(VII) **Post-operation**, during which a review of the activity is carried out

It is envisaged that at stage (III), a **project team** will be formed by SPC to manage all further activities specific to the individual project. This will form the **Drilling Planning Group** (project DPG), and may include representatives from the scientific proponents, the SAS advisory structure and the implementing organization(s). The DPG will nominate a project leader to oversee the project, and will report directly to OPCOM, who coordinate the full IODP program and the activities of the individual DPGs.

The phases indicated above include all those needed for complex, riser-type projects. For many projects (e.g., non-riser expeditions), it will be possible to pass through phases IV and V more rapidly, while phase VII may be very short if the project is routine.

At a number of stages, milestone **reviews** will be held to assess progress and approve (or not) progress to the next phase. Such reviews will be held with the following objectives:

End phase I: decide if the proposal is mature and ready for ranking. Review by SSEPs, with external review.

Phase II: ranking of proposals, review and prioritisation by SPC.

End Phase III: project / well-concept peer review by independent review body. The formation of this review body will be the responsibility of OPCOM: At the discretion of the latter, it may be OPCOM itself, with or without ex officio members as appropriate, or a largely independent group (with OPCOM representation). This will probably depend on OPCOM workload. The review team recommends whether a full or reduced project path should be followed

End phase V: Final, pre-operational review, assuming a full project path has been followed, or if further work not reviewed at end phase III is recommended. Ideally carried out by same review body.
Phase VII: post-operational review by SAS, SPC, OPCOM, TAP, IOs, etc. to capture lessons from project execution

DPGs should be fully responsible for progress of the project, and are answerable to the IODP science and operations management (SPC and OPCOM) through the review process. They must provide the review body with all relevant supporting material, including that from advice panels. As noted above, the **review panel** may be OPCOM, but may include scientific, advice panel and operation peers from within IODP and external to it. The panel should include sufficient expertise to cover the important aspects of the project. It is essential that review panel participants have no direct interest in the project(s) being reviewed.
As OPCOM is responsible for monitoring of the project schedule(s), it is responsible for ensuring that regular reviews take place.

Deliverables: Each of the advice panels will provide a simple and short written report indicating the status of project conformity with the criteria stipulated in the mandate of each panel. A status report on all active proposals should be submitted to OPCOM twice yearly and will be used as input to the end-of-phase reviews (as specified below).

Reviews, ToR and timing: It is recommended that project reviews should be convened on a regular rather than *ad-hoc* project-by-project basis. At such reviews, all active projects should be considered, irrespective of the stage they have reached. Statements per project of “permission to proceed” to the next phase (for each individual project), or instructions to carry out specified further study/work will constitute the review outcome. The review will also authorise the release of funds for study or further activity as appropriate. The project team will therefore present budgets for the anticipated expenditures in the following phase.
Reviews should be scheduled every 6 months, preferably immediately prior to SPC meetings. This is likely to minimise the review burden, to be easier to organize and cheaper to implement. Dealing with all active proposals in one review should also facilitate a formal link between project planning and the annual program plan (and therefore overall coordination of the IODP operational plan) as well as participation of external (e.g., industry) representatives on review panels, since plans for attendance can be made well in advance.

Participation of industry and other external advice: From initial contacts with industry representatives, it can be anticipated that participation in milestone and peer reviews as well as provision of specialist technical and other advice to IODP will be looked at sympathetically. ILP will act as liaison with industry in this respect, as plans are clearer. Consideration should be given to developing a standard MOU (Memorandum of Understanding) with participating companies, defining the terms of reference for IODP consultancy. If requested, ILP will prepare such a standard MOU.

References

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CDEX: "Chikyu" IODP Operation time-tables, 2003.2.18/2002.3.4
Downhole Measurement/Monitoring working group: interim report, OD21 Advisory committee, December 2002
IODP: Earth, Oceans and Life – Scientific investigation of the Earth system using multiple drilling platforms and new technologies. Integrated Ocean Drilling Program Initial science Plan, 2003 – 2013, May 2001
iPPSP: Working document on review process, 2003, (Meeting 1 Minutes – Partial.doc)
OD21 Science Advisory Committee: Toward an understanding of Earth system evolution, Japan National science plan for IODP, January 2003
OPCOM WG members: Report of IODP OPCOM Working Group to Interim Planning Committee, 18-20 March, 2003, Austin TX (iPC_OPCOMrevised.ppt, OPCOMWGReport.Rev.doc)
Technical Advice Working Group (TAWG): Recommendations for the Integrated Ocean Drilling Program (IODP), 15.08.2001

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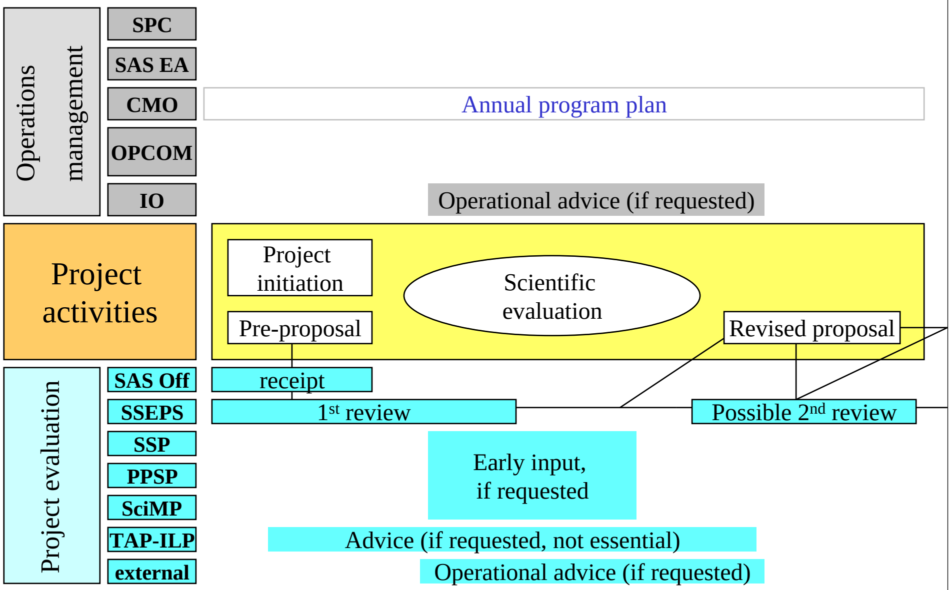
IODP Project Management System: Features

- Up to 7 distinct phases/activities, most separated by OPCOM or OPCOM-sponsored reviews to assure readiness to proceed to the next phase, with specific requirements for
  - Riser projects and Complex Drilling Programs (CDPs)
  - Possibility for Riser-less and simple MSPs to move directly from Selection to Operation phases with OPCOM review and IODP management approval
  - Detailed Planning Groups (DPGs) will be formed for all projects (especially Riser and CDP) and will carry responsibility for project maturation
- Reviews provide approval for release of funds for next phase and value assurance to funding bodies
- Limited minimum acceptable requirements
- Assurance of safety and success at regular intervals
- Uses existing ODP review and approval processes as much as possible

Objectives - Project Planning Phase I: Initiation

- To receive unsolicited scientific proposals for scientific ocean drilling from the international community, then to evaluate them such that they satisfy basic requirements and can be forwarded to SPC for ranking
- Actions involve iteration between SSEPs and proponents in terms of scientific objectives, identification of drilling location and adequate supporting data (SSEPs involve service panels as needed)
- Typical progress from (pre-)proposal to final proposal status
- Advice from TAP and ILP may be requested by proponents at any time on a voluntary basis, but this will not bias progress
- Review activities: SSEPs review of science objectives, possibly iterative.Where appropriate, SSEPs to invite TAP/IOs/industry contacts to comment on operational do-ability, potential show-stoppers, etc.
- Expected total time for phase: 6 months – 2 years (but possibly longer)

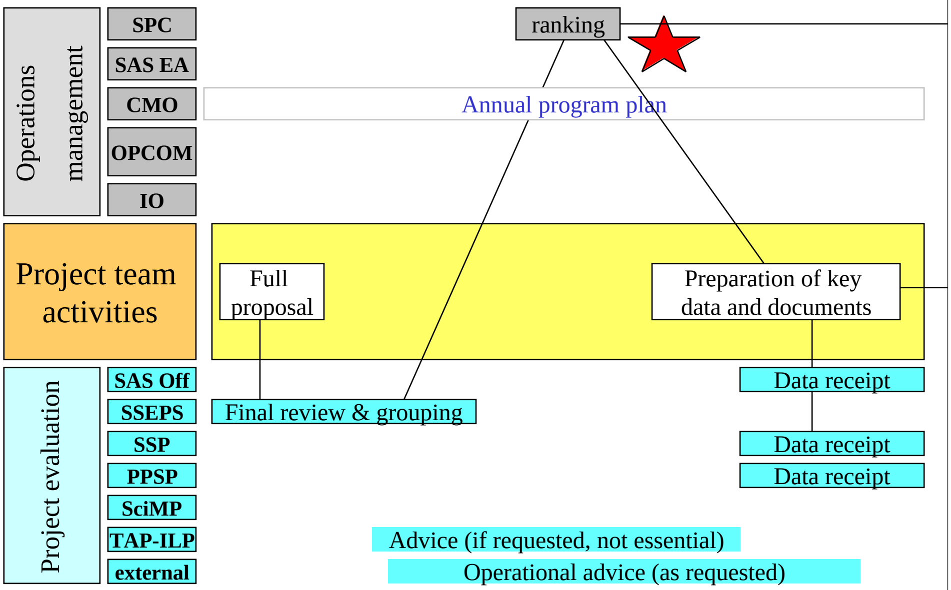
Project Planning Phase I: Initiation



Objectives - Project Planning Phase II: Appraisal and evaluation

- To move to phase II, proponents must satisfy SSEPs that the proposal is mature and ready for ranking.
- SSEPs submit it for external review. If evaluation is positive, proposal is forwarded to SPC, where it is ranked
- By this stage, proponents should have prepared preliminary seismic and other data for PPSP and SSP, and have preliminary plans for the acquisition of any missing data
- Proponents to evaluate site constraints (regulatory requirements, shipping, fishing, etc.), as needed in consultation with operational advisers (as in phase I) and, preferably, IOs
- Review activities: (I) SSEPs acceptance that proposal is final, followed by grouping (ii) External reviewers comments (iii) SPC ranking
- Expected total time for phase: <6 months

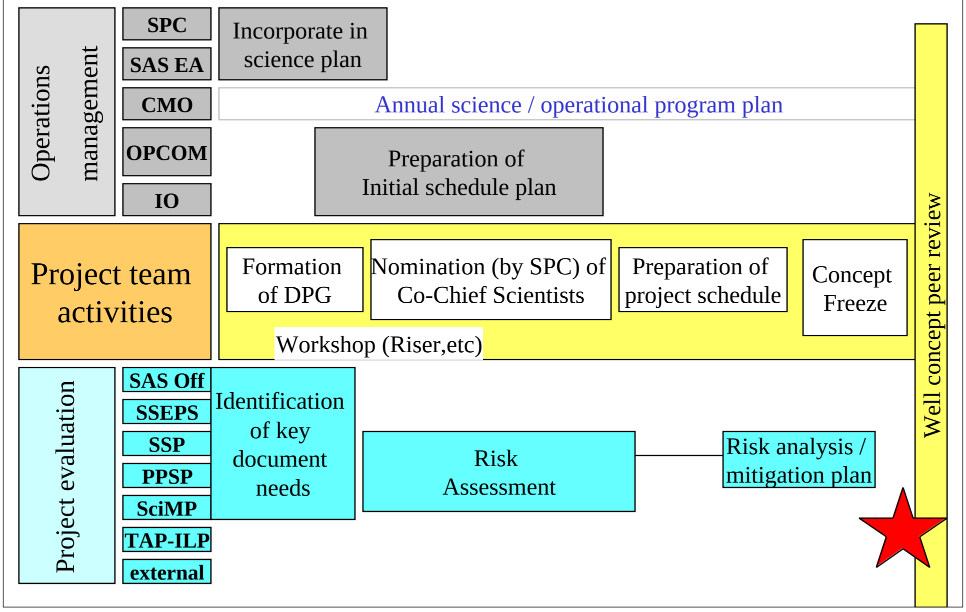
Project Planning Phase II: Appraisal and evaluation



Objectives - Project Planning Phase III: Selection

- Proposal moves to a project, involving formation of a Detailed Planning Group (DPG) to prepare a preliminary operational drilling plan, addressing science, operational and timing/cost aspects for consideration by SPC (via OPCOM).
  - The plan should define the schedule for all subsequent project phases
  - A workshop is desirable for Riser/MSP/CDP projects, on recommendation from SPC. Special needs for drilling are identified prior to workshop and detailed in outcome document
  - Scientific and operational concepts are accepted, but contingency plans are drawn up by OPCOM for possible modification of science objectives and project scheduling, dependent on potential operational constraints
- Evaluation of impact of key risks identified on project execution plan (costs, schedule). These are assessed and plans for mitigation are made.
- Identification of further survey / data acquisition requirements finalized
- Phase closes with a project/well concept peer review
- Expected total time for phase: <1 year

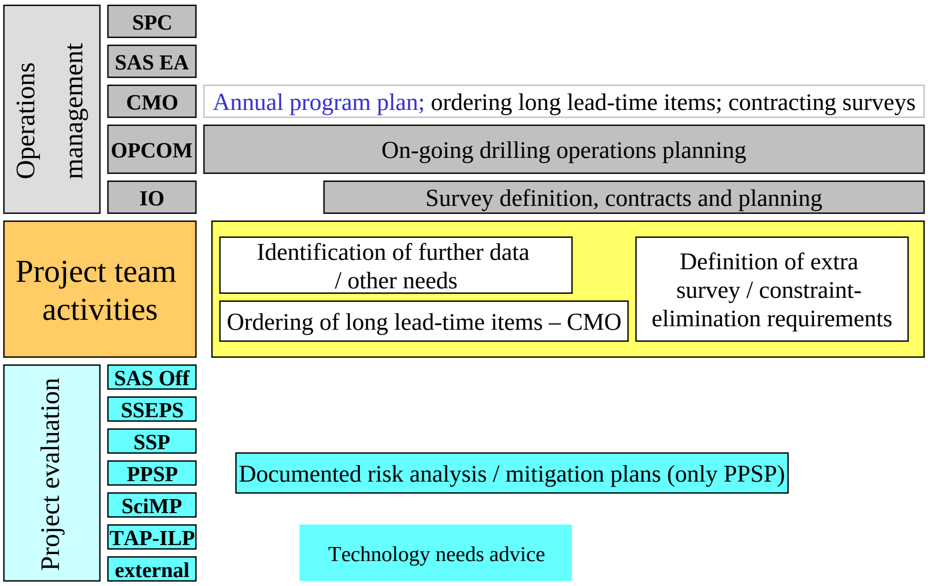
Project Planning Phase III: Selection



Objectives – Project Planning Phase IV: Survey definition

- Phase is largely contingent on need for further data acquisition and/or investigation of other constraints.
  - Data needs may be seismic, sea-bed samples, hydrographic or Met/ocean
  - Other constraints may include regulatory/license requirements, hazards, environmental/fishing issues and other cultural or strategic issues
- Final survey requirements may involve new acquisition: if so –
  - IO's and CMO to tender for/award contracts and plan survey operations
  - OPCOM requests external advice on technical & operational limits
- Mitigation plans prepared by IOs/DPG in consultation with service groups for the major risks identified in previous phases
- Long lead-time items of equipment are designed, procured and tested
- Expected total time of phase: depends on survey/other requirements. If few or none, phase can be short (~1 year).

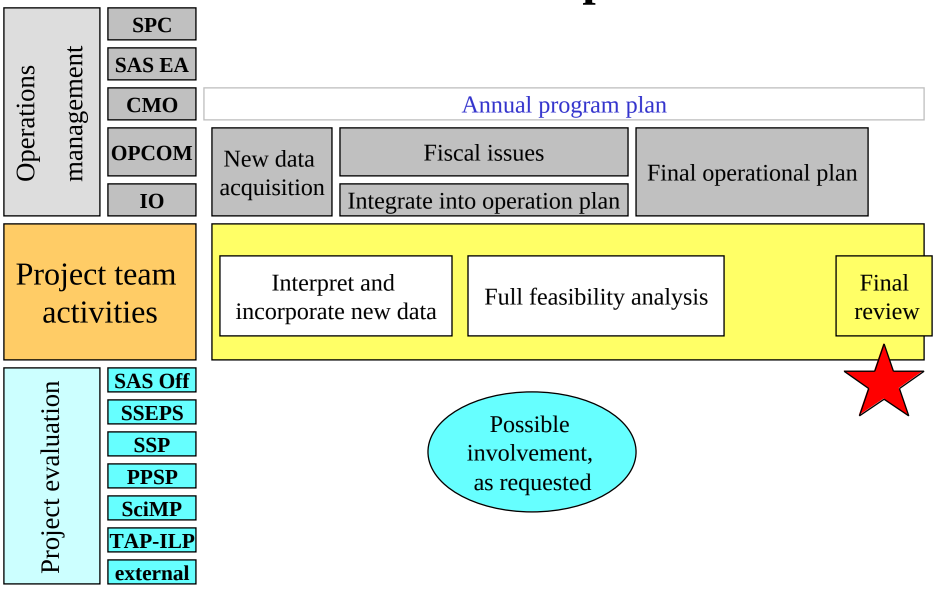
Project Planning Phase IV: Survey definition



Objectives – Project Planning Phase V: Survey execution and incorporation

- IO's to execute any final site-specific survey operations, including
  - Acquisition, processing and interpretation
  - Integration into proposal and necessary modifications to plan
- All new data to be evaluated by project group for implications on science plan and incorporated in final document
- Final pre-operational review / workshop to review readiness to proceed.
- Draw-up and finalise the project operational execution plan (DPG and IO platform operator) and freeze
  - Define the operational *modus vivendi* – command structure, reporting process etc., and rehearse scenarios and major decisions
- Timing: This phase should last 3 – 6 months depending on operational complexity (if workshop involved – 1 year)

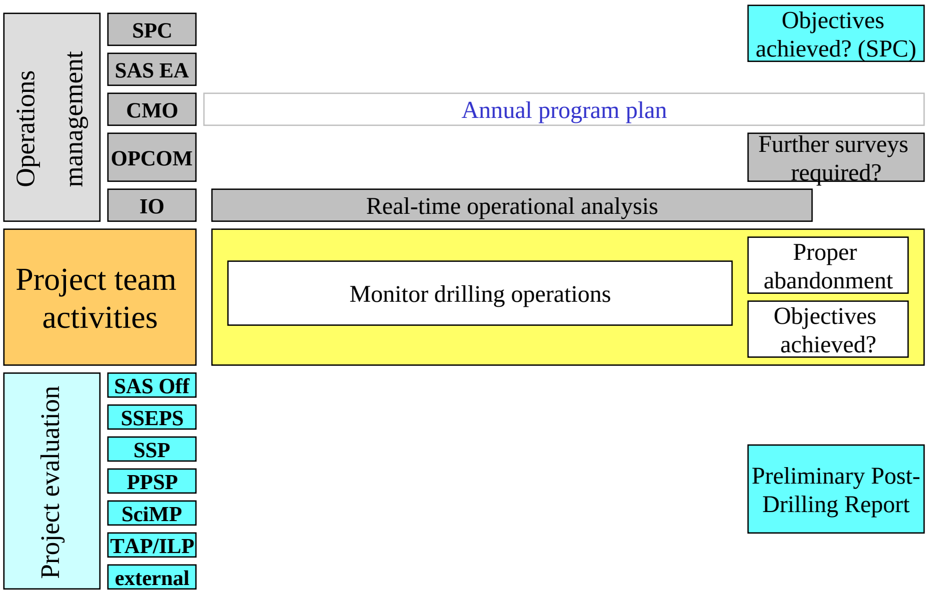
Project Planning Phase V: Survey execution and incorporation



Objectives - Project Planning Phase VI: Operation

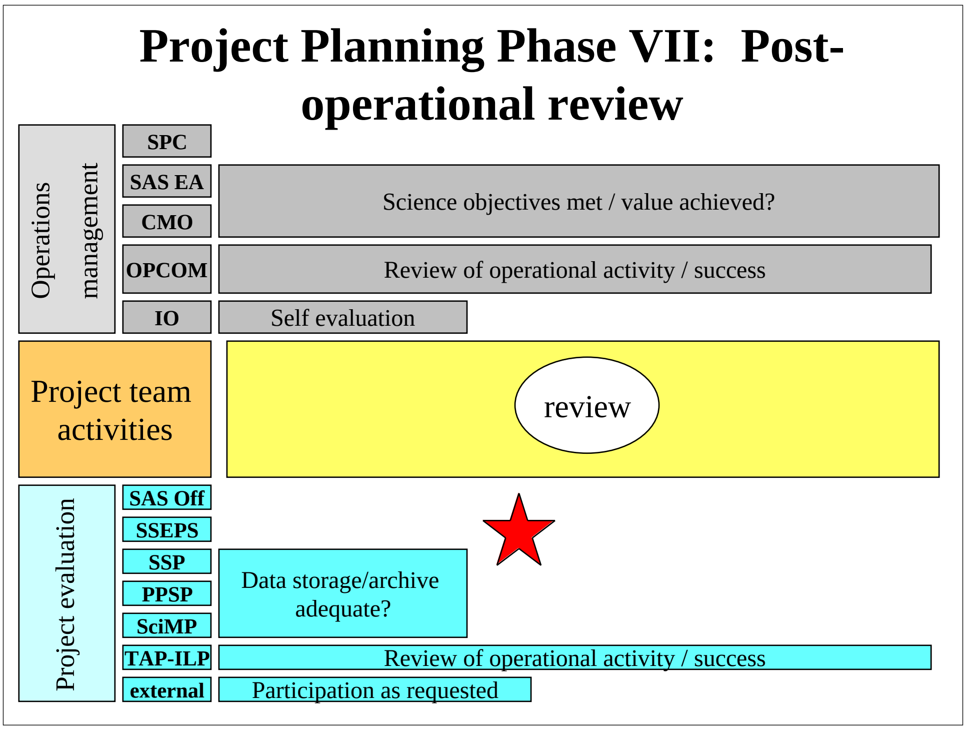
- Real-time operational analysis by IO's, reporting to OPCOM at agreed intervals (preferably weekly)
  - Urgent issues with possible consequences to IODP reputation to be reported immediately
  - OPCOM has the right to ask IOs critical questions, but carries no operational responsibility.
  - OPCOM will liaise between Co-Chief scientists and operators in case of conflicts (e.g., on well total depths)
- Carry out frequent after-action reviews at each key stage of the operation as input to post project review
- Initiation of observatory-based activities by DPG and IO
- Proper abandonment
- Post-drilling environmental review/report
- Any post-drilling operations required?
  - E.g., extra surveys

Project Planning Phase VI: Operation

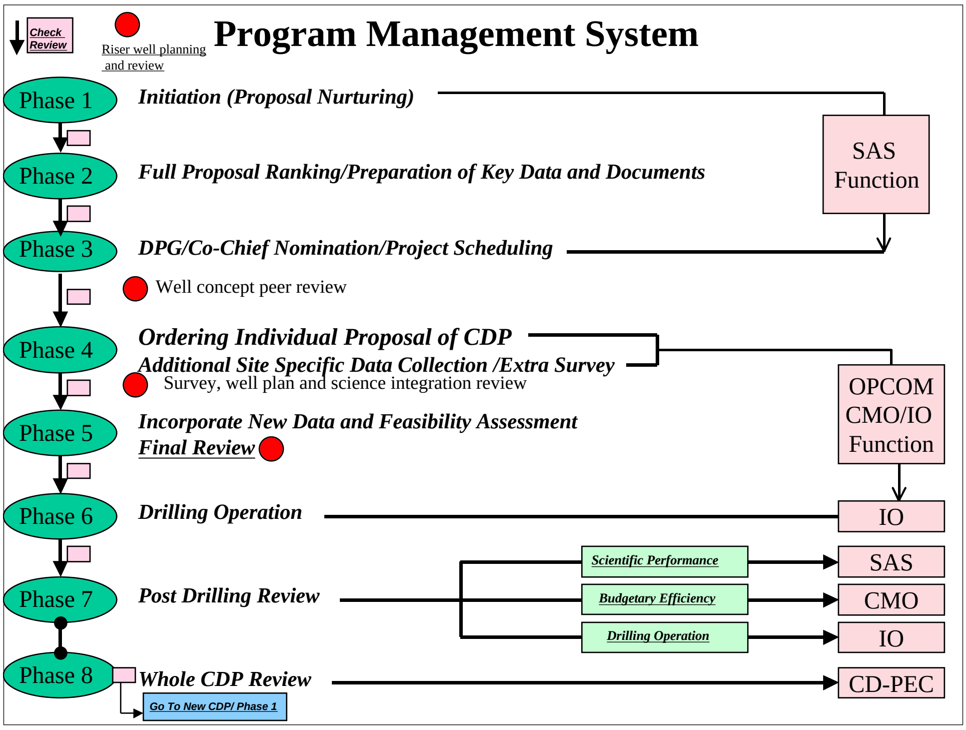


Objectives - Project Planning Phase VII: Post-operation

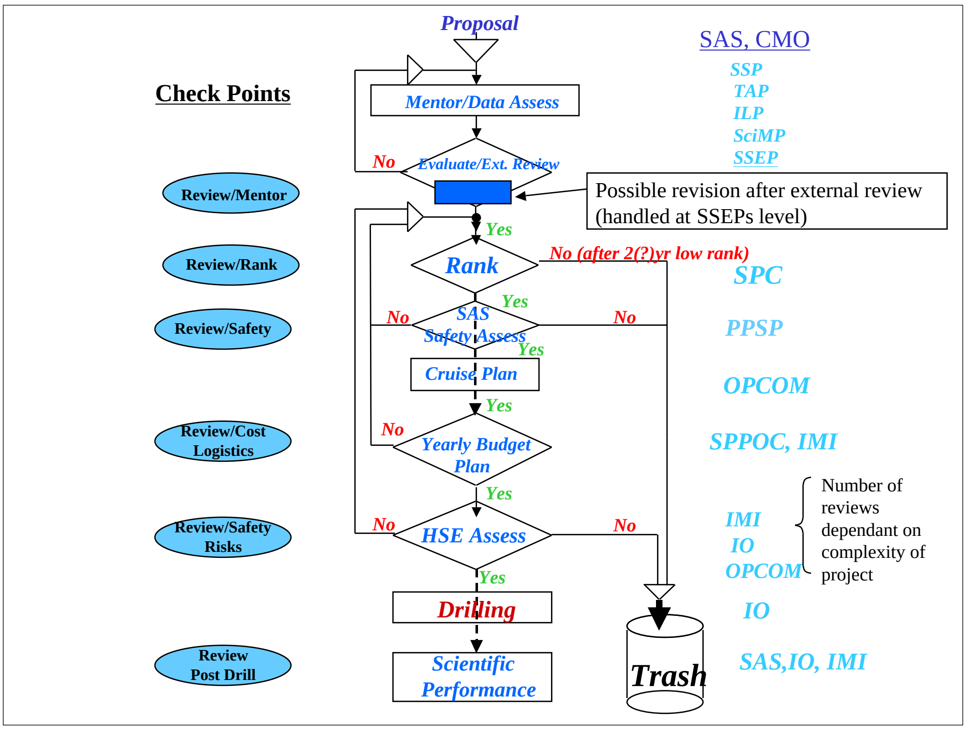
- Post-operations review to identify that sponsor investments satisfactorily employed
  - SAS (inc. SPC) review of science objectives met / value realized?
    - How can they be improved?
    - Seismic data quality adequate for science, safety, etc?
  - At close of simple operations, review may not be needed
  - OPCOM/TAP Review of operational activities, scope for efficiency improvements
    - Drilling, measurement, health, safety and environment, budget
    - Critical review of planning process and operational performance
  - Review of environmental impact (if any) by IOs
  - Data storage completed?
    - Archived according to each SAS/OPCOM guidelines?
    - Including provision for destruction where appropriate
  - Recommended timing: 6 months to 1 year after operations completed



Project Planning Phase VII: Post-operational review
Operations management
SPC
SAS EA
CMO
OPCOM
IO
Science objectives met / value achieved?
Review of operational activity / success
Self evaluation
Project team activities
review
Project evaluation
SAS Off
SSEPS
SSP
PPSP
SciMP
TAP-ILP
external
Data storage/archive adequate?
Review of operational activity / success
Participation as requested



Check Review
Riser well planning and review
Program Management System
Phase 1
Initiation (Proposal Nurturing)
Phase 2
Full Proposal Ranking/Preparation of Key Data and Documents
SAS Function
Phase 3
DPG/Co-Chief Nomination/Project Scheduling
Well concept peer review
Phase 4
Ordering Individual Proposal of CDP
Additional Site Specific Data Collection /Extra Survey
Survey, well plan and science integration review
OPCOM CMO/IO Function
Phase 5
Incorporate New Data and Feasibility Assessment
Final Review
Phase 6
Drilling Operation
IO
Phase 7
Post Drilling Review
Scientific Performance
Budgetary Efficiency
Drilling Operation
SAS
CMO
IO
Phase 8
Whole CDP Review
CD-PEC
Go To New CDP/ Phase 1


Proposal
SAS, CMO
Check Points
SSP
TAP
ILP
SciMP
SSEP
Mentor/Data Assess
No
Evaluate/Ext. Review
Review/Mentor
Possible revision after external review
(handled at SSEPs level)
Yes
Review/Rank
Rank
No (after 2(?)yr low rank)
SPC
Review/Safety
No
SAS
Safety Assess
Yes
No
PPSP
Yes
Cruise Plan
OPCOM
Yes
Review/Cost
Logistics
No
Yearly Budget
Plan
SPPOC, IMI
Yes
Number of
reviews
dependant on
complexity of
project
Review/Safety
Risks
No
HSE Assess
No
IMI
IO
OPCOM
Yes
Drilling
IO
Review
Post Drill
Scientific
Performance
Trash
SAS,IO, IMI

Project Scoping Working Group

iPC Motion 4-21: The iPC accepts iTAP Recommendation 03-5 and establishes a project scoping group to begin the scoping process for existing complex drilling projects, as an interim measure. The scoping process includes project description, risk analyses, and project planning. Membership will include representatives from proponent groups and implementing organizations, an industry project management adviser, a risk identification specialist, and a well engineer. The members should be identified by June 2003.

Membership: iTAP members, proponents, representative from I.O.s, consultants from industry:

John Thorogood	project management specialist	British Petroleum, UK
Geir Karlsen	deep water drilling engineering	USA
Mark Cowan	risk assessment specialist	Altinex ASA,UK
Yoshi Kawamura	CDEX	JAMSTEC, Japan
Taigo Wada	CDEX	JAMSTEC, Japan
Asahiko Taira	CDEX	JAMSTEC, Japan
Kate Moran	iTAP	Univeisity of Rhode Island
Jamie Austin	IMI	University of Texas at Austin
Harold Tobin	#603-CDP: NanTroSEIZE	New Mexico Tech, USA
Peter Clift	#537: Costa Rica	WHOI,USA

The Project Scoping group met in Bozeman, Montana on August 21 and 22 and will report to iPC at its meeting in September 2003.

IODP Science Planning and
Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 8

-Publications-

iSciMP recommendation on IODP publication

Recommendation 03-01-10: iSciMP recommends that the **publications program** of the IODP include the components listed below. The responsibility for implementing and overseeing these components will lie within central management of the IODP. The publication obligations incurred by a member of the Scientific Party are described in the IODP Sample and Data Policy.

1. A complete print and electronic Expedition Report volume. Both versions will capture all information produced by the Scientific Party for each drilling project, including core images and descriptions, and will be consistent and standardized across all platforms and shorebased components.
2. A continually updated on-line bibliography of each drilling project.
3. An Expedition Science Summary written by the chief scientists of the expedition will serve as a lead-in to the on-line bibliography. The Expedition Science Summary will be submitted 32 months post-moratorium.

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 9

-Ranking Procedure-

Guide to the Ocean Drilling Program
SCICOM Voting Procedures for the Global Scientific Ranking of Proposals
- ***Ratified by EXCOM January 1998***

In order to align the voting procedures with the new Science Advisory Structure, SCICOM revises PCOM Motion 96-1-5 and adopts the following three-step voting procedure for purposes of determining a drilling schedule.

Conflicted SCICOM members will be excluded from this entire process.

Step 1: Choose programs to retain for purposes of an integrated global scientific ranking, based on advice from the SSEPS as to their priority and relevance to the ODP Long Range Plan:

Option 1: Panel consensus on recommendation of Chair;

Option 2: Show-of-hands vote on each drilling proposal, with retention of a proposal for ranking based on 50% or more of votes in favor.

Step 2: Rank proposals based on scientific quality and priority. Given X programs retained from the previous step, un-conflicted SCICOM members will rank programs from 1 to X, on a signed paper ballot. After voting, written ranks of each program by each voter will be tabulated and the mean ranking and standard deviation of each program will be calculated. Paper ballots will be retained in the records of the meeting. A list of proposals that SCICOM wishes to be scheduled will then be determined from the ranked list, and will be forwarded to OPCOM.

Step 3: OPCOM will then prepare a draft schedule which will be sent to SCICOM for consideration of quality of the proposed schedule as a whole and the budgetary implications. SCICOM will vote by e-mail to accept or reject the schedule proposed by OPCOM, based on a simple majority of votes cast. Rejection of the schedule at this stage dictates the preparation of a new schedule by OPCOM.

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 10

-Proposals-

All Proponent list

Proposal #	Short Title	Proponents
482-Full3	Wilkes Land Margin	C. Escutia K. Cooper S.L. Eittreim M. Tanahashi T. Ishihara L.D. DeSantis P.E. O'Brien
512-Full3	Oceanic Core Complex	Donna Blackman John Collins Javier Escartin Gretchen Früh-Green Kevin Johnson Chris MacLeod Monique Seyler
519-Full2	South Pacific Sea Level	Gilbert F. Camoin Edouard Bard Bruno Hamelin Peter J. Davies
533-Full3	Arctic-Lomonosov Ridge	Jan Backman Nikita Bogdanov Bernard Coakley Margo Edwards Rene Forsberg Ruth Jackson Martin Jakobsson Wilfried Jokat Yngve Kristoffersen Larry Mayer Kathryn Moran
543-Full2	CORK in Hole 642E	Robert N. Harris

All Proponent list

Proposal #	Short Title	Proponents
545-Full3	Juan de Fuca Flank Hydrogeology	Fisher, A. T. Alt, J. Bach, W. Baross, J. Becker, K. Cowen, J. D'Hondt, S. Davis, E. E. Hutnak, M. Kadko, D. McCarthy, M. McClain, J. S. Mottl, M. J. Sinha, M. Spinelli, G. Spiess, V. Teagle, D. Villinger, H. Wheat, C. G. Zühlsdorff, L
547-Full4	Oceanic Subsurface Biosphere	Martin Fisk Carol Di Meo Stephen Giovannoni Stefan Sievert Ruth Blake Kenneth Nealson Radu Popa Everett Shock Jack Istok Ingunn Thorseth Rolf Pedesen Karsten Pedersen
548-Full2	Chixculub K-T Impact Crater	Joanna Morgan Richard Buffler Jaime Urrutia Fucugauchi Richard Grieve

All Proponent list

Proposal #	Short Title	Proponents
553-Full2	Cascadia Margin Hydrates	Michael Riedel Roy D. Hyndman Earl E. Davis Tim S. Collett Douglas Bartlett Miriam A. Kastner George D. Spence Scott R. Dallimore
557-Full2	Storegga Slide Gas Hydrates	Karin Andreassen Juergen Mienert Charles K. Paull John Parkes Jean-Paul Foucher Hans Petter Sejrup Tore Jan Kvalstad Jan Behrmann
564-Full	New Jersey Shallow Shelf	Kenneth G. Miller Gregory S. Mountain Nick Christie-Blick James A. Austin Craig S. Fulthorpe Peter J. Sugarman Michelle A. Kominz
572-Full3	Late Neogene-Quaternary Climate Records	James E.T. Channell Joseph S. Stoner Gerard C. Bond David A. Hodell Ellen E. Martin
573-Full2	Porcupine Basin Carbonate Mounds	Jean-Pierre Henriet Ben De Mol Wolf-Christian Dullo Andre Freiwald Bo Barker Jørgensen R. John Parkes John W. Patching
581-Full2	Late Pleistocence Coralgal Banks	André W. Droxler William W. Sager

All Proponent list

Proposal #	Short Title	Proponents
584-Full2	TAG II Hydrothermal	Peter A. Rona
		Jeffrey C. Alt
		Fernando J.A.S. Barriga
		Michael J. Bickle
		Hitoshi Chiba
		David S. Cronan
		Yves Fouquet
		Kantaro Fujioka
		J. Bruce Gemmell
		Mark D. Hannington
		Peter M. Herzig
		Jose Honnorez
		Zengqian Hou
		Susan E. Humphris
		Gerardo J. Iturrino
		Masataka Kinoshita
		Martin C. Kleinrock
		Randolf A. Koski
		Claude Lalou
		Marvin Lilley
		Robert P. Lowell
		Jay Miller
		Rachel A. Mills
		Michael J. Mottl
		Bramley J. Murton
		Martin Palmer
		R. John Parkes
		Sven Petersen
		Anna-Louise Reysenbach
		Adam Schultz
		Steven D. Scott
		Susan E. Smith
		Robert A. Sohn
		Damon A. H. Teagle
		Margaret K. Tivey
		Maurice A. Tivey
		David A. Vanko

All Proponent list

Proposal #	Short Title	Proponents
589-Full3	Gulf of Mexico Overpressures	Peter B. Flemings Alan Huffman James A. Thomson Michael O. Maler Richard E. Swarbrick Andrew Whittle Charles Winker
595-Add	Indus Fan and Murray Ridge	Peter D. Clift Hidekazu Tokuyama Christoph Gaedicke Peter Molnar Dirk Kroon Karen Bice Hans-Ulrich Schlüter Rosemary Edwards Yani Najman Shahid Amjad Muhammad Tahir M. Asif Khan Peter Hildebrand Kip V. Hodges John Grotzinger Eduardo Garzanti Peter Miles Maureen Raymo Mike P. Searle Ashraf Uddin

Proposal Submission and Review History

Proposal	Review	Date
482----		1996-01
482-Add		1996-07
	SSP	1996-11
482-Rev		1997-01
	SSEP	1997-06
482-Full2		1997-10
	SSEP	1997-10
	SSP	1998-02
	External	1998-02
482-PRL		1998-03
	SSEP	1998-05
	SSP	1998-07
	SCICOM	1998-09
482-Add2		1998-10
	SSEP	1998-11
	SSP	1999-02
482-Add3		1999-03
	SSEP	1999-05
	SCICOM	1999-09
482-Add4		1999-09
	SSEP	1999-11
	SSP	2000-02
482-Full3		2000-03
	SSEP	2000-05
	SSP	2000-07
	SCICOM	2000-08
	iSSEP	2001-11
	iPC	2002-04

Proposal	Review	Date
512-Pre		1997-01
	iSSEP	1997-01
512-Add		1997-09
	SSEP	1997-10
512-Full		1999-03
	SSEP	1999-05
512-Full2		1999-10
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512-PRL		2000-04
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	SSP	2000-07
512-PRL2		2000-07
	SCICOM	2000-08
	SSP	2001-02
	SSP	2001-07
512-PRL3		2001-07
	SCICOM	2001-09
512-Full3		2003-04
512-Add2		2003-04
	iSSEP	2003-05
	iSSP	2003-07
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512-PRL4		2003-08
	iSSEP	2003-08

Proposal	Review	Date
519-Pre		1997-09
	SSEP	1997-10
519-Full		1998-10
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519-Full2		1999-03
	SSEP	1999-05
	SSP	1999-07
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	SCICOM	2000-08
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519-Add		2001-03
	SSEP	2001-05
	SSP	2001-07
	SCICOM	2001-09
519-Add2		2002-03
	iSSEP	2002-06
	iSSP	2002-07
	iPC	2002-08
	iSSP	2003-02
	iSSP	2003-07

Proposal	Review	Date
533-Pre		1998-03
	SSEP	1998-05
533-Full		1999-03
	SSEP	1999-05
533-Full2		1999-10
	SSEP	1999-11
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533-Add		2000-03
533-PRL		2000-04
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	SSP	2000-07
	SCICOM	2000-08
	SSP	2001-02
	SSP	2001-07
533-PRL2		2001-07
	SCICOM	2001-09
533-Full3		2002-03
	iSSEP	2002-06
	iSSP	2002-07
	iPC	2002-08
	iSSP	2003-02
	iPPSP	2003-06
	iSSP	2003-07

Proposal	Review	Date
543-Pre		1998-10
	SSEP	*1998-11*
543-Full		2000-03
	SSEP	2000-05
543-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
543-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
	SCICOM	2001-09
	iSSEP	2002-06
	iSSP	2002-07
543-PRL2		2002-08
	iPC	2002-08

Proposal	Review	Date
545-Pre		1998-10
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545-Full		1999-03
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545-Full2		1999-10
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	SSP	2000-02
	External	2000-02
545-PRL		2000-04
	SSEP	2000-05
	SSP	2000-07
545-PRL2		2000-07
	SCICOM	2000-08
545-Add		2001-09
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545-PRL3		2002-02
	iPC	2002-04
545-Full3		2003-04
	iSSEP	2003-05
	iSSP	2003-07

Proposal Submission and Review History

Proposal	Review	Date
547-Pre		1998-10
547-Full		1999-10
	SSEP	1999-11
547-Full2		2000-03
	SSEP	2000-05
547-Full3		2000-10
	SSEP	2000-11
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	External	2001-02
547-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
547-PRL2		2001-07
	SCICOM	2001-09
547-Full4		2003-04
	iSSEP	2003-05
	iSSP	2003-07
547-PRL3		2003-07

Proposal	Review	Date
548-Pre		1998-10
	SSEP	*1998-11*
548-Full		2000-03
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548-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
548-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
548-PRL2		2001-07
	SCICOM	2001-09
548-Add		2002-03
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	iSSP	2002-07
	iPC	2002-08

Proposal	Review	Date
553-Full		1998-10
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	SSP	*1999-02*
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553-PRL		1999-04
	SSEP	*1999-05*
553-Add		1999-06
	SSP	1999-07
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553-Add2		1999-11
	SSP	2000-02
	SSEP	2000-05
	SSP	2000-07
	SCICOM	2000-08
	iSSEP	2002-06
	iSSP	2002-07
	iPC	2002-08
553-Full2		2003-04
	iSSEP	2003-05
	iSSP	2003-07
	External	2003-08
553-PRL2		2003-08
553-Add3		2003-08
	iSSEP	2003-08

Proposal	Review	Date
557-Pre		1999-03
	SSEP	1999-05
557-Full		2000-03
	SSEP	2000-05
557-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
557-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
557-PRL2		2001-07
	SCICOM	2001-09
	iSSEP	2002-06
	iSSP	2002-07
557-PRL3		2002-08
	iPC	2002-08

Proposal	Review	Date
564-Pre		1999-03
	SSEP	1999-05
564-Full		1999-09
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	SSP	2000-02
	External	2000-03
564-PRL		2000-04
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564-PRL2		2000-06
	SSP	2000-07
	SCICOM	2000-08
	SSP	2001-02
	SSP	2001-07
564-PRL3		2001-07
564-PRL4		2001-08
	SCICOM	2001-09
	iSSEP	2002-06
	iSSP	2002-07
564-PRL5		2002-07
	iPC	2002-08
	iSSP	2003-02
	iPPSP	2003-06
	iSSP	2003-07

Proposal	Review	Date
572-Pre		1999-10
	SSEP	1999-11
572-Full		2000-03
	SSEP	2000-05
572-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
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572-PRL		2001-04
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	SSP	2001-07
572-PRL2		2001-07
	SCICOM	2001-09
572-Full3		2002-03
	iSSEP	2002-06
	iSSP	2002-07
	iPC	2002-08
	iSSP	2003-07

Proposal Submission and Review History

Proposal	Review	Date
573-Pre		1999-10
	SSEP	1999-11
573-Full		2000-03
	SSEP	2000-05
573-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
573-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
573-PRL2		2001-07
	SCICOM	2001-09
573-Add		2002-03
	iSSEP	2002-06
573-PRL3		2002-07
	iSSP	2002-07
	iPC	2002-08

Proposal	Review	Date
581-Full		2000-03
	SSEP	2000-05
581-Add		2000-10
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
581-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
581-PRL2		2001-07
	SCICOM	2001-09
581-Full2		2002-03
	iSSEP	2002-06
	iSSP	2002-07
	iPC	2002-08

Proposal	Review	Date
584-Full		2000-03
	SSEP	2000-05
	SSP	2000-07
	External	2000-09
584-PRL		2000-10
	SSEP	2000-11
	SSP	2001-02
584-Add		2001-03
	SSEP	2001-05
	SSP	2001-07
584-PRL2		2001-07
	SCICOM	2001-09
584-Full2		2002-04
	iSSEP	2002-06
	iSSP	2002-07
584-PRL3		2002-08
	iPC	2002-08
584-PRL4		2003-08

Proposal	Review	Date
589-Full		2000-03
	SSEP	2000-05
589-Full2		2000-09
	SSEP	2000-11
	SSP	2001-02
	External	2001-02
589-PRL		2001-04
	SSEP	2001-05
	SSP	2001-07
589-PRL2		2001-07
	SCICOM	2001-09
589-Full3		2002-04
	iSSEP	2002-06
	iSSP	2002-07
589-PRL3		2002-07
	iPC	2002-08
589-PRL3		2003-08

Proposal	Review	Date
595-Full		2001-03
	SSEP	2001-05
595-Full2		2001-09
	iSSEP	2001-11
595-Full3		2002-03
	iSSEP	2002-06
	iSSP	2002-07
595-Add		2003-03
	iSSEP	2003-05
	iSSP	2003-07
	External	2003-08
595-PRL		2003-08
	iSSEP	2003-08

Proposal Received 01-Oct-2001

iSAS/IODP Proposal Cover Sheet

☐ New ☒ Revised ☐ Addendum

482-Full3

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Title:	Cenozoic East Antarctic Ice Sheet History from the Wilkes Land Sediments		
Proponent(s):	C. Escutia C., A.K. Cooper, S.L. Eittreim, M. Tanahashi, T. Ishihara, L. DeSantis, P. O Brien		
Keywords: *(5 or less)*	Cenozoic, Antarctica, Ice sheet, Paleoclimate, Sedimentary sequences	Area:	S. Ocean

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Permission to post abstract on iSAS Web site: ☒ Yes ☐ No

Abstract: (*400 words or less)*

This is a revision of proposal 482-Full2 which includes preliminary results from the WEGA cruise as recommended by the ODP panels. Drilling the Wilkes Land margin is designed to provide a long-term record of Antarctic glaciation and its relationship with global sea level, paleoclimate and paleoceanographic changes. The primary goals are: 1) to obtain the nature and the timing of the Cenozoic onset of grounded ice from the continental shelf and rise deposits (shelf Sites WLSHE-07A, WLSHE-09A and rise Site WLRIS-02A), and 2) to obtain a high-resolution late Neogene-Quaternary glacial/interglacial record of glaciation from the rise deposits (Sites WLRIS-01A and WLRIS–03A). An additional objective is to identify and date large fluctuations in the extent of the East Antarctic Ice Sheet possibly throughout much of the Miocene (shelf Site WLSHE-08A).

Drilling the Wilkes Land margin has the unique advantage that is the only known margin around Antarctica where the unconformity (referred to as WL2), inferred to separate pre-glacial strata below from glacial strata above in the continental shelf, can be traced to the continental rise deposits, allowing sequences to be linked from shelf to rise. Because strata below and above the "glacial onset" unconformity can be sampled at relatively shallow depths, the record of the onset of glaciation can be obtained during a single drilling leg from two depositional environments, the shelf foreset (Sites WLSHE-07A and WLSHE–09A) and the rise hemipelagic (Site WLRIS-02A) strata. The shelf foreset section provides a direct record of first occurrence of grounded ice but one that is less continuous and harder to date. The rise hemipelagic section provides an indirect record of glaciation but one that is more continuous and easier to date.

The proposed 37 day drilling program will constrain the age, nature and paleoenvironment of deposition of the Wilkes Land sedimentary sequences. The chronostratigraphy from drilling the Wilkes Land margin, at present non-existent, is necessary to ground-truth the existing glacial- stratigraphic and ice-sheet volume models. Ice sheet models show that the Wilkes Land margin became glaciated in the later stages of East Antarctic glaciation, after Prydz Bay and the Weddell Sea and is thus more sensitive to future temperature changes. The results from drilling the Wilkes Land can be compared with results from the Antarctic Peninsula (Leg 178), Prydz Bay (Leg 188), and Cape Roberts Project drilling (1997-1999) to determine Antarctic Ice Sheet history, glacial processes and facies

482-Full3

Scientific Objectives: (*250 words or less*)

We propose to core sediments deposited on the Wilkes Land margin with the following objectives:

1. to obtain the onset of glaciation (Eocene or older) by drilling strata across the glacial onset reflector (regional unconformity WL2) in two depositional environments, shelf progradational wedge foreset (Sites WLSHE-07A or alternate WLSHE-09A) and lower continental rise/abyssal plain hemipelagic strata (Sites WLRIS-02A);
2. to obtain a high-resolution Neogene-Quaternary record of glacial/interglacial cycles from continental rise mounded deposits (Sites WLRIS-01A);
3. to date major changes in shelf prograded wedge geometry (below and above the regional WL1 unconformity) that document large fluctuations in the glacial regime, possibly through much of the Miocene (Site WLSHE-08A);
4. to help assess the main controls on sediment transport and deposition on ice-dominated continental shelves and rises in order to test present architectural models of glacial processes and facies for high-latitude margins; and
5. to constrain the timing and the nature of changes in glacial regime and paleoceanography that result in the development of large mounded deposits (i.e. up to 700 m relief), and large upper-fan channel-levee complexes (i.e. 900 m relief) on the continental rise.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
WLSHE-07A	66°03 S/143°08 E	600	510	0	510	Onset of glaciation
WLSHE-09A	66°20 S/142°40 E	525	200	0	200	Onset of glaciation
WLRIS-02A	64°00 S/139°49 E	3712	1000	0	1000	Onset of glaciation
WLRIS-01A	64°54 S/145°59 E	3345	700	0	700	Late Neogene and Quaternary high-resolution record
WLRIS-03A*	64°51 S/144°46 E	3225	700	0	700	
WLSHE-08A	66°00 S/143°18 E	525	250	0	250	Miocene fluctuations in glacial regime

Received 1-April-2003

iSAS/IODP Proposal Cover Sheet

☐ New ☑ Revised ☐ Addendum

512-Full3

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Title:	**Oceanic Core Complex Formation: Deformation, Alteration, and Accessible Mantle Peridotite**
Proponent(s):	Donna Blackman, John Collins, Javier Escartin, Gretchen Früh-Green, Kevin Johnson, Chris MacLeod, Monique Seyler
Keywords: *(5 or less)*	core complex, peridotite, alteration front
Area:	Mid-AtlanticRidge 30°N

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Permission to post abstract on iSAS Web site: ■ Yes ☐ No

Abstract: (*400 words or less)*

We aim to document the conditions under which oceanic core complexes (OCC) develop. Domal massifs capped by corrugated, striated detachment faults have been mapped at several locations on the seafloor. Formation of these large, shallow seafloor features appears to be an episodic manifestation of plate rifting and accretion at slow spreading ridges. However, currently available data are not sufficient to characterize the magmatic/tectonic/metamorphic history so that we can understand the mechanisms of uplift and emplacement of OCC.

A second goal is to characterize the nature of the alteration front within oceanic peridotite. OCC expose altered upper mantle peridotites and mafic crustal rocks. The alteration of these rocks and the process of serpentinization greatly affect the geophysical properties of the lithosphere. Mantle seismic velocities have been measured at depths as shallow as several hundred meters on the central dome of the massif, therefore drilling at Atlantis Massif offers an unprecedented opportunity to determine the nature of the Moho. Is it a hydration front rather than the crust/mantle boundary?

The potential for recovering fresh peridotite at Atlantis Massif presents excellent opportunities for advances in understanding residual modes and microstructure within the oceanic mantle. Core of essentially fresh, in-situ peridotite would allow us to document composition, microstructure, evidence for melt production/migration, and relationships between deformation/melt and syntectonic alteration.

We propose to drill at two sites in order to achieve these goals:

- deep drill on the central dome of Atlantis Massif, to sample the detachment fault zone and the alteration front, and drill into unaltered mantle; core and logging analyses.
- drill through the basaltic hanging wall, to sample rock just above the detachment, the shallowest part of the unexposed fault and through a portion of the fault zone.

512-Full3

Scientific Objectives: (*250 words or less*)

1) Characterize variation in rock type, structure and alteration with depth at an ultramafic oceanic core complex, including the nature and deformation history of the detachment fault
2) Obtain core of essentially fresh, in-situ peridotite to document composition, microstructure, evidence for melt production/migration, and relationships between deformation/melt and syntectonic alteration.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
AMFW-01A	30° 10.2N, 42° 7.6W	1630	1 m	> 700		fault zone, alteration front, fresh peridotite
AMHW-01A	30° 10.0N, 42° 4.0W	2550	1-2	4-500		basaltic rock & alteration above detachment, unexposed fault rocks

ODP Proposal Log Sheet

Interior [ ] Environment [X] **519-Full2** Proposal received: March 15, 1999

[ ] New proposal [X] Revised proposal [ ] Addendum [ ] Other

The Last Deglacial Sea-Level Rise in the South Pacific: Offshore Drilling in Tahiti (French Polynesia) and on the Australian Great Barrier Reef

G.F. Camoin, E. Bard, B. Hamelin, P. Pezard, P.J. Davies, W.C. Dullo

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Brief description:

The history of sea-level and sea surface temperature variation associated with the last deglaciation is of prime interest to understand the dynamics of large ice sheets and their effects on Earth's isostasy. So far, the only sea-level record that encompasses the whole deglaciation is based on offshore drilling of Barbados coral reefs which overlie an active subduction zone, implying that the apparent sea-level record may be biased by tectonic movements. This proposal seeks to establish the course and effects of the last deglaciation in two reef settings developed in tectonically inactive areas at sites located far away from glaciated regions, in Tahiti (French Polynesia) and on the Australian Great Barrier Reef. At each site, it is proposed to realize a transect of several offshore drill holes using a Portable Remotely Operated Drill (‘PROD’) in combination with submersible (‘JAGO’) observation and mapping, downhole measurements and high-resolution seismic-reflection profiles. The study will have three major objectives. The first objective will be to reconstruct the deglaciation curve for the period 20,000 to 10,000 yrs BP in order to establish the minimum sea-level during the Last Glacial Maximum (LGM), and to assess the validity, the timing and amplitude of meltwater pulses (so-called MWP-1A and MWP-1B events; c. 13,800 and 11,300 cal. yr BP) which are thought to have disturbed the general thermohaline oceanic circulation and, hence, global climate. Secondly, we will establish the SST variation accompanying the transgression at each transect. These data will allow us to examine the impact of sea-level changes on reef growth, geometry and biological makeup, especially during reef drowning events, and will help improving the modeling of reef development. The third major objective will be to identify and to establish patterns of short-term paleoclimatic changes that are thought to have punctuated the transitional period between present-day climatic conditions following the LGM. It is proposed to quantify the variations of sea surface temperatures based on high-resolution isotopic and trace element analyses on massive coral colonies. When possible, we will try to identify specific climatic phenomena such as El Nino-Southern Oscillation (ENSO) in the time frame prior to 10,000 yrs BP.

ODP Proposal Log Sheet

☒ **Environment** ☐ *Interior*

519-Full2

Proposal received: Mar 15, 1999
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

The Last Deglacial Sea-Level Rise in the South Pacific: Offshore Drilling in Tahiti (French Polynesia) and on the Australian Great Barrier Reef

G.F. Camoin, E. Bard, B. Hamelin, P. Pezard, P.J. Davies, W.C. Dullo

Abbrev. Title: Sea-Level Rise South Pacific Reefs	Key: Great Barrier Reefs	Area: SW Pacifi

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Objectives:

1. To reconstruct the deglaciation curve for the period 20,000-10,000 years BP in order to establish the minimum sealevel during the Last Glacial Maximum (LGM), and to assess the validity, timing and amplitude of meltwater pulses.
2. To establish the SST variations accompanying the transgression at each transect.
3. To identify and establish patterns of short-term paleoclimatic changes that are thought to have punctuated the transitional period between present-day climatic conditions following the LGM.

Proposal acknowledged by JOIDES Office: Mar 17, 1999 to : Camoin, G.F.
Proposal forwarded for review: Apr 14, 1999 to : SSEPs
Proposal copies: Apr 14, 1999 to : JOI Inc., SO (ODP/TAMU), SSDB

Received 28-March-2002

533-Full3

iSAS/IODP Proposal Cover Sheet

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray boxes *Above For Official Use Only*

Title:	Paleoceanographic and Tectonic Evolution of the Central Arctic Ocean		
Proponent(s):	Jan Backman, Nikita Bogdanov, Bernard Coakley, Margo Edwards, Rene Forsberg, Ruth Jackson, Martin Jakobsson, Wilfried Jokat, Yngve Kristoffersen, Larry Mayer, Kathryn Moran		
Keywords: *(5 or less)*	Arctic Ocean, Paleoceanography, Tectonics, Lomonosov Ridge	Area:	Lomonosov Ridge

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Permission to post abstract on iSAS Web site: ☐ Yes

Abstract: *(400 words or less)*

Five sites are proposed to be drilled on the ridge crest of the Lomonosov Ridge in the central Arctic Ocean. The sites are distributed between 88°N and 81°N in water depths ranging between 800 and 1415 m, and are all located in international waters. The ridge was rifted from the Kara/Barents Sea shelves during early Paleogene time and subsequently subsided to its present water depth. Since that time sediments of biogenic, eolian and ice-rafted origin have accumulated on the ridge crest. In our primary target area between 87°N and 88°N these sediments are about 450 m thick, indicating an average rate of sedimentation of ~10 m/m.y. throughout the course of the Cenozoic. Sampling of these sediments would provide an unprecedented and unique opportunity to acquire a first-order knowledge about the paleoceanographic history of the central Arctic Ocean. Sampling of the underlying bedrock provides a similarly unique opportunity to decipher the tectonic history of the Lomonosov Ridge and the formation of the Eurasian Basin.

The proposed program epitomizes both the spirit and the science of the new Integrated Ocean Drilling Program, calling upon the creative use of mission specific platforms and directly addressing a number of the key scientific questions raised in the IODP Initial Science Plan.

Amongst scientific issues relating to “Environmental Change, Processes and Effects" are:

- the long-term (50 Ma) climate history of the central Arctic Ocean, and its role in Earth's transition from one extreme (Paleogene greenhouse lacking glaciation) to another (Neogene icehouse with bipolar glaciation)
- the shorter-term (Neogene) climate history, connecting the Neogene history of the Arctic Ocean to that of the North Atlantic Ocean at sub-millennial scale resolution
- Scientific issues relating to “Solid Earth Cycles and Geodynamics" are:
- the composition and origin of the pre-Cenozoic bedrock underlying the sediment drape
- the rifting and subsidence history of the Lomonosov Ridge

Five sites distributed over six degrees of latitude are proposed, partly with overlapping goals, which will make the drilling expedition less vulnerable to severe local ice conditions. The major goals of this proposal can be achieved by completing one site to 450 mbsf. Should ice conditions at this site be prohibited, a suite of sites from other areas along the Lomonosov Ridge corridor can be drilled to achieve the proposed science.

533-Full3

Scientific Objectives: (*250 words or less*)

There are two major objectives: understanding the paleoceanographic history and the tectonic evolution of the central Arctic Ocean. The history of Arctic paleoceanography is so poorly known that we can look at the recovery of any material as a true exploration that will, by definition, increase our knowledge and understanding of this critical region. Specific paleoceanographic objectives are to:

- understand the history of ice rafting;
- study local versus regional ice-sheet development
- determine the density structure of Arctic Ocean surface waters, the nature of North Atlantic conveyor and onset of Northern Hemisphere glaciation
- determine the timing and consequences of the opening of the Bering Strait
- study the land-sea links and the response of Arctic to Pliocene warm events
- investigate the development of deep Fram Strait and deep water exchange between Arctic and GIN seas/world ocean
- determine the history of biogenic sedimentation.

The tectonic objectives are focused on Ridge evolution. If proven to be a continental fragment, it represents truly unique global information on the relative strength of continental and oceanic lithosphere. Specific tectonic objectives for drilling on the Lomonosov Ridge are:

- to investigate the nature and origin of the Lomonosov Ridge by sampling the oldest rocks below the regional unconformity in order to establish the pre-Cenozoic environmental setting of the ridge

to study the history of rifting and the timing of tectonic events that affected the ridge.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
Primary LORI-013A	87 39.45N, 144 37.80E	1070	450	30	480	paleoceanography & tectonic
LORI-06A	81 28.54, 140 50.71	802	400	0	400	paleoceanography (Neogene)
LORI-04A	85 23.28, 150 20.62	794	90	110	200	tectonic
LORI-05A	83 58.90, 147 25.02	982	400	0	400	paleoceanographic
LORI-10A	86 24.89, 147 15.56	1132	400	0	400	paleoceanographic
Alternate LORI-08A	87 53.99, 138 38.60	1124	450	0	450	paleoceanographic
LORI-14A	87 37.55, 147 14.65	1415	90	110	200	tectonic
LORI-12A	82 04.30, 142 02.58	1392	400	0	400	paleoceanographic (Neogene)

ODP Proposal Log Sheet

☒ Environment ☒ **Interior**

543-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

JOIDES Proposal 543 for Installation of a CORK in Hole 642E to Document and Monitor Bottom Water Temperature Variations Through Time

R.N. Harris

Abbrev. Title: CORK Hole 642.E	Key: CORK Hole 642.E	Area: N Atl

Contact:

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Brief Description:

Knowledge of bottom water temperature (BWT) variations is important to understanding the vigor and nature of ocean circulation as well as the nature of climatic interactions between the ocean and atmosphere. The biggest obstacles to understanding variability in bottom water are (1) the lack of an observational network and (2) historical data that are too short in time and too sparse in space. We propose to investigate the feasibility of reconstructing BWT histories at the decade to centennial time scale by making high-precision temperature-depth measure-ments at ODP Hole 642E. Because marine sediments have a low thermal diffusivity, variations in BWT propagate slowly downward perturbing the background thermal field. These tempera-ture anomalies are a direct thermophysical consequence of a changing BWT condition, and will be used to reconstruct BWT histories. We will ensure a conductive thermal environment by isolating a thermistor string between a borehole seal or CORK (circulation obviation retrofit kit) at the top of the borehole and a packer below the thermistor string. Hole 642E is ideally located because it is in a climatically sensitive region and a 50 year time series of BWT mea-surements is located nearby. A sensitivity analysis using observed variations in BWT at this location indicates that a signal is present and resolvable. By measuring thermal transients as a function of time at this borehole observatory we will directly isolate the transient component of BWT variations.

Specific area: Norwegian-Greenland Sea

Proposed Sites:

Site Name	Position	Water depth	Penetration Sed	Bsm	Total	Brief site-specific objectives
Hole 642E	67°13.2'N; 2°55.8'E	1277	0	0	0	Log Hole 642E for temperature and install CORK

ODP Proposal Log Sheet

☒ **Environment** ☒ **Interior**

543-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

JOIDES Proposal 543 for Installation of a CORK in Hole 642E to Document and Monitor Bottom Water Temperature Variations Through Time

R.N. Harris

Abbrev. Title: CORK Hole 642.E	Key: CORK Hole 642.E	Area: N Atl

Contact:

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Objectives:

1. To document our ability to recover bottom water temperature histories from temperature depth profiles. The possibility to reconstruct bottom water temperature histories with sufficient resolution creates the potential for transects of such measurements across climatologically important gateways such as the Reykjanes Ridge.

2. To reconstruct bottom water temperature histories at ODP Hole 642E. How large have these variations been? How far back in time can we reliably estimate bottom water temper-ature histories?

3. To isolate perturbations in the subsurface temperature profile resulting from variations in bottom water temperature histories. Are observed temperature perturbations to the back-ground thermal field in fact due to variations in BWT?

Proposal acknowledged by JOIDES Office: Sep 28, 2000 to : Harris, R.N.
Proposal forwarded for review: Oct 5, 2000 to : SSEPs
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Received 1-April-2003

545-Full3

iSAS/IODP Proposal Cover Sheet

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray boxes

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Title:	**The Hydrogeologic Architecture of Basaltic Oceanic Crust: Compartmentalization, Anisotropy, Microbiology, and Crustal-scale Properties on the Eastern Flank of Juan de Fuca Ridge**
Proponent(s):	Fisher, A. T., Alt, J., Bach, W., Baross, J., Becker, K., Cowen, J., D'Hondt, S., Davis, E. E., Hutnak, M., Kadko, D., McCarthy, M., McClain, J. S., Mottl, M. J., Sinha, M. , Spinelli, G., Spiess, V., Teagle, D., Villinger, H., Wheat, C. G., Zühlsdorff, L.
Keywords: *(5 or less)*	Hydrogeology, hydrothermal, crustal evolution, fluxes — Area: Northeast Pacific Ocean

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Permission to post abstract on iSAS Web site: ☐ Yes ☐

Abstract: *(400 words or less)*

We propose a multidisciplinary research program to evaluate the formation-scale hydrogeologic properties (transmission, storage) within oceanic crust; determine how fluid pathways are distributed within an active hydrothermal system; establish linkages between fluid circulation, alteration, and geomicrobial processes, and determine relations between seismic and hydrologic anisotropy. We will accomplish these goals through replacement of two existing subseafloor observatories penetrating the upper crust, and through drilling two new holes (600 m and 200 m into the crust) that will be cored, sampled, instrumented, and sealed. We will conduct the first multi-dimensional, cross-hole experiments attempted in the oceanic crust, including hydrologic, microbiological, seismic, and tracer components. After completion of drill-ship operations, we will initiate multi-year tests using this network of subseafloor observatories, allowing us to examine a much larger volume of the crustal aquifer system than has been tested previously. By monitoring, sampling, and testing within multiple depth intervals, we can evaluate the extent to which oceanic crust is connected vertically and horizontally; the influence of these connections on fluid, solute, heat, and microbiological processes; and the importance of scaling on hydrologic properties. We propose to complete this work where (1) thick sediment cover isolates permeable basement, allowing small pressure transients to travel long lateral distances, (2) outstanding coverage of seismic, heat flow, coring, geochemical, and observatory data allow detailed hypotheses to be posed and tested, (3) existing ODP drill holes and long-term observatories provide critical monitoring points for pre- and post-drilling experiments, (4) the formation is naturally overpressured so as to drive multi-year, cross-hole experiments (5) and a planned, cabled seafloor observatory network will facilitate long-term experiments, data access, and instrument control. Alternate sites are proposed within a shallow hydrothermal upflow zone, and in deeper basement areas where the crust is more mature. This work will elucidate the nature of permeable pathways in the crust, the depth extent of circulation, the importance of permeability anisotropy, and the significance of hydrogeologic barriers in the crust. We will learn where viable microbiological communities live, and how these communities cycle carbon, alter rocks, and are influenced by flow paths. We will quantify lateral scales over which solute transport occurs, the extent of flow channeling and mixing in the crust, and how these processes relate to rock structure and fabric. We will determine how to relate seismic velocities and velocity anisotropy to hydrogeologic properties.

545-Full3

Scientific Objectives: (*250 words or less*)

Second Ridge (first priority): Drill at Site SR-1, 1000 m SSW of ODP Site 1026, where sediment thickness is 260-275 m. Core into basement upper basement and set casing, then penetrate 600 m into basement. Log, packer, VSP, and CORK Hole SR-1A to isolate multiple levels in basement. Drill at Site SR-2, 200 m SSW of Site 1026, and 800 m NNE of Site SR-1. Operational plan is identical to that at SR-1, except that (1) basement penetration will be 200 m, and (2) we will conduct a long-term hydrogeologic and tracer experiment by pumping into Hole SR-2A for 24 hours. Monitor pressures and chemistry at nearby holes. CORK Hole SR-2A and allow to equilibrate. Open seafloor valves post-drilling to initiate multi-year hydrologic and microbiological test, using natural overpressure to generate pressure perturbation.
First Ridge (second priority): Drill one to three holes into hydrothermal up flow zone, where the extent and significance of basement alteration, and the likely nature of along-strike hydrothermal recharge, can be evaluated. Sediment thickness is 40-70 m and basement penetration will be 0-40 m.
Deep Ridge (second priority): Drill into deeply-buried basement ridges, 125-145 km from the spreading center, where basement temperatures may approach and exceed 100°C, to evaluate the influences of hydrothermal circulation on crustal evolution and microbiology. Sediment thickness is 500-900 m and basement penetration will be 20-50 m.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
SR-1 SR-2	47°45.19'N, 127°45.74'W 47°45.64'N, 127°45.59'W	2600 2600	275 275	600 200	875 475	hydrogeologic properties, distributions, alteration, construction, layering, microbiology, chemistry
FR-1	47°53.9'N, 128°34.50'W	2600	40-70	0-40	50-110	nature of and alteration in hydrothermal upflow zone, microbiology, chemistry
DR-1	47°46.69'N 127°21.52'W	2600	500	20-50	520-550	sediment, basement, chemistry, microbiological sampling, evaluate crustal evolution
DR-2	47°46.07'N 127°10.12'W	2600	900	20-50	920-950	sediment, basement, chemistry, microbiological sampling, evaluate crustal evolution

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iSAS/IODP Proposal Cover Sheet

547-Full4

☐ **New** ■ **Revised** ☐ **Addendum**

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Please fill out information in all gray boxes

Title:	Proposal 547 Full Revised. Oceanic Subsurface Biosphere: Life in Subseafloor Volcanic Rock
Proponent(s):	Martin Fisk, Carol Di Meo, Stephen Giovannoni, Stefan Sievert, Ruth Blake, Kenneth Nealson, Radu Popa, Everett Shock, Jack Istok, Ingunn Thorseth, Rolf Pedersen, Karsten Pedersen
Keywords: *(5 or less)*	microorganisms, ocean crust, microbial biomass, microbial diversity, lithotroph — Area: Juan de Fuca Ridge and Plate

Contact Information:

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Permission to post abstract on iSAS Web site: ■ Yes ☐ No

Abstract: (*400 words or less)*

Microorganisms are present in subsurface volcanic environments, and water emanating from oceanic crust contains microorganisms adapted to life in the subsurface. The oceanic volcanic crust may host a significant fraction of the Earth's biomass, yet little is known about subsurface microbial communities. This proposal is a multidisciplinary effort to understanding the nature and extent of subsurface biosphere in volcanic ocean crust.

Our six goals are: (1) to demonstrate that the ocean crust is capable of sustaining microbial life, (2) to identify organisms in the crust, (3) to obtain pure cultures of subsurface organisms, (4) to stimulate microbial growth and measure microbial activity in the crust, (5) to identify microbial interactions with minerals and microbial impact on chemical, mineralogical, and physical conditions of the igneous crust, and (6) to determine the influence of temperature on microbe physiology, microbial activity, and microbe-mineral interactions.

Experiments designed to achieve these goals are best carried out in a well-characterized and accessible region with a range of basement temperatures. Our efforts focuses on four sites, three on the east flank of the Juan de Fuca Ridge, and one in Middle Valley of Juan de Fuca Ridge (Fig. 1) where the basement temperatures are known (15°, 35°, 60°, and 90° C).

To achieve the six goals, the primary activities are: (1) deploy *in situ* sample chambers that can be recovered and examined for microbial growth, (2) extract and amplify DNA and RNA, analyze lipids, and conduct direct counts on rocks, formation water and drill water, batch cultures, and *in situ* sample chambers, (3) culture microorganisms from rocks and thermal waters, (4) conduct push-pull tests to stimulate and evaluate *in situ* microbial growth, (5) deploy and recover mineral substrates in boreholes and examine microbial alteration of natural samples, and (6) to conduct these tests in holes where temperatures of 15°to 90° C. These primary activities are linked to shipboard and shorebased chemical and physical measurements, analyses, and experiments.

The revisions resulted from a U.S. and European sponsored workshop held in Bergen, Norway, September 5 and 6, 2002. The proposal now focuses on life in igneous crust. Three sites have been eliminated from the original proposal. Sites OSB01C, D are relocated. OSB05A and OSB06A are unchanged. One site, OSB07A, has been added.

547-Full4

Scientific Objectives: (*250 words or less*)

We wish to answer key questions that are repeatedly asked about the subsurface biosphere. These questions reflect the six goals outlined above. The most intriguing questions for which we like answers are:
• Is the ocean crust is capable of sustaining microbial life?
• What microorganisms are present in the ocean crust?
• What substrates support microbial life?
• Can microbial activity be stimulated and quantified by introducing substrates?
• What microbial-mineral interactions occur in the crust?
• What effects to do microorganisms have on the chemical, mineralogical, and physical conditions of the igneous crust?
• What are the effects of microorganisms on element distribution in the ocean crust and the composition of sea water?
• What is the influence of temperature on microbe physiology, microbial activity, and microbe-mineral interactions.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
OSB01C	48° 24.0'N 128° 40.0'W	2455	120	150	270	High-temperature (90°C) subsurface microbial observatory.
OSB01D	48° 23.2'N 128° 38.2'W	2400	80	150	230	High-temperature (90°C) subsurface microbial observatory.
OSB05A	47° 55.0'N 128° 47.5'W	2593	192	150	342	Low-temperature (15°C) subsurface microbial observatory.
OSB06A	47° 53.2'N 128° 38.9'W	2606	97	150	247	Mesophilic (35°C) microbial observatory.
OSB07A	47° 45.8'N 127° 45.6'W	2658	225	150	375	Thermophilic (60°C) microbial observatory.

ODP Proposal Log Sheet

☒ Environment ☒ **Interior**

548-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Chicxulub: Drilling the K-T Impact Crater

J. Morgan, R. Buffler, J.U. Fucugauchi and R. Grieve

Abbrev. Title: Chicxulub K-T Impact Crater	Key: Chicxulub K-T Impact	Area:

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Brief Description:

The Chicxulub structure in Mexico is now generally accepted as the impact site of the K-T bolide that was, at least in part, responsible for the global mass extinction approximately 65 million years ago. The structure is buried beneath several hundred meters of post-impact Tertiary fill, with the Yucatan coastline passing approximately through the crater center. Recently-acquired marine seismic data has allowed the definition of the structure and stratigraphy of the offshore portion of the crater, imaging intact and deformed pre-impact target rocks, impact lithologies inside and on the flanks of the crater, and the overlying Tertiary crater fill. These new data provide us with an opportunity to identify specific drilling targets that will advance our understanding of the impact process and K-T event.
Our general objectives are to: 1) identify the correct lithological and structural form of Chicxulub, 2) improve our understanding of large-scale impact cratering, and 3) use these to constrain the environmental effects of the impact. The ODP sites have been selected to complement the proposed onshore drilling, and target scientific objectives that either cannot, or cannot easily, be achieved onshore. We propose two drill sites. CHICX-01A is a 4.3-km-deep hole just outside the crater, that penetrates through the Tertiary, the immediate proximal ejecta blanket, the entire Mesozoic section, and bottoms in Paleozoic basement. The primary objectives of this hole are to: 1) identify the thickness, composition and character of the pre -impact target rocks, 2) characterize the target rock lithologies within the proximal ejecta, and 3) improve our understanding of excavation and ejecta emplacement at large impacts. CHICX-02A is a 3-km-deep hole that penetrates the peak ring within the impact basin. The primary objectives of this hole are to: 1) determine the lithological and structural character of the peak ring to test competing models of peak-ring formation, 2) constrain the mechanics of transient-cavity collapse and improve estimates of crater size, and 3) characterize the impactites in order to identify the composition of the target rocks and meteoritic component, and investigate clast-and melt-mixing relationships. Secondary objectives include: improve our understanding of the creation and evolution of the Yucatan peninsula, study climatic and sea-level changes throughout the Mesozoic and Cenozoic, investigate impact-related hydrothermal fluid flow and search for associated microbial life, investigate Chicxulub as a potential economic resource, confirm the age of impact, and study the local hydrogeology.

Specific area: Campeche Bank, Gulf of Mexico

Proposed Sites:

Site Name	Position	Water depth	Penetration Sed	Bsm	Total	Brief site-specific objectives
CHICX-01	21°17.72'N; 90°41.93'W	25	4100	200	4300	To identify thickness and composition and character of the
CHICX-02	21°27.33'N; 89°57.09'W	20	3000	0	3000	To determine the lithological and structural character of the

ODP Proposal Log Sheet

☒ **Environment** ☒ **Interior**

548-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Chicxulub: Drilling the K-T Impact Crater

J. Morgan, R. Buffler, J.U. Fucugauchi and R. Grieve

Abbrev. Title: Chicxulub K-T Impact Crater	Key: Chicxulub K-T Impact	Area:

Contact:

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Objectives:

1. To identify the correct lithological and structural form of Chicxulub.
2. To improve our understanding of large-scale impact cratering.
3. To use these to constrain the environmental effects of the impact.

Proposal acknowledged by JOIDES Office: Sep 28, 2000 to : Morgan, J.
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Proposal copies: Oct 5, 2000 to : JOI Inc., SO (ODP/TAMU), SSDB

Received 1-April-2003

553-Full2

iSAS/IODP Proposal Cover Sheet

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray box

Title:	**Gas Hydrates on the Cascadia Margin**
Proponent(s):	Michael Riedel, Roy D. Hyndman, Earl E. Davis, Tim S. Collett, Douglas Bartlett, Miriam A. Kastner, George D. Spence, and Scott R. Dallimore
Keywords: *(5 or less)*	Gas hydrates, fluid expulsion, accretionary prism
Area:	Vancouver Island Margin

Contact Information:

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Permission to post abstract on iSAS Web site: x Yes ☐ No

Abstract: (*400 words or less)*

This proposal is for an IODP program to constrain models for the formation of marine gas hydrate in subduction zone accretionary prisms. The objectives include the deep origin of the methane, its upward transport, its incorporation in gas hydrate, and its subsequent loss to the seafloor. The main attention is on the widespread seafloor-parallel layer of dispersed hydrate located just above the base of the stability field. Such layers may make up the largest volume of hydrate globally. In the model, methane is carried upward through regional grain-scale or small-scale fracture permeability, driven by the tectonic consolidation of the accretionary prism. Also important is the focusing of a portion of the upward methane flux into localized plumes or channels to form concentrations of near-seafloor hydrate. The amount of hydrate in local concentrations near the seafloor is especially important for understanding the response of marine hydrate to climate change. Long-term monitoring in the boreholes will assist in determining the role of shaking in the sediment consolidation, episodic upward fluid transport, and hydrate formation. The proposal is for drilling, downhole measurements, and long-term recording at a transect of sites across the Northern Cascadia accretionary prism. The sites will track the history of methane in an accretionary prism from: (1) its production by mainly microbiological processes over a thick sediment vertical extent, (2) its upward transport through regional or locally focused fluid flow, (3) its incorporation in the regional hydrate layer above the BSR or in local concentrations at or near the seafloor, to (4) methane loss from the hydrate by upward diffusion, and (5) methane oxidation and incorporation in seafloor carbonate, or expulsion to the ocean.

The proposal builds on the previous Cascadia hydrate drilling of Leg 146 in the area and on more recent Leg 204 off Oregon. Important facilities for this proposal include, (1) the now well-developed CORK downhole monitoring, (2) Log-While-Drilling (LWD), (3) Distributed Temperature Sensors (DTS), and (4) Pressure Core Barrel sampler for hydrate, free gas, and fluid recovery under insitu conditions.

553-Full2

Scientific Objectives: (*250 words or less*)

The proposal follows the goals for gas hydrate drilling of the ODP Gas Hydrates Program Planning Group, i.e., (1) Study the formation of natural gas hydrate in marine sediments; (2) Determine the mechanism of development, nature, magnitude and global distribution of gas hydrate reservoirs; (3) Investigate the gas transport mechanism, and migration pathways through sedimentary structures, from site of origin to reservoir; (4) Examine the effect of gas hydrate on the physical properties of the enclosing sediments, particularly as it relates to the potential relationship between gas hydrates and slope stability; (5) Investigate the microbiology and geochemistry associated with hydrate formation and dissociation.

These scientific goals are an expansion of the latest achievements of ODP Leg 204, dedicated to study gas hydrates at Southern Hydrate Ridge (Trehu et al., 2002). Leg 204 was entirely focused on the specific structure of Hydrate Ridge and has only limited potential for applications at different continental margins.

The objectives of this proposal are to test gas hydrate formation models and constrain model parameters, especially models of hydrate concentration through upward fluid and methane transport. These objectives require:

(1) High quality data on the vertical concentration distributions of gas hydrate and free gas, and variation landward in the accretionary prism.

(2) Estimates of the vertical fluid and methane fluxes through the sediment section, as a function of landward distance from the deformation front.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
CAS-04B	048 34 N 127 10 W	2600	500	0	500	Site will provide important reference information about the sediments that do not contain gas and/or gas hydrate.
CAS-03B	048 37.15 N 127 03.45 W	2000	400	0	400	Characterize fluid expulsion and related hydrate formation
CAS-02B	048 38.57 N 127 00.00 W	2150	400	0	400	Characterize fluid expulsion and related hydrate formation
CAS-01B	048 41.98 N 126 52.10 W	1400	600,400, 400	0	600	Dual ACORK experiment
CAS-05B	048 46.00 N 126 43.45 W	1100	350	0	350	Last Site along transect, shallowest BSR occurrence
CAS-06A	048 40.00 N 126 51.00 W	1400	350	0	350	Vent field, focused fluid flow and near-seafloor hydrate formation
CAS-07A	049 11.00 N 127 52.00 W	2600	600	0	600	Nootka fault, earthquake induced fluid expulsion

ODP Proposal Log Sheet

☒ Environment ☐ *Interior*

557-Full2

Proposal received: Sep 29, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Storegga Slide Gas Hydrate Drilling

K. Andreassen, J. Mienert, C.K. Paull, J. Parkes, J.-P. Foucher, H.P. Sejrup, T.J. Kvalstad and J. Behrmann

Abbrev. Title: Storegga Slide Gas Hydrate	Key: Storegga Slide	Area: N Atl

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Brief Description:

An ODP drilling to the Norwegian continental margin is proposed, focusing on the connection between gas hydrates, fluid expulsion, continental margin instability, and gas loss during slumping. The Norwegian Margin is targeted for several site-specific reasons:
(A) The largest continental margin sedimentary failure known, the Storegga Slide occurs here, and is believed to be related to sediment weakness stimulated by dissociation of gas hydrates after a thermal warming affected the area since last deglaciation. Here we have the opportunity to quantify the amounts of gas that is lost from the original host sediment during slumping.
(B) At the northern flank of the Storegga Slide geophysical evidence suggest an association between dissociation of gas hydrates, expulsion of fluid and gas, and unstable sediments. This relationship will be investigated by drilling the sections near the slide scar, and deploying a CORK observatory at one site. The current stability of the slope and incipient slide block will be assessed, by a combination of geotechnical studies, structural analysis of the core material and results from the CORK experiment.
(C) Selected drill sites provide the special opportunity to understand the effect of gas hydrate and gas, and its variability within the same lithological formations.
(D) The coupling of biosphere and geosphere processes will be investigated, including using CORK deployment for monitoring the bacterial methane oxidation to evaluate the gas hydrate instability.
(E) The Quaternary slide frequencies in the Storegga Slide region will be assessed, from drill site(s) at the distal parts of the slide deposits.
To address the above mentioned objectives we propose to drill three holes into the undisturbed sediments on the flanks of the slide scar, and up to four holes within the slide scar and slump deposits, accompanied by pressure-core sampling and in situ measurements. Because the present movement of the hydrocarbon industry to deep-water areas and the great concern about slope stability in the Storegga Region, this proposal has one of the greatest potential to bring together industry and academia.

Specific area: Storegga Slide, Norwegian Margin

Proposed Sites:

Site Name	Position	Water depth	Penetration Sed	Bsm	Total	Brief site-specific objectives
ST-1	64°45.294'N; 4°28.320'E	906	500	0	500	(1) Sample sediments and gases for assessing gas loss durin
ST-2	64°43.089'N; 4°23.367'E	1030	590	0	590	(1) Sample sediments and gases for assessing gas loss durin
ST-3	64°37.923'N; 4°12.267'E	1425	262	0	262	(1) Sample sediments and gases for assessing gas loss durin
ST-4	64°52.58'N; 3°59.962'E	1093	406	0	406	(1) Reference site with no BSR observed, for physical prop
ST-5	64°15.688'N; 3°59.99'E	1800	480	0	480	Sample sediments and gases for assessing gas loss during di
ST-6	66°28.23'N; 1°5.4'E	3320	673	0	673	Sample sediments and gases for assessing gas loss during sl
ST-7	68°9.3'N; 4°20.7'E	3700	280	0	280	Sample sediments and gases for assessing gas loss during di

ODP Proposal Log Sheet

☒ **Environment** ☐ *Interior*

557-Full2

Proposal received: Sep 29, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Storegga Slide Gas Hydrate Drilling

K. Andreassen, J. Mienert, C.K. Paull, J. Parkes, J.-P. Foucher, H.P. Sejrup, T.J. Kvalstad and J. Behrmann

Abbrev. Title: Storegga Slide Gas Hydrate	Key: Storegga Slide	Area: N Atl

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Objectives:

1. To study massive slope failure caused by sediment weakness through dissociation of gas hydrates after a thermal warming.
2. To quantify the amounts of gas that is lost from the original host sediment during large scale slumping at continental margins.
3. To investigate the relationship between dissociation of gas hydrates, expulsion of fluid and gas, and unstable sediments.
4. To understand the effect of gas hydrate and gas, and its variability within the same lithological formations.

Proposal acknowledged by JOIDES Office:	Sep 29, 2000	to : Andreassen, K.
Proposal forwarded for review:	Oct 5, 2000	to : SSEPs
Proposal copies:	Oct 5, 2000	to : JOI Inc., SO (ODP/TAMU), SSDB

ODP Proposal Log Sheet **564-Full** Proposal received: Sep 27, 1999

☒ Environment ☐ *Interior* Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Global Sea Level and the Architecture of Passive Margin Sediments: Shallow -Water Drilling of the New Jersey Continental Shelf

K.G. Miller, G.S. Mountain, N. Christie-Blick, J.A. Austin, C.S. Fulthorpe, P.J. Sugarman

Abbrev. Title: Shallow-Water Drilling, New Jersey Shelf	Key: New Jersey Shelf	Area: NW Atl

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Brief Description:

We propose to drill three sites on the inner continental shelf of New Jersey to estimate amplitudes and rates of Cenozoic global sea-level (eustatic) change and to evaluate the response of passive continental margin sedimentation to such eustatic changes. These sites will provide continuous recovery of siliciclastic sequences on a modern continental margin at locations chosen to provide definitive measures of sea-level amplitudes and to evaluate models of sedimentation and facies distribution. This will be the culmination of many years of effort in implementing "The New Jersey/Mid-Atlantic Sea-Level Transect" (MAT) strategy developed and endorsed by several advisory and review bodies. Prior MAT drilling has focused on the New Jersey slope (ODP Legs 150, 174A), outer shelf (ODP Leg 174A), and onshore (ODP Legs 150X, 174AX). Collectively these efforts have been successful in providing ages of sequence boundaries and tying each to the d18O proxy of glacioeustasy, yet have fallen short of the ultimate objectives because facies that register the most sensitive record of sea-level change, the paleo inner shelf, have not been continuously sampled. Consequently, a critical gap remains in the MAT concerning our knowledge of global sea-level change and its imprint on the stratigraphic record. We propose to obtain continuous cores and downhole logging measurements within crucial paleo inner shelf facies using a commercial drilling platform. The sites we propose, MAT 1-3, represent the most sensitive and financially accessible locations for deciphering amplitudes and testing facies models. Funds will either be provided by NSF and the International Continental Drilling Project (ICDP) with support-in-kind from ODP (and thus be designated a ODP/ICDP/NSF project) or else funded primarily by JOI and with $500,000 from ICDP (and thus be an ODP project with ICDP support). New Jersey drilling will be the first to unite these agencies in a cooperative international effort and may help forge new alliances for drilling activities in the future. By integrating our results with those derived from other sections in both shallow water and the deep sea, we anticipate that drilling MAT1-3 will allow us to: 1) provide estimates of eustatic amplitudes and generate a testable record of eustatic variations; 2) evaluate the effects of eustasy, tectonics, and sediment supply on the stratigraphic record; and 3) test models that predict the nature and distribution of sedimentary facies in passive margin strata.

Specific area: New Jersey Continental Shelf

Proposed Sites:

Site Name	Position	Water depth	Penetration Sed	Bsm	Total	Brief site-specific objectives
MAT-1	39°37.616'N; 73°36.533'W	33	762	0	762	Determine age, fcies, and paleobythymetry of surfaces corre
MAT-2	39°34.1797'N; 73°30.2607	36	762	0	762	Determine age, facies, and paleobathymetry of surfaces corr
MAT-3	39°31.1327'N; 73°24.7063	36	762	0	762	Determine age, facies, and paleobathymetry of surfaces corr

ODP Proposal Log Sheet

☒ **Environment** ☐ *Interior*

564-Full

Proposal received: Sep 27, 1999
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Global Sea Level and the Architecture of Passive Margin Sediments: Shallow -Water Drilling of the New Jersey Continental Shelf

K.G. Miller, G.S. Mountain, N. Christie-Blick, J.A. Austin, C.S. Fulthorpe, P.J. Sugarman

Abbrev. Title: Shallow-Water Drilling, New Jersey Shelf	Key: New Jersey Shelf	Area: NW Atl

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Objectives:

Proposal acknowledged by JOIDES Office: Sep 29, 1999 to : Miller, K.G.
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572-Full3

iSAS/IODP Proposal Cover Sheet

☐ New ☐ **Revised** ☐ Addendum

Please fill out information in all gray boxes *Above For Official Use Only*

Title:	Ice sheet-ocean-atmosphere interactions on millennial time scales during the Late Neogene-Quaternary using a Paleointensity-Assisted Chronology (PAC) for the North Atlantic
Proponent(s):	J.E.T. Channell, J.S. Stoner, G.C. Bond, D.A. Hodell, E.E. Martin
Keywords: *(5 or less)*	Late Neogene, Paleoceanography, Stratigraphy, Geomagnetic paleointensity — Area: North Atlantic

Contact Information:

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Permission to post abstract on iSAS Web site: ☐ **Yes** ☐ No

Abstract: *(400 words or less)*

We propose seven North Atlantic drilling locations which are known, either from previous ODP/DSDP drilling or from conventional piston cores, to: (1) contain distinct records of millennial-scale environmental variability (in terms of ice sheet-ocean interactions, deep circulation changes or sea surface conditions), (2) provide the requirements for developing a millennial-scale stratigraphy (through geomagnetic paleointensity, oxygen isotopes and regional environmental patterns), and (3) document the details of geomagnetic field behavior.

The objectives are to establish, for the last few Myrs (Late Neogene - Quaternary), the inter-calibration of geomagnetic paleointensity, isotope stratigraphies, and regional environmental stratigraphies and in so doing develop a millennial-scale stratigraphic template. Such a template is a requirement for understanding the relative phasing of atmospheric, cryospheric and oceanic changes that are central to our understanding of the mechanisms of global climate change on orbital to millennial time scales. The proposed drilling will, in addition, greatly improve our knowledge of the temporal and spatial behavior of the geomagnetic field through high-resolution records of directional secular variation and geomagnetic paleointensity. The observations will provide fundamental constraints for numerical models of the geodynamo.

The drilling sites (Fig. 1) are located in the Irminger Basin (IRM), on the Eirik Drift (LAB1&2), off Orphan Knoll (ORPH), on the southern part of the Gardar Drift (GAR), and at DSDP Site 607/609 (IRD). (Time estimates: ~33 days on site / ~20 days transit). The proposed sites preserve components of ice sheet / ocean interactions, with potential for chronological control through stable isotopes and geomagnetic paleointensity. Some sites are located within the North Atlantic "IRD belt", thereby linking ODP Leg 162 sites drilled to the north (60 to 77 degrees N) and ODP Leg 172 sites drilled to the south (30 to 35 degrees N). The water depths of the proposed sites (2750 to 3719 m) will be important for monitoring millennial-scale changes in the formation of deep and intermediate water masses.

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Scientific Objectives: (*250 words or less*)

The proposed drilling will contribute to two of the three research themes of the Initial Science Plan of IODP: “Solid earth cycles and geodynamics” and “Environmental change, processes and effects”.

In the last few years, high-sedimentation-rate marine records have revolutionized our understanding of the behavior of the geomagnetic field. The presence of ubiquitous short-lived (~3-5 kyr duration) aborted reversals or excursions of the geomagnetic field in the Brunhes and Matuyama Chrons, coupled with high-quality relative paleointensity records now beginning to provide useful constraints for numerical simulations of the geodynamo.

Sub-Milankovitch-scale climate studies face the challenge of finding a stratigraphic method suitable for correlation at this scale. Even under optimal conditions, chronologies based on $\delta^{18}O$ are unable to provide sufficient stratigraphic resolution. Here we propose to develop paleointensity-assisted chronologies (PACs) in the North Atlantic, with the ultimate objective of establishing the phase relationships among globally-distributed millennial-scale records. The North Atlantic has driven the field of paleoclimatology over the last decade, in large part because of progress in documenting sub-Milankovitch climate variability over the last glacial cycle using conventional piston cores. These results have shown that the approach of extracting millennial-scale climate records is tractable, and yields fundamental insights into the dynamics of the climate system. The next step is to use the same approach to push the record further back in time, by utilizing the drilling capabilities of the *Joides Resolution* or its successor in IODP.

Proposed Sites: (Only High Priority Sites are listed here.)

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
Primary sites						
IRM3A	62° 20.11’N,36°12.3’W	2600	400	0	400	Late Neogene/Quaternary
IRM2A	62°40.20N,37°27.61W	2088	350	0	350	Late Neogene/Quaternary
LAB3A	58°2.17’N,48°27.57’W	3350	400	0	400	Late Neogene/Quaternary
LAB5A	58°48.36’N,45°50.38W	2400	350	0	350	Late Neogene/Quaternary
ORPH2A	50°12.40’N,45°41.22W	3539	350	0	350	Late Neogene/Quaternary
GAR1A	56°21.78’N,27°48.9’W	2840	350	0	350	Late Neogene/Quaternary
GAR2A	53°3.40’N,33°31.78W	3024	350	0	350	Late Neogene/Quaternary
IRD1A	49°52.67’N,24°14.29W	3884	400	0	400	Late Neogene/Quaternary
IRD3A	41°0.068’N,32°57.44W	3426	350	0	350	Late Neogene/Quaternary
Alternates						
LAB1D	57°8.97’N,44°44.13W	3480	400	0	400	Late Neogene/Quaternary
LAB2D	58°13.48N,45°11.29W	2100	350	0	350	Late Neogene/Quaternary

ODP Proposal Log Sheet

☒ Environment ☐ *Interior*

573-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Modern Carbonate Mounds: Porcupine Drilling

J.-P. Henriet, B. De Mol, W.-C. Dullo, A. Freiwald, B.B. Joergensen, J. Parkes, J.W. Patching

Abbrev. Title: Carbonate Mounds/Porcupine Basin	Key: Carbonate Mounds	Area: N Atl

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Brief Description:

The carbonate mounds of the Porcupine Basin resemble mud mounds in terms of their dimension, geometry, faunal communities and environmental setting. The Porcupine Basin displays - within the North Atlantic realm and perhaps in a global perspective - a unique association and diversity of carbonate mound provinces, which may yield the key to address the question of mound genesis and its significance in a global oceanic plot , from a process-oriented point of view. The giant mounds on the present seabed surface southwest of Ireland, 200 to 250 m high, the extensive cluster of over a thousand buried reefs embedded in drift sediments, the whole range of mounds towering from a deeply ravinating unconformity on the eastern slope of Porcupine Basin are not mere curios, but significant build-ups, which may put Man on the track of hitherto unknown Biosphere processes thriving at the confluence of fluxes from both internal (geological) and external (oceanic) origin. In many aspects and mutatis mutandis, carbonate mounds might be for the Margins what sulphide mounds are on the Ridges: the product of biologically controlled geological processes, of global significance. The "Porcupine Drilling Project" is driven by four major research projects funded under the 5th Framework Programme of the European Union (GEOMOUND, ECOMOUND, DEEP-BUG and ACES) and hence it mobilizes a multi-disciplinary consortium of 22 institutes and research centres. A range of provoking hypotheses will be tested: the role of gas seeps as a prime trigger for mound genesis, the role of bacteria as main mound builders, the role of reef-forming corals as major part of the mound community and their environmental record potential, the significance of mound "events" in a palaeoenvironmental plot, the identification of prominent erosional surfaces as product of global oceanic turn-overs, the potential of mounds as high-resolution palaeoenvironmental recorders, the value of the Porcupine-Rockall mounds as present-day analogs for Phanerozoic reef mounds and carbonate mud mounds, and the potential role of fluid flow as common source of both slope failures and mound growth. Finally, a virtual link to biological processes is provided by the widespread existence of cold and deep-water coral and sponge reef ecosystems which colonize the flanks of the mounds. However, their nutritional mode either through bentho-pelagic coupling processes, or through fuelling by the deep hydrocarbon reservoirs and thus the role of such processes in the evolution of mounds remains unresolved.

Specific area: Porcupine Basin

Proposed Sites:

Site Name	Position	Water depth	Penetration Sed	Bsm	Total	Brief site-specific objectives
PORC-01A	51°01.208'N; 11°24.317'W	439	440	0	440	Huge drift body, which overlays an erosional unconformity
PORC-02A	51°26.161'N; 11°33.020'W	412	350	0	350	Drift body related directly to Belgica mounds. Overlays an e
PORC-03A	51°22.848'N; 11°43.108'W	785	210	0	210	"Living" carbonate mound sitting on a gently inclined flan
PORC-04A	51°22.553'N; 11°43.803'W	937	102	0	102	Onlapping drift body, partly draping the lower part of the c
PORC-05A	51°19.126'N; 11°53.091'W	1065	320	0	320	Buried acoustic transparent layer by drift sediments. We wa
PORC-06A	51°25.579'N; 11°46.362'W	890	150	0	150	This unique site should provide information on the active de
PORC-07A	52°09.084'N; 12°49.962'W	607	370	0	370	Outcropping carbonate mud mound with a living surface cov
PORC-08A	52°09.0198'N; 12°53.839'	643	250	0	250	Thickest part of the drift body related to the Hovland mound
PORC-09A	52°21.221'N; 12°39.902'W	637	300	0	300	Erosional features along an imbricated wall, possibly linke
PORC-10A	52°19.740'N; 12°37.702'W	652	385	0	385	As PORC-09A. This site will provide the stratigraphic age

ODP Proposal Log Sheet

☒ **Environment** ☐ *Interior*

573-Full2

Proposal received: Sep 28, 2000
Proposal reviewed:

☐ *New proposal* ☒ **Revised proposal** ☐ *Addendum to proposal* ☐ *Other*

Modern Carbonate Mounds: Porcupine Drilling

J.-P. Henriet, B. De Mol, W.-C. Dullo, A. Freiwald, B.B. Joergensen, J. Parkes, J.W. Patching

Abbrev. Title: Carbonate Mounds/Porcupine Basin	Key: Carbonate Mounds	Area: N Atl

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Objectives:

1. To study and evaluate the role of gas seeps as a prime trigger for mound genesis.
2. To study and evaluate the role of bacteria as main mound builders.
3. To study and evaluate the role of reef-forming corals as major part of the mound community and their environmental record potential.
4. To study and evaluate the significance of mound "events" in a palaeoenvironmental context.
5. To study and evaluate prominent erosional surfaces as product of global oceanic turn-overs.
6. To study and evaluate the potential of mounds as high-resolution palaeoenvironmental recorders.
7. To study and evaluate the value of the Porcupine-Rockall mounds as present-day analogs for Phanerozoic reef mounds and carbonate mud mounds.
8. To study and evaluate the potential role of fluid flow as common source of both slope failures and mound growth
.

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581-Full2

iSAS/IODP Proposal Cover Sheet

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray boxes

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Title:	Latest Pleistocene drowned coralgal banks and mounds along the edge of the South Texas and Mississippi continental shelves
Proponent(s):	André W. Droxler (Rice University) and William W. Sager (Texas A&M)
Keywords: *(5 or less)*	Coralgal Reefs and Sea Level, Sea Level History, Last Deglaciation, Carbonate Drowning
Area:	Northern Gulf of Mexico

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Permission to post abstract on iSAS Web site: ■ Yes ☐ No

Abstract: (*400 words or less)*

Southern and Baker Banks are currently drowned coralgal reefs about 40 to 50 m-thick on the edge of the South Texas Shelf 55 km offshore Corpus Christi. They are interpreted to have grown during the first half of the last sea level transgression on top of topographic highs occurring along a Last Glacial Maximum lowstand siliciclastic paleo coastline. Contemporaneous and similar coral reef establishment, growth, and demise have been reported along the Mississippi-Alabama shelf margin.

We are proposing to drill and analyze seven 80 to 100 m - deep boreholes, an array of five boreholes through Southern Bank and a two borehole-transect through Baker Bank and their siliciclastic substratum. Each borehole in Southern and Baker Banks will include at least two of the three following sedimentary packages: (1) the siliciclastic substratum of the reefal edifice, (2) the coralgal sequence itself, and (3) the mud blanket that partially covers the reefal edifices. In addition a two borehole-transect across similar transgressive banks observed at the edge of Mississippi-Alabama continental shelf has been integrated to this drilling proposal.

This proposal is a slightly modified version of ODP proposal # 581, submitted in Spring 2000. An addendum to the proposal was submitted in Sept. 2000 as a response to the ESSEP review. The proposal received three excellent external reviews out of a total of four reviews. Based upon these reviews, a PRL was submitted a year ago in April 2001. Finally, the proposal was discussed by SCICOM in Summer 2001.

Although this drilling proposal is submitted based upon its sole scientific merit, this drilling program should be also considered as an exemplary scientific drilling activity in shallow water conditions to promote alternate drilling platform as being a full part of IODP. This drilling program could also be used as a feasibility test in using the highly maneuverable, 190-ft-long R/V *Seaprobe I* or *Fugro Explorer* of Fugro-McClelland as an alternate drilling platform to drill coralgal edifices in water depths shallower than 120 m.

581-Full2

Scientific Objectives: (*250 words or less*)

The detailed description of the different lithologies and depositional environments, the borehole logs, the geochemical analyses, and U/Th and ^{14}C AMS dating of these nine cored sedimentary sequences will allow us to develop the following objectives:

(a) The drilled material will shed some new light on the enigmatic findings that coralgal edifices flourished on the edge of the South Texas and Mississippi-Alabama shelves during the first part of last deglaciation, an interval of time when conditions of sea surface temperature were and sea surface salinity were expected to be lower in the Gulf of Mexico, and rates of eustatic sea-level rise much faster than they are today;

(b) The drilled material will improve the resolution of the last deglacial sea-level history from late Glacial to the Younger Dryas, including the interval of the melt-water pulse 1A, from a passive margin environment less influenced by discontinuous tectonic activity as in the offshore Barbados,

(c) The drilled material will help us to better understand the sedimentary and biological processes involved with the origin (initial establishment), growth, and demise of carbonate reef tracts along the edge of siliciclastic shelves.

(d) The latest Pleistocene transgressive coralgal reefs on the edge of the South Texas Shelf can bestudied as recent analogs for reefal reservoirs buried in siliciclastic shelves.

Proposed Sites: (Only High Priority Sites are listed here.)

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
Southern Bank SB-1	N 27 25.0, W 96 31.5 SP 1390 MC D4	60 m	100 m		100 m	Thickest part of coralgal U. III
SB-2	SP 1315 MC D4	60 m	100 m		100 m	Thickest part of coralgal U. III
SB-3	SP 1690 MC D1	62 m	100 m		100 m	Thick part of coralgal U. III
SB-4	SP 1510 MC D4	70 m	75 m		75 m	Thick part of coralgal U. III
SB-5	SP 1360 MC S4	78 m	70 m		70 m	Recover youngest Unit IV on A back reef position
Baker Bank BB-1	N 27 45.5, W 96 13.5	60 m	100 m		100 m	Thickest part of coralgal U. III
BB-2	N 27 45.8, W 96 13.8	70 m	90 m		90 m	Recover youngest Unit IV on A back reef position
Mississippi-Alabama MA-1	N 29 20.205, W 87 45.072	90 m	70 m		70 m	Early deglacial mound
MA-2	N 29 26.253, W 87 34.506	80 m	70 m		70 m	Mid deglacial mound

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584-Full2

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray boxes *Above For Official Use Only*

Title:	TAG II: Evolution of a Volcanic-hosted Hydrothermal System on a Slow-spreading Ocean Ridge
Proponent(s):	Peter A. Rona, Jeffrey C. Alt, Fernando J.A.S. Barriga, Michael J. Bickle, Hitoshi Chiba, David S. Cronan, Yves Fouquet, Kantaro Fujioka, J. Bruce Gemmell, Mark D. Hannington, Peter M. Herzig, Jose Honnorez, Zengqian Hou, Susan E. Humphris, Gerardo J. Iturrino, Masataka Kinoshita, Martin C. Kleinrock, Randolf A. Koski, Claude Lalou, Marvin Lilley, Robert P. Lowell, Jay Miller, Rachel A. Mills, Michael J. Mottl, Bramley J. Murton, Martin Palmer, R. John Parkes, Sven Petersen, Anna-Louise Reysenbach, Adam Schultz, Steven D. Scott, Susan E. Smith, Robert A. Sohn, Damon A. H. Teagle, Margaret K. Tivey, Maurice A. Tivey, David A. Vanko
Keywords: *(5 or less)*	Biosphere, hydrothermal, sulfides, ocean ridge, TAG
Area:	TAG hydrothermal field, Mid-Atlantic Ridge, 26°N,45°W

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Permission to post abstract on iSAS Web site: ☐ Yes

Abstract: (*400 words or less*)

We propose TAG II, a second leg of drilling at the TAG hydrothermal field (Mid-Atlantic Ridge 26N, 45oW), considered to be the location of choice for study of a volcanichosted hydrothermal system hosted in slow-spreading ocean lithosphere. TAG II will extend seafloor hydrothermal research in space and time by targeting an interactive assemblage of large massive sulfide mounds ranging from young/hot to old/cold encompassed within the 5 by 5 km area of the TAG field, and will fulfill objectives of the first leg (ODP Leg 158, 1994). This will be accomplished by achieving three goals in support of the deep biosphere, subseafloor ocean, and oceanic lithosphere themes of the IODP Science Plan:

1) Deeper drilling (to 250 mbsf) with coring/logging/water sampling to determine the nature of water-rock reactions and biosphere in the stockwork zone of the active hightemperature sulfide mound drilled on Leg 158 (to 125 mbsf), with the ultimate objective of reaching the reaction zone (2-3 kmbsf) as a legacy hole.
2) Extension of drilling with coring/logging/water sampling from the active hightemperature mound to four other sequentially older active and relict hydrothermal zones within the TAG field to determine the evolution of a seafloor hydrothermal system and its massive sulfide from origin to fate.
3) Determination of the nature of the deep biosphere under a range of conditions from hot to cold (high- and low-temperature venting; high to ambient conductive heat flow), and in young to old hydrothermal deposits (0 to c. 140,000 years) in the five hydrothermal zones.

These goals are attainable with present drilling (AHC, HRRS with HDIC, or DIC), and logging capabilities (LWD and wireline for lithological and structural characterization), and realistic expectations of core recovery (10-20 percent with.RCB, ADCB and other coring devices). Extending drilling downward at the active high-temperature sulfide mound and outward to the sequentially older hydrothermal zones of the TAG field will maximize scientific investment in TAG by placing biological, chemical, and physical processes at the active sulfide mound in context of the evolution of a long-lived major hydrothermal field as a whole, and will elucidate the nature of the typically clustered occurrence of large massive sulfide mounds produced by these systems in the geologic record.

584-Full2

Scientific Objectives: (*250 words or less*)

1. Determine the nature of the deep biosphere: Use the deeper drilling at the active sulfide mound and the drilling at the other mounds as an exceptional opportunity to investigate the deep biosphere under conditions ranging from high-, to intermediate-, to low- background temperatures representing different regimes of mixing of oxidized nutrient-rich cold seawater and reduced H2S-rich reduced vent fluid.
2. Determine the nature of water-rock reactions in the stockwork and underlying reaction zones beneath the active high-temperature sulfide mound in order to: (i) understand how seawater is transformed into the hydrothermal fluids venting at the seafloor, (ii) evaluate the associated elemental exchanges and their influence on global geochemical budgets.
3. Determine the evolution of a volcanic-hosted subseafloor hydrothermal system and its deposits in space and in time from origin to fate: Volcanogenic massive sulfide (VMS) deposits in the geologic record typically occur as clusters. The TAG hydrothermal field consists of an assemblage of active and relict deposits in different stages of evolution from young/hot to old/cold. This provides an unprecedented opportunity to advance beyond the present focus on active high-temperature deposits and to investigate the temporal and spatial evolution of a modern seafloor hydrothermal assemblage analogous to the clustered mode of occurrence of ancient VMS deposits

Proposed Sites: (Only High Priority Sites are listed here.)

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
TAG-1A: Active high-temperature sulfide mound, 0 to 50,000 years old (ODP Site 957)	26°08.21’N, 44°49.57’W	3635-3670			250 m	Drilling, coring, logging, and water sampling for biosphere, water-rock interaction, characterization of sulfide, stockwork, and basalt alteration.
TAG-2A: Shimmering mound (active low-temperature mound)	26°10.25’N, 44°48.88’W	3436-3504			100 m	Drilling, coring, logging, and water sampling for biosphere, water-rock interaction, characterization of sulfide, stockwork, and basalt alteration.
TAG-3A:Mir zone (inactive; high heat flow, 2,000 to 102,000 years old)	26°08.70’N, 44°48.40’W	3430-3575			100 m	Drilling, coring, logging, and water sampling for biosphere, water-rock interaction, characterization of sulfide, stockwork, and basalt alteration.
TAG-4A: Shinkai mound (inactive, cold, 2,000 to 23,000 years old)	26°09.52’N, 44°49.15’W	3545-3615			100 m	Drilling, coring, logging, and water sampling for biosphere, water-rock interaction, characterization of sulfide, stockwork, and basalt alteration.
TAG-5A: Alvin mound (inactive, cold, 50,000 years old)	26°09.54’N, 44°48.89’W	3512-3540			100 m	Drilling, coring, logging, and water sampling for biosphere, water-rock interaction, characterization of sulfide, stockwork, and basalt alteration

Received 1-April-2002

iSAS/IODP Proposal Cover Sheet

589-Full3

☐ **New** ☑ **Revised** ☐ **Addendum**

Please fill out information in all gray boxes

Above For Official Use Only

Title:	Overpressure and Fluid Flow Processes in the Deepwater Gulf of Mexico		
Proponent(s):	Peter B. Flemings, Alan Huffman, James A. Thomson, Michael O. Maler, Richard E. Swarbrick, Andrew Whittle, Charles Winker		
Keywords: *(5 or less)*	Overpressure, sedimentation, fluid flow, slope stability	Area:	Gulf of Mexico

Contact Information:

Contact Person:	Peter B. Flemings		
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Permission to post abstract on iSAS Web site: ■ Yes ☐ No

Abstract: (*400 words or less)*

Passive margin continental slopes are extraordinarily active hydrodynamic systems where sedimentation, fluid migration, and structural deformation are intimately coupled. Sea floor slumping, fluid expulsion (e.g. mud volcanoes), vent biological communities, and near lithostatic fluid pressures are all expressions of this active system. We propose a drilling program on the Gulf of Mexico continental slope. We will examine a normally pressured depositional basin (Brazos- Trinity Basin 4 in order to characterize rock and fluid properties and in-situ conditions at a range of known effective stress conditions. We will examine an overpressured location (Ursa Basin) to characterize rock and fluid properties in shallow overpressure and to test a flow-focusing model. This model predicts that where sand bodies are rapidly buried by overburden of varying thickness, characteristic pressure, stress, and compaction states will result. At each location, in-situ measurements will include Logging While Drilling, piezoprobe experiments to determine in-situ pressure and temperature in low permeability mudrocks, and wireline packer stress measurements to determine in-situ stress conditions. Whole round cores will be taken for geotechnical analysis (consolidation tests) to compare lab-derived pre-consolidation stresses with in-situ observations. Pore water sampling will be used to further constrain hydrodynamic fluxes. We propose to seal one hole with a packer and CORK to accurately determine the pressure within a permeable overpressured sand and to establish the framework for long-term observation of fluid flow behavior. A better understanding of pressure evolution and flow focusing has the potential to: 1) illuminate the controls on slope stability; 2) illustrate the processes driving seeps and associated biological communities; 3) allow industry and iODP to use a predictive approach to drilling stable boreholes; 4) show how pressure, stress and geology couple to control fluid migration on passive margins; and 5) provide extraordinary data set to observe ponded and channelized turbidite deposits.

589-Full3

Scientific Objectives: (*250 words or less*)

We have developed a macro-scale (km scale) model that describes how sedimentation drives compaction and fluid flow in geologic settings where low permeability mudstones load high permeability aquifers. We will test this model by characterizing the spatial variation in pressure, stress, and rock and fluid properties along a known flow focusing structure (Ursa Basin). The micro-scale material behavior of the shallow sediments will be established through analysis of two reference sites where pore pressures are normal, yet in-situ effective stresses are different (the Brazos Trinity Basin). A core component of the study will be laboratory based geotechnical analysis of sediment properties to further constrain material behavior. Achievement of the scientific objectives will illuminate controls on slope stability, seeps, and large scale crustal fluid flow.

Proposed Sites: (Only High Priority Sites are listed here.)

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
BT4-1A	East Breaks Block 604 Gulf of Mexico Lat: 27°22.7' Long: -94°21.2'	1396.4	1497.0	1620.5	1666.2	Reference Site determine Rock and fluid properties in normal pressure at moderate effective stress
BT4-2A	East Breaks Block 692 Gulf of Mexico Lat: 27°18.1 Long: -94°23.3'	1471.1	1626.6	1736.3	1782.0	Reference Site determine Rock and fluid properties in normal pressure at high effective stress
BT4-3A	East Breaks Block 691 Gulf of Mexico Lat: 27°16.5' Long: -94°23.9'	1452.4	1539.3	1653.6	1699.3	Reference Site determine Rock and fluid properties in normal pressure at moderate effective stress
BT4-4A	East Breaks Block 735 Gulf of Mexico Lat: 27°22.7' Long: -94°21.2'	1437.5	1460.4	1588.4	1634.1	Reference Site determine Rock and fluid properties in normal pressure at low effective stress
URS-1B	Miss. Canyon Block 897, Gulf of Mexico Lat: 28°4.8' Long: -89°8.4'	1051.6	1688.0	1937.6	1967.8	High Effective Stress well on flow focusing structure. Det. Pressure/stress.

Received 22-March-2002

iSAS/IODP Proposal Cover Sheet

595-Full3

☐ **New** ☑ **Revised** ☐ **Addendum**

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Please fill out information in all gray boxes

Title:	Deep Riser and Non-Riser Drilling on the Indus Fan and Murray Ridge: Reconstructing Erosion of Tibet, western Himalaya and the Karakoram from the Detrital Record
Proponent(s):	Peter D. Clift, Hidekazu Tokuyama, Christoph Gaedicke, Peter Molnar, Dirk Kroon, Karen Bice, Hans-Ulrich Schlüter, Rosemary Edwards, Yani Najman, Shahid Amjad, Muhammad Tahir, M. Asif Khan, Peter Hildebrand, Kip V. Hodges, John Grotzinger, Eduardo Garzanti, Peter Miles, Maureen Raymo, Mike P. Searle and Ashraf Uddin
Keywords: *(5 or less)*	Tectonics, erosion, climate
Area:	Arabian Sea

Contact Information:

Contact Person:	Peter D. Clift		
Department:	Department of Geology and Geophysics		
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Permission to post abstract on iSAS Web site: ☐ **Yes** ☐

Abstract: (*400 words or less)*

We propose to investigate the erosional record of the Indus Fan since India-Asia collision, and assess its relationship to regional and global climate change. The detrital record in the Indus Fan allows erosion to be quantified in a region where the Neogene paleoceanographic evolution is well documented and linked to monsoonal strength especially at 8.5 Ma, and where the sediment source regions have also been the focus of detailed radiometric thermochronology work. If the links between continental tectonic evolution, oceanographic circulation, continental climate and erosion are to be understood then the history of each of these needs to be reconstructed and correlated to one another. Drilling of the Indus Fan within the context of a regional seismic stratigraphic framework can provide an erosion budget for the Cenozoic. Provenance studies can reveal changes in the sediment source and uplift rate, while clay mineralogy and geochemistry can be used to assess continental weathering regimes. We propose a two-site, two-leg drilling program for the Murray Ridge (MU-1) and the Indus Fan (IR-1). In the first leg non-riser drilling at MU-1 will recover 1800 m of the Oligocene missing in the foreland, while at IR-1 1500 m of penetration will sample the Late Miocene-Recent, spanning the apparent intensification of the monsoon at 8.5 Ma. Changes in erosion rates and weathering style triggered by this event will be determined. In the second leg riser drilling to 5000 mbsf at IR-1 will recover the Middle and Early Miocene, while at MU-1 drilling will recover the Eocene, penetrate the fan base at ~3000 mbsf, and sample pre-fan sediment and basement. Documenting the Mid Miocene is important to test models proposing an earlier onset to the monsoon at that time linked to plateau uplift. Riser drilling is required for such deep penetrations, especially in an area of potentially unstable sands, and possible hydrocarbons. The arrival of material from north of the Indus Suture into the Arabian Sea constrains the controversial age of India-Asia collision. Drilling will date the onset of fan sedimentation in a proximal location. Because the rate of India-Asia convergence is known, the age of collision allows us to determine whether the volume of crust added to Asia greatly exceeds that now in the orogen. If the volume added exceeds the present total then lateral extrusion or crustal subduction must be invoked, in addition to horizontal compression, as a mode of orogenic strain accommodation.

595-Full3

Scientific Objectives: (*250 words or less*)

The objectives of the drilling are to date the initiation of the Indus Fan and to recover a clastic record for the proximal Indus Fan from that time to the present day. Application of single grain provenance and thermochronology techniques to the sediment grains recovered will allow the evolving patterns and rates of exhumation to be calculated for the Indus drainage basin during the construction of the Himalaya and Tibet. Studies of clay minerals will constrain evolving weathering regimes over the same period. The drilling will further provide ages for the three dimensional seismic stratigraphic framework being constructed for the Arabian Sea. This will allow accurate estimates of sedimentation rate to be determined for the Indus system, thus permitting the relationships between erosion, tectonics and climate to be tested in detail in the global type area. The erosion record can be directly correlated to the existing records of paleoceanographic evolution from the Oman margin, and to continental weathering records in the foreland using the nannofossil biostratigraphy. Drilling below the level of the Indus Fan will provide paleoceanographic constraints on ocean circulation patterns in a critical area during the Paleocene-Early Eocene, a time of intense oceanographic change.

Proposed Sites:

Site Name	Position	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
MU-1	Murray Ridge	1200	2900	10	2910	Recovery of Paleogene Indus Fan detrital record, date age of fan initiation and determine paleoceanographic setting of pre-fan Arabian Sea
IR-1	Indus Fan	2473	5000		5000	Recovery of Neogene Indus Fan detrital record for reconstruction of erosion rates and patterns in the western Himalaya and correlation with existing paleoceanographic records. Dating of seismic stratigraphy on Indus Fan for calculation of erosion history and determination of its relationship to climate change.

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TAB 11

-Global ranking of Proposals-

Ready for ranking proposals

	Proposal #	Short title	Lead proponent	ISP Theme
1	482-Full3	Wilkes Land Margin	Escutia	2
2	*512-Full3	Oceanic Core Complex	Blackman	3
3	519-Full2	South Pacific Sea Level	Camoin	2
4	533-Full3	Arctic-Lomonosov Ridge	Backman	2
5	543-Full2	CORK in Hole 642E	Harris	2&1
6	545-Full3	Juan de Fuca Flank Hydrogeology	Fisher	1
7	547-Full4	Oceanic Subsurface Biosphere (OSB)	Fisk	1
8	548-Full2	Chixculub K-T Impact Crater	Morgan	2
9	*553-Full2	Cascadia Margin Hydrates	Riedel	1
10	557-Full2	Storegga Slide Gas Hydrates	Andreassen	1
11	564-Full	New Jersey Shallow Shelf	Mountain	2
12	572-Full3	Late Neogene-Quaternary Climate Records	Channell	2
13	573-Full2	Porcupine Basin Carbonate Mounds	Henriet	1&2
14	581-Full2	Late Pleistocene Coralgal Banks	Droxler	2
15	584-Full2	TAG II Hydrothermal	Rona	1
16	589-Full3	Gulf of Mexico Overpressures	Flemings	1
17	*595-Full3	Indus Fan and Murray Ridge	Clift	2

*Note: The SPC will not review Proposals 512-Full3, 553-Full2, and 595-Full3 unless the iPC forwards them to the SPC

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TAB 12

-OPCOM mandate-

Operations Committee (approved by iPC and IWG) (12 August 2003)

1.1 General Purpose: The Operations Committee (OPCOM) is an independent committee within the Science Advisory Structure whose general purpose is to recommend the most logistically and fiscally effective means to achieve IODP scientific objectives as defined in the long-range IODP science plan and prioritized by the Science Planning Committee (SPC). OPCOM reports to SPC and, through SPC, to the SAS Executive Authority.

1.2 Mandate: OPCOM is responsible for recommending the optimal means to implement IODP drilling projects that are highly ranked and prioritized by SPC. Following IODP project management principles, OPCOM should consider, in addition to SPC prioritizations, (a) capabilities of IODP drilling platforms, (b) budgetary and logistical constraints, and (c) advice from SAS service panels on safety, environmental, and technological factors. Following the annual SPC prioritization and ranking of proposed IODP drilling programs, OPCOM will specifically recommend options for the schedules of IODP drilling platforms for the appropriate year(s) (as defined by the annual IODP program plan) and will also project a longer-term schedule for future drilling operations. In addition, OPCOM must monitor progress toward achieving the longer-term drilling schedule and therefore is also responsible for recommending any modifications to both the short- and long-term drilling schedules that may be necessary as developments occur or constraints arise after SPC has prioritized relevant IODP science projects.

1.3 Consensus and Quorum: The Operations Committee will reach all decisions by consensus. In defining consensus, a quorum shall be required consisting of 2/3 of the scientific participants and 2/3 of the management representatives as defined in Section 4.

1.4 Participants Counting Toward Consensus and Quorum: The Operations Committee will be chaired by a knowledgeable scientist who is non-conflicted in both scientific and operational matters and is appointed by the SAS Executive Authority. Participants from SAS shall include the SPC chair and as many additional representatives from the SPC as there are Implementing Organizations. Participants from IODP management shall include one designated representative from each Implementing Organization (IO), and one designated representative from the Central Management Organization (CMO). The terms of the Chair and representatives from SPC should extend no longer than three years, and rotations should be staggered.

1.5 Liaisons, Observers, and Guests: Each Lead Agency is expected to nominate one liaison to OPCOM. Lead Agencies, the CMO, and IO's may send additional observers as needed. A chair of each of the SSEP's, SciMP, PPSP, SSP, TAP and ILP will serve as liaisons to OPCOM. When necessary to provide additional expertise, guests may be invited at the discretion of the Chair. Approximately one year before the end of the Chair's term, the next Chair should be identified and he or she should attend that year's meetings as a guest.

1.6 Meetings: OPCOM shall meet at least twice per year. One of the OPCOM meetings will be coordinated with the annual SPC ranking exercise, in order to construct the appropriate year's schedules of the IODP drilling platforms. The other meeting will be held about half a year apart, to recommend adjustments to the drilling schedules if needed. If drilling schedules or modifications recommended by OPCOM are not approved by SPC and/or the SAS Executive Authority, then additional OPCOM meetings may be required to recommend alternative schedules.

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TAB 13

-Project and drill-site designation scheme-

Drill Site Designation Policy

IODP will adopt a uniform system for naming proposed drill sites whereby any seafloor site ever considered for possible drilling receives a unique name. Site names must conform to the general format *AAAA-nnX*, where *AAAA* represents a string of up to four alphanumeric characters referring to the geographic area of the proposed drill site, *nn* represents the specific site number within that area, and *X* represents an alphabetic character for indicating original, alternate, or revised variants of a given site.

Designated site names should not encode any indicators of relative priority because site priorities often change as a proposal passes through the advisory system. For all newly proposed sites, *X*=A. Whenever proponents relocate a proposed drill site, they must also rename it by incrementing *X*. Hence, for alternate or revised sites that share a close geographic proximity and similar scientific objectives as the original site, *X*=B, C, D, *etc*.

Example: PIG-3B refers to the second proposed location of Site 3 in Pigafetta Basin.

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TAB 14
-Proposal evaluation process-

Guidelines for submitting proposals to IODP SAS

(Ver. 1.0: 8 August 2003)

Introduction

The Integrated Ocean Drilling Program (IODP) will evaluate drilling proposals from the scientific community through a Science Advisory Structure (SAS). Until the establishment of permanent IODP offices in early 2004, the interim SAS (iSAS) Office will continue to manage all aspects of the IODP proposal submission and review process, and the ODP Site Survey Data Bank will continue to serve as the repository for site-survey data.

The following guidelines describe the procedures and requirements for submitting and evaluating preliminary proposals, full proposals, addenda, and response letters during this transition period. All items absolutely must arrive in the iSAS Office by the semiannual deadlines of either **1 April** or **1 October**. Proponents should submit the required materials as a single PDF document, with all pages in A4 or U.S.-letter size and using a 12-point font, 1.5 line spacing, and 2.5-cm margins. The iSAS Office will not accept items that arrive late, do not meet all of the specified requirements, or do not print properly using Acrobat Reader 5.0 (available at http://www.adobe.com).

Preliminary Proposals

An individual scientist or group of scientists with a new idea for scientific ocean drilling should initially submit a preliminary proposal. **Preliminary proposals must not exceed 10 pages in length**, including text, tables, and figures, but excluding references. Preliminary proposals must also include the following items that will not count against the page limit:

- An official proposal cover sheet, complete with an abstract of 400 words or less, a statement of the scientific objectives, and a list of the proposed drill sites,
- An initial site summary form for each proposed drill site, with designated site names conforming to established policy (see below).

In addition, a well-prepared preliminary proposal should:

- State the scientific objectives and explain how those objectives relate to, or advance beyond, the IODP Initial Science Plan,
- Justify the need for drilling to accomplish the scientific objectives,
- Present a well-defined strategy for addressing the scientific objectives through drilling, logging, or other down-hole measurements,
- Describe the proposed drill sites, penetration depths, expected lithologies, and available site-survey data,
- Describe briefly any relationships to other international geoscience programs.

Shortly after each proposal deadline, all new and revised preliminary proposals will go forward to the Science Steering and Evaluation Panels (SSEPs) for review. The steering panels will assess each preliminary proposal in terms of its relevance to the IODP Initial Science Plan, the suitability of the study area and study sites for addressing the proposed scientific objectives, and whether the achievement of those objectives would likely result in any fundamental scientific advances. The steering panels will also determine whether a given preliminary proposal provides a suitable basis for developing a complex drilling project (CDP). Following the steering panel review, proponents will receive a written summary instructing them whether to revise their preliminary proposal, develop it into a full proposal or a CDP, collaborate with another group of proponents, or perhaps rethink their scientific objectives.

Full Proposals

Proponents who have previously submitted a preliminary proposal may submit a full proposal if advised to do so by the SSEPs. In special cases, an individual scientist or group of scientists with a new idea for scientific ocean drilling can submit a full proposal without first submitting a preliminary proposal, provided that it meets all of the relevant requirements. **Full proposals must not exceed 25 pages in length**, including text, tables, and figures, but excluding references. Full proposals must also include the following items that will not count against the page limit:

- An official proposal cover sheet, complete with an abstract of 400 words or less, a statement of the scientific objectives, and a list of the proposed drill sites,
- The appropriate set of site summary forms for each proposed drill site, with designated site names conforming to established policy (see below),
- A two-page *curriculum vitae* or biographical sketch for one or more of the lead proponents,
- A list of at least five potential reviewers external to SAS.

A well-prepared full proposal should also:

- State the scientific objectives and explain how those objectives relate to, or advance beyond, the IODP Initial Science Plan,
- Justify the need for drilling to accomplish the scientific objectives,
- Present a well-defined strategy for addressing the scientific objectives through drilling, logging, or other down-hole measurements,
- Provide detailed estimates of the time required for drilling, logging, or other down-hole measurements,
- Describe the available site-survey data and any plans for acquiring additional data, and discuss how the drilling targets relate to those data,
- Describe any special logistical requirements or potential natural hazards,
- Discuss the expected scientific outcome of drilling and any subsequent work required to complete the overall project.

Shortly after each proposal deadline, all new and revised full proposals will go forward to the Science Steering and Evaluation Panels (SSEPs) for review. The steering panels will assess each full proposal in terms of the above criteria and decide whether it has reached a sufficient stage of development for external review. If so, they will also recommend at least five potential external reviewers with appropriate scientific expertise. Otherwise, the steering panels will advise the proponents (through the iSAS Office) on how to improve or revise the proposal.

After the steering panels have recommended a proposal for external review, the iSAS Office will obtain comments from at least three qualified reviewers. Once selected, external reviewers will remain anonymous to the proponents and advisory panelists at all times. External reviewers should comment critically on the importance of the scientific objectives toward the advancement of natural sciences, the suitability of the study area for addressing the scientific objectives, the likelihood of achieving the scientific objectives with the proposed drilling and logging strategy, and the scientific competence of the proponents, keeping in mind that many scientists besides the proponents would ultimately participate in planning and executing the drilling project. Proponents will receive the external reviews of their proposal from the iSAS Office and may then submit a brief response letter (see below) before the next proposal deadline. The steering panels will then review the proposal again, together with the external reviews and response letter, and they will decide if it should advance to the next stage of review within the advisory structure. If so, the steering panels will write a final panel review assessing the priority of the proposal with respect to the IODP Initial Science Plan.

After the steering panels have recommended an externally reviewed proposal for the next stage of advisory review, it will go forward to the Science Planning Committee (SPC). Once per year, the planning committee will receive a prospectus containing all previously recommended proposals and supporting documents, including addenda, anonymous external reviews, response letters, and advisory panel reviews. After discussing each proposal within the framework of the IODP Initial Science Plan, they will select the pool of proposals ready for ranking. Next they will rank those proposals on a global scientific basis and then select an upper-ranked tier of proposals for advancement to the Operations Committee (OPCOM) and possible scheduling. All unscheduled proposals will remain active for future consideration by the advisory structure.

Complex Drilling Projects

A preliminary or full proposal may comprise part of a complex drilling project (CDP) if identified as such by the Science Steering and Evaluation Panels (SSEPs). The initial proposal of a CDP should define the overall scientific objectives of the entire project and justify the need for a multi-platform or multi-phased drilling strategy to achieve those objectives. The steering panels may then recommend developing a set of related proposals to describe the individual steps or phases in greater detail, and they will evaluate each proposal of the set within the broader context provided by the initial framework or umbrella proposal. All components of a CDP must otherwise fulfill the normal requirements for preliminary and full proposals and follow the normal review process. The steering panels will decide the readiness of a CDP for external review and for advancement to the next stage of review within the advisory structure.

Addenda

Proponents of full proposals may submit an addendum to provide an update on relevant scientific research, to fulfill a specific request by a SAS panel or committee, or perhaps to present an offer of support from another scientific program or agency. If, however, the supplementary material necessitates a significant change to the objectives or strategy of the original proposal, the proponents should submit a revised proposal instead of an addendum. **Addenda must not exceed 10 pages in length**, including text, tables, and figures, but excluding references. Addenda must also include the following items that will not count against the page limit:

– An official proposal cover sheet, complete with an abstract of 400 words or less, a statement of the scientific objectives, and a list of the proposed drill sites,

Normally, an addendum will go forward with the latest version of its corresponding proposal to the panel or committee that last reviewed that proposal. Under special circumstances, an addendum that concerns important, late-breaking news could go forward to the SSEPs or SPC without waiting for the next proposal deadline; however, the proponents must obtain prior approval from the iSAS Office.

Response Letters

Proponents may submit a brief letter in response to the external reviews of their full proposal. **Response letters must not exceed 5 pages in length**, including text, tables, and figures, but excluding references, and they must address only the specific comments or questions posed by the reviewers. Occasionally, an advisory panel or committee may request an additional response letter during subsequent stages of the review process. The iSAS Office will set an appropriate deadline for receiving such response letters, typically at least four to six weeks in advance of the next panel or committee meeting.

Drill Site Designation Policy

IODP will adopt a uniform system for naming proposed drill sites whereby any seafloor site ever considered for possible drilling receives a unique name. Site names must conform to the general format *AAAA-nnX*, where *AAAA* represents a string of up to four alphanumeric characters referring to the geographic area of the proposed drill site, *nn* represents the specific site number within that area, and *X* represents an alphabetic character for indicating original, alternate, or revised variants of a given site.

Designated site names should not encode any indicators of relative priority because site priorities often change as a proposal passes through the advisory system. For all newly proposed sites, *X*=A. Whenever proponents relocate a proposed drill site, they must also rename it by incrementing *X*. Hence, for alternate or revised sites that share a close geographic proximity and similar scientific objectives as the original site, *X*=B, C, D, *etc*.

Example: PIG-3B refers to the second proposed location of Site 3 in Pigafetta Basin.

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TAB 15

-Panel mandates-

Proposed Interim Science Advisory Structure (iSAS)

for the Transition to IODP

- interim Science Steering and Evaluation Panels (iSSEPs) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Science Steering and Evaluation Panels

1.1 General Purpose: The Interim Science Steering and Evaluation Panels (iSSEPs) interact with proponents (and interim Program Planning Groups, as necessary) during the ODP-IODP transition (2001-2003), in order to nurture submitted drilling proposals to maturity, make an initial assessment (in cooperation with the iPC) about the suitability of proposals for a particular drilling platform or technology, and recommend mature proposals for external comment.

• <u>Environmental Change, Processes and Effects iSSEP: Areas of Interest</u>

The interests of this iSSEP are explained in detail in the Initial Science Plan

of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- internal and external forcing of environmental change
- environmental change induced by internal and external processes
- extreme climates and rapid climate change initiatives
- the deep biosphere and the sub-seafloor ocean
- gas hydrates

• Solid Earth Cycles and Geodynamics iSSEP: Areas of Interest

The interests of this iSSEP are explained in detail in the Initial Science Plan of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- formation of rifted continental margins, oceanic LIPs and oceanic lithosphere
- the dynamics, processes, and record of the solid Earth and fluid movement therein.
- recycling of oceanic lithosphere and formation of crust
- the seismogenic zone
- the deep biosphere and the sub-seafloor ocean

1.2 Mandate. Each iSSEP reports to the iPC and will respond directly to requests from the iPC. Each iSSEP will be responsible for:

- examining and reviewing drilling proposals and determining whether they address important scientific problems that are related to the scientific themes outlined in the Initial Science Plan of IODP.
- nurturing to maturity, and examining and reviewing the scientific merits of these drilling proposals, by interaction with proponents and Program Planning Groups (as necessary) ;
- providing proponents, and iPC with written reviews and comments on the proposals through the iSAS Support Office;
- selecting proposals for external comment, suggesting appropriate reviewers, and providing iPC with external comments and a written review and summary of those comments;
- advising iPC on initiatives and themes that need further development (through the formation of interim Program Planning Groups, as necessary);
- facilitating communications among iPC, interim Program Planning Groups, and proponents.

1.3 Meetings. The iSSEPs will meet approximately twice per year, normally right before or after their counterparts in JOIDES. The iSSEPs will have overlapping sessions, as overlap in thematic coverage is expected to continue to evolve. The iPC Co-Chairs will approve iSSEPs agendas and meeting dates, and locations (normally in consultation with JOIDES).

1.4 Membership. The iSSEPs will consist of approximately fifteen to eighteen

members each. The iPC, in consultation with JOIDES and OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise. Members of the iSSEPs will not be members of any interim Program Planning Group. With the approval of the iPC Co-Chairs, guests may be invited to iSSEPs meetings on an *ad hoc*basis to help with examinations and reviews of proposals.

1.5 Liaisons. The Chairs of the iSSEPs are liaisons to the iPC and will meet with the iPC. The iSSEPs chairs will assign liaisons from their membership to the active iPPGs, as appropriate. The iPPG Chairs will normally meet with the iSSEPs at least once per year.

1.6 Chairs The iSSEP Chairs are appointed by iPC.

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Site Survey Panel (iSSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Site Survey Panel

1.1 General Purpose. The general purpose of the interim Site Survey Panel (iSSP) is to provide information and advice to the iPC on the adequacy of, and need for, site surveys in relation to proposed drilling targets.

1.2 Mandate. The interim Site Survey Panel (iSSP) is mandated to:

- Review site survey data packages prepared by the IODP Site Survey Data Bank and to make recommendation as to their adequacy to the iPC in light of the needs defined in mature proposals of the interim Science Steering and Evaluation Panels, interim Program Planning Groups and interim Detailed Planning Groups;
- Identify data gaps in proposed future drilling areas and recommend

appropriate action to ensure that either:

(1) sufficient site survey information is available to pinpoint specific drilling targets and interpret drilling results; or

(2) sites will not be drilled until specific information has been reviewed.

- Provide guidelines for proponents and panels regarding required site survey data and examine the opportunities and requirements for the use of new technologies for surveying potential drill sites;
- Promote international cooperation and coordination of site surveys for the benefit of the IODP, particularly between participating IODP partners'survey activities;
- Promote the submission of all data used for planning drilling targets to the IODP Data Bank.
- Interface with the JOIDES Site Survey Panel to assure a smooth transfer of site survey data from ODP to IODP*.

1.3 Meetings. iSSP will normally meet right before or after the JOIDES SSP meeting or as requested by iPC. One meeting will usually be at the location of the JOIDES Site Survey Data Bank.

1.4 Membership. The iSSP is composed of 15 to 18 Members. It will be made up of experts who can provide advice on the site survey requirements of proposed drill sites. The membership will have an equal number of appointees from Japan and the US, with at least one appointee from eachof the other IWG members. The iPC, in consultation with JOIDES and the OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise.

1.5 Liaison. The Panel maintains liaison with the IODP Site Survey Data Bank Manager, and the iPC Support Office, each of which sends representatives to iSSP meetings. iSSP maintains liaisons to the iSSEPs.

1.6 Chair. The iSSP Chair is appointed by iPC.

**Note: IODP Site Survey Data Bank represents a function for IODP data repository to be defined by IWG.*

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP - interim Pollution Prevention and Safety Panel (iPPSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Pollution Prevention and Safety Panel (iPPSP)

1.1 General Purpose. The general purpose of the interim Pollution Prevention and Safety Panel (iPPSP) is to provide independent advice to the iPC with regard tosafety and pollution hazards that may exist because of general and specific geologic circumstances of proposed drill sites, and advice on what drilling technology should be applied in order to avoid drilling hazards.

1.2 Mandate. This panel will review all drilling proposed in IODP and advise on safety requirements and appropriate technology needed to meet these requirements. All drilling operations involve the chance of accident or pollution. The principal geologic safety and pollution hazard in ocean drilling is the possible release of substantial quantities of high-pressure fluids and volatiles

including hydrocarbons from subsurface reservoir strata. However, the riser capability of the IODP will permit application of blow out prevention (BOP) technology to mitigate this hazard in a number of geological environments. In other environments, such as most of the deep-sea regions, the risk of hydrocarbon release can be reduced or eliminated by careful planningand proper site surveys.

Those who develop IODP drilling plans and select drilling sites are initially responsible to carefully assess sites in terms of safety and indicate the appropriate mode of drilling for each site. The iPPSP independently reviews each site to determine if and how drilling operations can be conducted safely.

The preliminary site survey information and the operational plan are examined for each site. Advice is communicated in the form of:

1. site approval, for riser/BOP or non-riser drilling,
2. lack of approval, or
3. technical advice for relocation or amendment

Approval is based on the judgment of the Panel that a proposed site can be safely drilled in light of the available technology, information, and planning.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after of the JOIDES PPSP meeting, as approved by the iPC Co-Chairs.

1.4 Membership. Members of the iPPSP are specialists who can provide expert advice on the safe drilling of proposed drill sites, including sites in hydrocarbon prone areas. Members of the iPPSP are primarily selected on the basis of this specific expertise, with a view toward a fair representation of IWG members as a second priority. Membership is determined by iPC based on nominations from IWG countries. Panel membership, not to exceed 15, should be maintained as small as is allowed by the range of expertise necessary to meet mandate requirements.

1.5 Liaison. The iPPSP maintains liaison with the interim Site Survey Panel, and a designated iSSP member attends its meetings. Representatives from the main drilling operators will also be invited to attend the meetings. The iPC Co-Chairs or a designate from iPC attends as a liaison.

1.6 Chair. The Chair is appointed by iPC.

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Science Measurement Panel (iSciMP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Scientific Measurements Panel (iSciMP)

1.1 General Purpose. The interim Scientific Measurements Panel (iSciMP) will contribute information and advice to the IODP community through the iPC with regard to the handling of IODP data and information, on methods and techniques of IODP measurements, on laboratory design, portable laboratory needs and downhole measurements and experiments.

1.2 Mandate. iSciMP will provide advice on IODP information related to scientific measurements made onboard the riser and non-riser ships and on _as-needed_ platforms, within and around boreholes, and on samples collected by IODP and associated programs. Its specific mandates are to develop guidelines concerning said measurements and to furnish advice about scientific

measurements which will assist iPC in developing recommendations to IWG regarding equipment and measurement procedures in IODP.

Specific responsibilities for the panel are publications, databases, curation, computers, shipboard equipment usage and needs, measurement calibrations and standards, and borehole measurements, equipment, usage, and needs.

iSciMP recommendations will be sent to iPC.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after the JOIDES SciMPmeeting. Agendas are approved by the iPC Co-Chairs.

1.4 Membership. iSciMP will consist of fifteen to eighteen members. The iPC, in consultation with JOIDES and OD21, will advise on membership replacement (if vacancies occur), based upon maintaining breadth of expertise. Members should have expertise representing the three core areas of the panel mandate covering information handling, downhole measurements, and shipboard measurements. With iPC approval, the panel may bring inadditional information about its mandate issues by setting up *ad hoc*advisory committees whose lifetimes are mandated by iPC.

1.5Liaison. The iSciMP will have liaisons from iPC. Liaisons to other iSAS advisory bodies may be sought with the approval of iPC. Representatives from the main drilling operators will also be invited to attend the meetings.

1.6Chair. The Chair will be appointed by iPC.

8. interim Technology Advice Panel (iTAP)

8.1 General Purpose: The interim Technology Advice Panel (iTAP) will advise the iPC and, through the iPC, the IWG (and the management office) on matters related to the technological developments necessary to meet the scientific objectives of the IODP Initial Science Plan.

8.2 Mandate: The iTAP will identify long-term (2-5 year lead time) technical needs and recommend ways to meet those needs. Appropriate topics of concern may include:

1. Advice and recommendations on performance requirements for specific technological needs.
2. Assessment of whether commercial “off-the-shelf” technology can most optimally meet those needs or whether they require research and development within IODP.
3. Recommendations concerning the appropriate mode for pursuing such research and development (i.e., through IODP, universities, industry, or joint ventures).
4. Advice and recommendations on the process and procedures for developing and evaluating program contracts in support of technical design and innovation.
5. Regular review of the progress made by iSAS and the science community in planning for the technological needs of IODP.

8.3 Meetings: The iTAP should meet twice per year or as required and approved by the iPC co-chairs. The iTAP may hold its meetings separately or in conjunction with the iSciMP when appropriate.

8.4 Membership: The iTAP will consist of fifteen to eighteen members, with a nominal term of three to five years for individual members. Each IWG member may name one representative to the iTAP and nominate other candidates for membership. The iPC will select and approve all other iTAP members from the additional nominees based on the expertise needed on the panel. Members of iTAP should specialize in the fields of marine operations on a variety of platforms, down-hole logging and instrumentation, drilling technology (including mining technology and drilling under extreme conditions), geotechnics and other disciplines as necessary. To meet the need for added breadth of expertise and the receipt of technical advice in a timely manner, the iTAP may recommend the establishment of working groups to address specific technological issues.

8.5 Liaisons: To ensure that iTAP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific program, the iPC Co-chairs or their designates will brief the iTAP at least once per year on the status of the science program. In addition, liaisons from the operators, the management office, the interim Industrial Liaison Panel, the data centers and other cooperating scientific programs may regularly attend iTAP meetings. The iTAP Chair should attend iSSEPs meetings as a liaison.

8.6 Chair: The iPC will appoint the iTAP Chair.

9. interim Industrial Liaison Panel (iILP)

9.1 General Purpose: To facilitate ongoing communication and cooperative scientific activities between IODP and selected industries, with the goal of benefiting IODP science and technology and maximizing economic benefits from sharing resources, such as drilling of sites for shared scientific and technical goals, development of joint drilling and sampling technologies, and the development of improved downhole measurement and observatory capabilities. Industrial sectors of interest include oil & gas companies (e.g., offshore deepwater technology, petroleum geology, and engineering), mining (e.g., understanding potential economic targets), microbiology (e.g, development of new enzymes, etc.), insurance industry (e.g., hazards and climate predictions) and research and development organizations in these fields.

9.2 Mandate: The iILP will:

- Develop effective links between academic and industry scientists with mutual research, technical, and engineering interests,
- Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers,
- Develop mechanisms for sharing industry data, expertise, and resources between IODP and industry scientists**,**
- Act as the liaison group for IODP to industry and selected industry associations, and promote IODP educational and outreach activities within selected industry professional organizations,
- Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP,
- Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities between IODP and industry,
- Assist iPC in the establishment of interim Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programs and/or interim Program Planning Groups as needed.

9.3 Meetings: The iILP should meet twice per year. The iILP may hold its meetings separately or in conjunction with other iSAS panels or professional societies as appropriate.

9.4 Membership: The iILP will consist of 15 members representing as many IWG member nations as possible to maintain reasonable size and balance of expertise and research interests, with an ideal goal of about two thirds of the members from industry and one third from academia. Nominations will be solicited from the JOIDES and OD21 science advisory structures, industry colleagues, and national ODP offices. The iPC Co-chairs will consult the iILP Chair and recommend candidates for membership as needed. Academic iILP members should have experience in scientific ocean drilling and scientific expertise related to industry interests or else an active involvement in academic/industrial collaborations. The iPC will approve the iILP membership.

9.5 Liaisons: To ensure that iILP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific programs, the iPC Co-chairs or their designates will brief the iILP at least once per year on the status of the science program. In addition, the iILP should establish liaisons with the iSSEPs and the iPC.

9.6 Chair: The iPC will appoint the iILP Chair.

IODP Science Planning and Operations Committees

1st Meeting, 15-19 September 2003

Hokkaido University

Sapporo Hokkaido, Japan

TAB 16

-Future meetings-

Future SAS Meeting Schedule

	Sep.	Oct.	Nov	Dec	Jan	Feb	Mar
SPPOC				4-5, SF, CA USA			
SPC/OPCOM	15-19, Sapporo Japan						?
SSEPs			13-16 Boulder CO USA				
SSP						11-13, Tokyo Japan	
SciMP				15-18, Nagasaki Japan			
PPSP				15-17, Nagasaki Japan			
TAP						?	
ILP		?					

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 5A3

IODP Science Planning Committee

1st Meeting, 15-19 September 2003

Hokkaido University
Sapporo, Japan

DRAFT EXECUTIVE SUMMARY (v.1.3)

1c. Approve SPC meeting agenda

SPC Motion 03-09-1: The SPC approves the revised agenda for its first meeting on 15-19 September 2003 in Sapporo, Japan.

Becker moved, Miller seconded; 14 in favor.

1d. Review SPC procedures and protocol

SPC Motion 03-09-2: The SPC adopts the provisional mandate given in the agenda book for this first meeting only.

Becker moved, Moore seconded; 14 in favor.

SPC Motion 03-09-3: The SPC endorses the conflict of interest policy proposed for provisional use at its first meeting.

Katz moved, Miller seconded; 14 in favor.

7. Matters forwarded from iSAS
7a. Committee and panel recommendations
7a.i - iPC

SPC Motion 03-09-4: The SPC requests the PPSP, ILP, and implementing organizations to work together to develop recommendations on environmental principles in the IODP.

Quinn moved, Byrne seconded; 14 in favor.

SPC Motion 03-09-5: The SSEPs will determine when a proposal is ready to forward to the SPC. The SPC will endeavor not to request revised proposals.

Quinn moved, Katz seconded; 13 in favor, 1 abstained (Kato).

7a.ii - iSSEPs

SPC Motion 03-09-6: The SPC will consider proposals presented by the SSEPs co-chairs for designation as complex drilling projects (CDPs).

Quinn moved, Moore seconded; 14 in favor.

7a.v - iSciMP

SPC Motion 03-09-7: The SPC receives iSciMP Recommendation 01-2-10 on addressing the role and maintenance of micropaleontology reference centers in the IODP.

Prell moved, Ito seconded; 14 in favor.

SPC Motion 03-09-8: The SPC endorses iSciMP Recommendation 02-1-4 on maintaining shipboard microfossil reference collections.

Quinn moved, Moore seconded; 14 in favor.

SPC Motion 03-09-9: The SPC receives iSciMP Recommendation 02-1-5 and supports the development of the OD21 core description and visualization system.

Ito moved, Becker seconded; 14 in favor.

SPC Motion 03-09-10: The SPC receives iSciMP Recommendation 02-2-4 and supports further SAS investigations of standardizing the diameter of drill pipe used on IODP platforms.

Prell moved, Byrne seconded; 13 in favor, 1 abstained (Ito).

SPC Motion 03-09-11: The SPC receives iSciMP Recommendation 02-2-5 and endorses the development by JAMSTEC of the anti-contamination coring tool.

Becker moved, Ito seconded; 14 in favor.

SPC Motion 03-09-12: The SPC accepts the iSciMP laboratory working group reports on paleontology, paleomagnetics, and underway geophysics and forwards these reports to the SPPOC.

Prell moved, Katz seconded; 13 in favor, 1 abstained (Becker).

SPC Motion 03-09-13: The SPC charges the SciMP to develop a section of the *Guide to IODP* identifying the skill sets recommended for the scientific staffing of various types of IODP expeditions. The SciMP should complete this task in time for the March 2004 SPC meeting.

Katz moved; Moran seconded; 13 in favor, 1 abstained (Ito).

SPC Motion 03-09-14: The SPC charges the SciMP to develop, in collaboration with the implementing organizations, a section of the *Guide to IODP* describing required and recommended measurements necessary to complete an IODP scientific expedition. This section of the *Guide to IODP* should include all approved earlier working group reports and iSciMP recommendations on this topic.

Moran moved, Prell seconded; 14 in favor.

7a.vi - iTAP

SPC Motion 03-09-15: The SPC accepts iTAP Recommendation 03-02 on developing a hole-problem risk mitigation plan and forwards it to the SPPOC.

Becker moved, Moore seconded; 13 in favor, 1 abstained (Moran).

SPC Consensus 03-09-16: The SPC receives iTAP Recommendation 03-06 on formulating a more-flexible IODP coring and logging policy to allow use of improved technologies and charges the TAP and SciMP with developing a draft policy by the March 2004 SPC meeting.

SPC Consensus 03-09-17: The SPC accepts iTAP Recommendation 03-07 on outfitting the fulltime riser and non-riser drilling vessels with remotely operated vehicles (ROVs) and forwards this recommendation to the SPPOC.

7b. iSAS working group reports

SPC Motion 03-09-18: The SPC accepts the database working group report and forwards it to the SPPOC.

Quinn moved, Moore seconded; 14 in favor.

SPC Motion 03-09-19: The SPC accepts the microbiology working group report and forwards it to the SPPOC.

Quinn moved, Kato seconded, 14 in favor.

SPC Motion 03-09-20: The SPC accepts the data-bank working group report and forwards it to the SPPOC.

Becker moved, Byrne seconded; 13 in favor, 1 absent (Prell).

SPC Motion 03-09-21: The SPC receives the progress report from the Matrix working group and requests that the working group finalize its report in time for the March 2004 SPC meeting. The final report should include a reevaluation of required versus recommended data and a response to all other comments from SPC members.

Quinn moved, Byrne seconded; 14 in favor.

7c. Policy on interacting with ancillary programs

SPC Motion 03-09-22: The SPC recommends modifying the iPC-approved policy statement on ancillary programs in IODP as follows:

iPC Consensus 5-3: Scientific and educational programs are encouraged to develop projects that are ancillary to the IODP Annual Program Plan and apply for permission to execute such projects as part of IODP ~~research~~ expeditions. Proposals for such ancillary programs must be approved by the Science Planning Committee (SPC) chair in consultation with the ~~co-~~chief scientists and implementing organizations of the affected ~~drilling project~~expeditions(s), the IODP Science Policy and Planning Oversight Committee (SPPOC), and by IODP Management International, Inc. (IMI) prior to the development of the annual program plan. For the purposes of assessing proposals for ancillary programs, it is understood that: 1) they must be conducted at no extra cost (in time or money) to IODP scientific operations; 2) they will in no way interfere with, or require the alteration of, drilling plans approved by the IODP; 3) sufficient space must be available on the ~~project~~expedition drilling platform(s) to accommodate needed personnel, equipment, and/or laboratory facilities without interfering with primary IODP drilling, sampling and related operations; and 4) permission to undertake at-sea activities required by ancillary programs must be obtained from the on-site operations manager of the IODP ~~project~~expedition on a day-by-day basis, and such permission can be rescinded at any time as required by operational considerations.

Becker moved, Katz seconded; 13 in favor, 1 abstained (Kato).

7d. IODP sample and data policy

SPC Motion 03-09-23: The SPC accepts the IODP Sample and Data Policy and forwards it to the SPPOC.

Ito moved, Byrne seconded; 14 in favor.

8. Publications

SPC Motion 03-09-24: The SPC establishes a working group to develop recommendations for an IODP publications policy. The working group, co-chaired by Miller and Tatsumi, will report at the March 2004 SPC meeting.

Ito moved, Moore seconded; 14 in favor.

8.1 Select OPCOM members from SPC

SPC Motion 03-09-25: All SPC members, including those identified as proponents of drilling proposals under review, may participate in selecting the OPCOM members from the SPC.

Moore moved, Prell seconded; 13 in favor, 1 abstained (Miller).

SPC Motion 03-09-26: The SPC approves Hisao Ito and Terry Quinn as additional SPC representatives on the OPCOM through the March 2004 OPCOM meeting.

Miller moved, Moore seconded, 13 in favor, 1 abstained (Quinn).

8.2 Arctic Drilling

SPC Motion 03-09-27: The SPC affirms the high scientific priority and potential of scientific drilling in the central Arctic Ocean and recognizes that Proposal 533-Full3 Arctic–Lomonosov Ridge is currently in the implementation phase for operations anticipated for August and September 2004. The SPC therefore forwards this previously top-ranked proposal to the OPCOM without re-ranking for consideration for scheduling in FY2004.

Prell moved, Miller seconded; 14 in favor.

10. Presentation and discussion of proposals

SPC Consensus 03-09-28: The SPC regards the first part of Proposal 545-Full3 Juan de Fuca Flank Hydrogeology as worth scheduling on its own.

SPC Consensus 03-09-29: The SPC recommends requiring quadruple APC holes at each site of Proposal 572-Full3 N. Atlantic Neogene–Quaternary Climate and penetrating deeper than proposed at one site to obtain paleointensity records from beyond 3 Ma.

11. Global ranking of proposals

SPC Consensus 03-09-30: The SPC will rank all of the sixteen proposals reviewed at this meeting.

SPC Motion 03-09-31: The SPC forwards the top twelve ranked proposals to the OPCOM in two groups, with the top five proposals in Group I and the next seven in Group II. The SPC requests that the OPCOM propose scheduling options that honor and adhere to these ranking groups as closely as possible.

Moran moved, Prell seconded; 12 in favor, 2 opposed (Kato, Ito).

12. Review alternative schedules developed by OPCOM

OPCOM Consensus 03-09-1: The OPCOM recommends Proposal 533-Full3 Arctic–Lomonosov Ridge to the SPC for inclusion in the FY2004 operations schedule to institute the necessary steps for program implementation. Its final implementation is contingent upon ECORD participation in the IODP.

SPC Motion 03-09-32: The SPC recommends including Proposal 533-Full3 Arctic–Lomonosov Ridge in the mission-specific platform operations schedule for FY2004, pending ECORD participation in the IODP.

Byrne moved, Kato seconded; 13 in favor, 1 absent (Moran).

SPC Consensus 03-09-33: The SPC establishes a project-scoping group to review the operational plan for implementing Proposal 533-Full3 Arctic–Lomonosov Ridge. The group will report to OPCOM and should include SPC member Keir Becker as the leader, SPC chair and OPCOM co-chair Mike Coffin, and several other appropriate members such as an ice-breaker captain. The group should conduct its review by late October 2003 to ensure enough time for including the Arctic drilling project in the annual program plan for FY2004.

OPCOM Consensus 03-09-2: The OPCOM recommends the following three scenarios to the SPC for consideration as possible drilling schedules for FY2004 and FY2005, with preference given to Scenario 10.

Exp.	Scenario 8	Scenario 9	Scenario 10
1	545-Full3 (Pt. 1)	545-Full3	545-Full3 (Pt. 1)
2	572-Full3 (Pt. 1)	572-Full3 (Pt. 1)	572-Full3 (Pt. 1)
3	584-Full2	584-Full2	512-Full3 (Pt. 1)
4	512-Full3 (Pt. 1)	512-Full3 (Pt. 1)	512-Full3 (Pt. 2)
5	512-Full3 (Pt. 2)	572-Full3 (Pt. 2) + 543-Full2	572-Full3 (Pt. 2) + 543-Full2
6	589-Full3 or 543-Full2	-----	-----
Cost:	$6.2-7.0M	$5.6M	$4.6M
Trans:	42 days	52 days	52 days

13. Vote on FY2004 schedule (non-conflicted SPC members)

SPC Motion 03-09-34: The SPC approves the following expedition schedule for the non-riser vessel during June 2004 through May 2005.

1.	545-Full3	Juan de Fuca Flank Hydrogeology (Part I)
2.	572-Full3	N. Atlantic Neogene-Quaternary Climate (Part I)
3.	512-Full3	Oceanic Core Complex (Part I)
4.	512-Full3	Oceanic Core Complex (Part II)
5a.	572-Full3	N. Atlantic Neogene-Quaternary Climate (Part II)
5b.	543-Full2	CORK in Hole 642E

The SPC also identifies the non-A-CORK component of 553-Full2 Cascadia Margin Hydrates as an alternate first expedition in case any significant delays arise in the logistical planning for Proposal 545-Full3.

Prell moved, Moran seconded; 14 in favor.

13.1 Nominate chief scientists

SPC Motion 03-09-35: The SPC endorses the iPC nominations for chief scientists of the Arctic drilling project, as previously forwarded to the ECORD.

Quinn moved, Moore seconded; 13 in favor, 1 absent (Moran).

14. Review letters to proponents of unscheduled proposals

SPC Motion 03-09-36: The SPC recommends that the ECORD develop an operational plan as soon as feasible for Proposals 519-Full2 South Pacific Sea Level and 564-Full New Jersey Shelf, in light of their respective global rankings of #1 and #4 at this meeting.

Quinn moved, Moore seconded; 14 in favor.

SPC Motion 03-09-37: The SPC forwards Proposals 519-Full2 South Pacific Sea Level, 564-Full New Jersey Shelf, and 589-Full3 Gulf of Mexico Overpressures to the OPCOM for consideration at the next OPCOM scheduling meeting without re-ranking.

Katz moved, Moore seconded; 14 in favor.

SPC Consensus 03-09-38: The SPC chair and the IMI interim program director will work with CDEX to establish an initial project-scoping group for the riser-drilling component of Proposal 595 Indus Fan and Murray Ridge.

15. Approve project and site designation scheme

SPC Consensus 03-09-39: The SPC requests the SciMP to draft a scheme for designating expeditions and boreholes in IODP for consideration at the March 2004 SPC meeting.

17. Identify obligations of IODP scientists

SPC Consensus 03-09-40: The SPC recommends the following policy on obligations of IODP scientists for SPPOC approval.

- Scientific Party members must submit their manuscripts, including data reports, within 20 months post-moratorium.
- Scientists receiving samples or conducting nondestructive analyses must publish a peer-reviewed paper in English and submit their data to the IODP database (*e.g.*, IODP Information Services Center) or a progress report to the IODP Curator within 36 months of receiving samples or conducting analyses.
- All publications incorporating IODP data or samples must acknowledge the IODP and be submitted to the IODP Curator.

19. Revisit SPC mandate and conflict-of-interest statement

SPC Motion 03-09-41: The SPC endorses the following revised mandate and terms of reference for itself and forwards them to the SPPOC.

1.1 General Purpose. The Science Planning Committee (SPC) reports to the Science Policy and Planning Oversight Committee (SPPOC) and provides advice to IODP Management International (IMI) and, through IMI, to the implementing organizations on plans designed to optimize the scientific productivity and operational efficiency of the drilling program.

The SPC is specifically responsible for: the custody and initial implementation of the IODP Initial Science Plan; ranking of mature drilling proposals (*i.e.*, those that have undergone external review, been grouped by the Science Steering and Evaluation Panels (SSEPs), and been judged as complete by the Science Advisory Structure (SAS)) that address the scientific themes and initiatives in the IODP Initial Science Plan; advising how these proposals might be most effectively mapped into a drilling plan based on the IODP multiple platform concept; carrying out long-term science planning; fostering communications among and between the general community, the SAS, IMI, and the implementing organizations.

1.2 Mandate. The SPC encourages the international community to develop and submit drilling proposals for the IODP. The SPC can initiate and terminate temporary SAS groups as needed. The SPC recommends SAS membership to the SPPOC, particularly with respect to disciplinary balance. The SPC chair serves as a member of the OPCOM, and the SPC appoints other SPC members to the OPCOM, as defined in the OPCOM mandate. The SPC recommends SAS meeting frequency and timing to the SPPOC. In addition, the SPC may assign special tasks to SAS committees, panels, and planning groups. The SPC approves the chairs of all SAS panels and planning groups. The SPC chair approves the meeting agendas for all SAS committees, panels, and planning groups other than the SPPOC. The SPC sponsors and convenes planning conferences at intervals determined by long-term science plans for IODP. The SPC assigns its own watchdogs to proposals that are forwarded from the SSEPs. The SPC ranks the scientific objectives of the proposals into final priority after they are reviewed by the SSEPs. The SPC approves by at least a two-thirds majority the annual drilling schedule as forwarded from the OPCOM. The SPC nominates chief scientists to the implementing organizations, who make the final selection.

The SPC periodically reviews the IODP SAS in light of developments in science and technology and recommends amendment of the SAS and its mandates to the SPPOC. Much of the work of the SPC is carried out by the commissioning of reports from the OPCOM and the other SAS panels, including both formal and *ad hoc* working groups, *ad hoc* subcommittees of its own membership, and by its chair or vice-chair.

1.3 Structure. The SPC is empowered to modify an infrastructure appropriate to the definition and accomplishment of tasks described in the annual program plan as approved by the SPPOC. Communication with the SAS panels and planning groups is maintained by having their chairs meet with the SPC annually and by assigning SPC members as non-voting liaisons to SAS panels and planning groups as necessary. Where counsel and communication are deemed important, other individuals may be asked to meet *ad hoc* with the committee or its panels.

1.4 Meetings. The SPC meets at least twice a year, normally in March and August. Robert's Rules of Order will govern its meetings and those of all of its subcommittees.

1.5 Membership. The SPC will consist initially of seven members from Japan and seven members from the U. S. All appointees to the SPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. Each member should have a designated alternate to serve in his or her absence. The term of membership will be three years and at least one third of the members shall rotate off the committee annually, so that the SPC membership is replaced every three years. Re-appointment shall be made only in exceptional circumstances. The fields of specialization on the SPC shall be kept balanced as far as possible by requests to national program committees. If an SPC member misses two meetings in succession, the SPC chair or vice-chair will discuss the problem of SAS representation with the appropriate country representative(s) on the SPPOC.

1.6 Liaison. The director of IODP at IMI, the directors of the implementing organizations, or nominees thereof, and representatives of the lead agencies are permanent, non-voting liaison observers. The SPC chair is the liaison to the SPPOC, and the SPC assigns other liaisons to the SSEPs, PPSP, and other SAS panels and groups.

1.7 Vote and Quorum. The SPC shall reach all its decisions by the affirmative vote of at least two thirds of all members present and eligible to vote. A quorum shall equal two-thirds of the committee.

1.8 Chair and Vice-Chair. The SPC chair and vice-chair shall alternate between Japanese and U.S. institutions, excluding the implementing organizations. The vice-chair will replace the chair every two years, with a new vice-chair appointed.

Moore moved, Becker seconded; 14 in favor.

SPC Consensus 03-09-42: The SPC endorses the following principles for a SAS conflict-of-interest policy and forwards them to the SPPOC.

- Proponents or other attendees having a significant conflict of interest regarding a proposal must declare that conflict and should not be present when that proposal is discussed.
- Proponents or other attendees having a significant conflict of interest regarding a proposal cannot participate in the ranking of that proposal.
- Participants in the SAS cannot be regular members of more than one panel.
- Representatives of IMI and implementing organizations cannot serve on SAS panels other than the SPPOC and the OPCOM.

SPC Consensus 03-09-43: The SPC endorses the following two-phase procedure for evaluating proposals and forwards it to the SPPOC.

Phase 1: Watchdog Assignment, Proposal Presentation, and Discussion
All conflicts that might exist with regular and alternate panel or committee members are identified at the outset of Phase 1. The panel or committee chair(s) consult(s) with the SAS Office and assign(s) watchdogs as soon as the relevant proposals are identified. The watchdogs must not have any conflicts with their assigned proposals.

Committee or panel members, liaisons, observers, and guests at the meeting must announce any potential conflict that might appear to exist (*e.g.*, institutional, professional, commercial, or familial relationships with proponents) to the committee or panel chair(s). The chair(s) will determine whether a conflict is considered significant, subject to review by the committee or panel. Any attendees who have a significant conflict with a proposal under review should leave the room during the discussion of that proposal.

Watchdogs will present and discuss their assigned proposals, panel members are invited to provide additional information and to ask questions, and the chair(s) may invite comment or solicit information from guests or observers at the meeting. The panel or committee should discuss the importance of the proposed work relative to achieving the scientific goals of the IODP, the likelihood of significant contributions or discoveries that further our scientific understanding, and the technical challenges or uncertainties that might affect the success of the proposal. They should also discuss the relationship of each proposal to any previous drilling results; however, they should avoid making comparisons to other proposals under review. The chair(s) must ensure compliance throughout the discussion.

Phase 2: SPC Proposal Evaluation, Comparison, Ranking, and Scheduling
All conflicted attendees must leave the room for the entire Phase 2. Voting alternates for conflicted committee members may remain in attendance and will be invited to attend the entire meeting. IODP national committees or consortia should have been consulted regarding how they wish to provide alternate voting representatives.

The committee defines the pool of proposals to be ranked, either by (a) consensus suggested by the chair or (b) vote on each proposal, with a two-thirds vote ensuring inclusion of a proposal in the ranking pool. A watchdog summarizes the discussion of each proposal, emphasizing its strong points and any concerns raised in the earlier discussion. The committee may now discuss the importance of the proposed science relative to other proposals under review.

Following the final discussion, the proposals are ranked from 1 to *N*, where *N* equals the number of proposals selected for ranking and 1 represents the highest rank. Each voting SPC member completes and signs a paper ballot, and the ballots are archived after the meeting in a sealed envelope. The votes are tabulated and the proposals listed in order of mean ranking, with standard deviations and complete placings indicated.

The SPC selects a subset of the ranked proposals to forward to the OPCOM for developing schedule options, then votes to select a recommended schedule from the option(s) presented by the OPCOM. If the SPC does not approve any schedule option, the OPCOM must provide further options.

The watchdogs provide written summaries of the discussions of each proposal, but the SPC cannot return any proposal to the proponents with a requirement for major revision and further review by the SSEPs.

21. Other business

SPC Consensus 03-09-44: The SPC recommends to the SPPOC that the IODP Science Advisory Structure should evaluate, rank, and schedule drilling proposals irrespective of the nationalities of the proponents.

SPC Consensus 03-09-45: The SPC thanks Hokkaido University and the Advanced Earth Science and Technology Organization (AESTO) for their fine hospitality, highlighted by the celebratory banquet in the Elm Restaurant of the Enreiso Faculty Center.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

Enclosure 5B

Report on iPC/SPC/OPCOM meeting, Sapporo 13-19 September 2003

Chris MacLeod & Benoit Ildefonse
ECORD iPC members

The interim Planning Committee (iPC) met for the last time on 13-14 September 2003 at the University of Hokkaido, Sapporo, Japan. The inaugural meeting of iPC's long-term replacement, the Science Planning Committee (SPC) started on 15th. This marks the formal commencement of operation of the Science Advisory Structure (SAS) of IODP, slightly in advance of the establishment of IODP proper on 1st October. From now on the remaining interim panels will be replaced by their permanent counterparts. The new IODP Operation Committee (OPCOM) met on the 18th of September. In this document we report items of significance from the iPC, SPC and OPCOM meetings.

The meeting was attended by only two of the four nominated ECORD iPC representatives: Chris MacLeod (UK ESSAC representative and Vice-Chair) and Benoît Ildefonse (French ESSAC rep). Jeroen Kenter (ESSAC Chair and Dutch rep) and Peter Herzig (German ESSAC rep) were unable to attend and could not arrange replacements.

ECORD representation on SPC and status of Arctic planning efforts

Because ECORD has not yet signed the Memorandum with NSF and MEXT (Lead Agencies, USA and Japan respectively) and formally joined IODP, ECORD iPC members were prevented formally from sitting on SPC or OPCOM. They were denied voting rights also consequently prevented from having any input to the ranking and scheduling of the expeditions that were decided for FY2004/05.

Before the meeting the Director of EMA, Catherine Mével, wrote to NSF and MEXT asking that the ECORD iPC members be allowed to sit on SPC and vote, as a courtesy, given that negotiations between EMA and the Lead Agencies had been scheduled and were about to commence (7-8 October, in Tokyo). In a note delivered to MacLeod and Ildefonse by the NSF representatives (Jamie Allan and Rodey Batiza) and MEXT representative (Yasuhisa Tanaka) the evening before SPC first met this request was, however, rejected out of hand.

However, following this decision the SPC Chair Mike Coffin made it clear that ECORD iPC members were welcome to attend the SPC and OPCOM meetings as guests (when not conflicted) and to participate in discussions as fully as possible.

In his oral presentation to iPC on IODP planning efforts and activities in Europe, MacLeod made it clear that ECORD was unhappy that substantive critical decisions regarding the ranking and hence scheduling (or otherwise) of MSP proposals, and in particular the Arctic MSP drilling proposal (533 Lomonosov Ridge), were consequently to be made without any ECORD representation. He pointed out that proposal 533 had been ranked #1 by SCICOM in 2000 and 2001 and again by iPC in 2002, that on the basis of this ranking detailed logistical planning by ESO was well advanced, and that a decision by SPC/OPCOM now not to recommend scheduling of this expedition would be very damaging to IODP on many levels.

Coffin agreed to our informal request that proposal 533 should be regarded as in its implementation phase and thus that it wouldn't need to be re-ranked by SPC or considered further by OPCOM. A letter expressing the same view was also sent to Coffin by Jimmy Kinoshita on behalf of the IMI Board of Governors. Coffin put this formally to SPC and the motion was passed unanimously.

This allows ESO to continue its planning efforts. However, Allan (NSF) warned that not only would the Arctic project plan need to be accepted by SPPOC (Science Program Planning and Oversight Committee) and IMI in time for the FY04 Program Plan to be finalised at the beginning of November 2003 but that EMA would have needed either to have signed or else be on the verge of signing an agreed IODP Memorandum with NSF and MEXT by this time, or else the Arctic drilling could not be an IODP operation. SPC has commissioned an 'Arctic Project Scoping Group', to be chaired by Keir Becker, which will meet in late October in Edinburgh to review ESO's operational plan.

It should also be noted that ECORD will not be entitled to representation on any SAS panels except as guests and observers until the official Memorandum is signed. The number of panel representatives ECORD has thereafter is to be agreed at the Tokyo talks. The ruling on numbers of representatives strictly applies only to the decision-making panels: SPC and the SSEPs (Science Steering and Evaluation Panels). The service panels are not restricted to national quotas but may request or appoint as many people as they require. ECORD representation on the service panels will be determined by ESSAC.

Status of planning activities in Japan

The USA and Japan formally signed the Memorandum establishing IODP on 19th June 2oo3. The riser-drilling vessel "Chikyu" underwent navigational sea trials in May-June 2003 and is now in dry-dock in Nagasaki having large drilling equipment fitted. The rig floor was installed in August and the derrick will be fitted at the end of September. The ship will be complete in 2005 and ready for scientific operations in 2006.

The core repository at Kochi University was completed in March 2003 and formally opened in May. All laboratory facilities on Chikyu are replicated at Kochi.

Personnel changes at MEXT were outlined, most significant being the appointment of Mr Yasuhisa Tanaka, the new Director for Deep-Sea Research. He serves under the Director of the Ocean and Earth Division, Mr. Daisuke Yoshida. Mr Tanaka comes from a background in forestry science and is new to IODP. Both he and Mr Yoshida are likely to be the main MEXT negotiators, along with Bruce Malfait from NSF, in the Memorandum talks in October in Tokyo.

J-DESC (Japan Drilling Earth Science Consortium) is a new consortium of universities and other interested parties (constituted in April 2003) that decide upon panel representation and other scientific matters in IODP Japan. It is broadly equivalent to USSAC and hence ESSAC. It is led by Hidekazu Tokuyama of ORI in Tokyo.

Status of planning activities in the USA

Rodey Batiza has replaced Paul Dauphin as head of NSF science support and grants, including responsibility for IODP, which is directed by Jamie Allan.

The Systems Intregration Contractor (SIC) was chosen by NSF following competitive tender. It will be the JOI Alliance, a partnership between JOI, TAMU and LDEO, and headed by Steve Bohlen, the present President of JOI Inc. in Washington DC. Contract negotiations are presently under way. NSF has also issued a solicitation for a US science support programme, worth $15M for FY04-FY06, and JOI are planning to bid for this.

Because of delays in procuring funds for a permanent new non-riser drilling vessel for IODP, probably until 2006, the JOIDES Resolution will be retained for 12 months for scientific operations in parts of FY04 and FY05. It is planned that operations – the first in IODP – will start in June 2004. For this reason SPC and OPCOM were requested by IMI to develop a programme schedule for this period (outlined below).

<u>IMI report</u>

Jamie Austin (University of Texas at Austin) is acting as interim IMI director until a replacement is found and a permanent central management office (CMO) is finally established. This should be in place from about February 2004 onwards. The Japanese office of IMI ('IMI-J') is to be established at the University of Hokkaido in Sapporo. Members of the iSAS Office will relocate there in early 2004. Hans Christian Larsen is tipped to be IMI-J Vice-President, and Manik Talwani President, though this is to be confirmed.

SPPOC will meet on 5-6 December 2003 in San Francisco to review and approve the FY2004 program plan before forwarding it to the IMI BoG and ultimately the Lead Agencies for final approval and thence implementation. SPPOC does not at this time have representation from outside the USA and Japan, but it hopes that this will change as soon as possible. ECORD institutions may only join IMI as Associate Members until such time as ECORD formally joins IODP.

The Implementing Organisations (IOs) met recently in Bozeman Montana to discuss operational matters and items such as health, safety and environmental policies. ESO were fully represented at the meeting. The IOs will continue to meet with the CMO on a regular basis, with liaisons from the SAS (especially SciMP) present where appropriate.

<u>Other nations: status reports</u>

The ECORD report to iPC was presented by MacLeod. It outlined the structure of ECORD, the present situation regarding the ECORD internal Memorandum, Arctic planning efforts, and the activities leading up to the impending negotiations with NSF and MEXT concerning ECORD's membership of IODP. Concerns raised regarding the non-representation of ECORD in the SAS were outlined above.

Canada is still pursuing IODP membership from a variety of funding sources through the newly established Canadian Consortium for Ocean Drilling (CCOD). Its preferred option is to seek membership via ECORD.

In China the IODP Initial Science Plan has recently been translated into Chinese and publicised. It was reported by Jamie Austin (as IMI interim Director) that China has been granted Associate Member status of IODP directly by the USA and Japan, though no details were given and nothing had been tabled to this effect in any of the documentation for this meeting.

Suggested changes to panel operation

J-DESC recently circulated a document via the SSEPs proposing a number of subtle but significant changes to the workings of the scientific advisory structure. The document demonstrates the deep concerns felt by Japanese panel members about the workings of the SAS and the means of evaluating proposals. Some clearly felt intimidated about speaking up and debating issues, especially in front of the largest panels such as the SSEPs, and felt that this disadvantaged the Japanese and Japanese proposals. The J-DESC document was discussed at length by iPC and a number of possible means of improving the situation were proposed. There was no agreement from the non-Japanese members that the size of the SSEPs should be reduced and that external review should be increased, because that would undermine the unique role the SSEPs play in nurturing proposals (and which should actually benefit Japanese proponents). In response to the proposed change of a 'western debating style' for a 'UN-style' of debate, no-one could actually define precisely what the latter meant; however, it was agreed that panel chairs had a vital role to play in ensuring that the language used by native English speakers was as clear as possible and that they be proactive in ensuring that all panel members were fully engaged in the scientific debate. It was also felt that the use of small working groups during parts of the SSEPs meetings was effective. iPC did not feel that a request to set up a third SSEP to deal just with deep biosphere proposals was a good idea, at least for now; instead it emphasised that with the multi-disciplinary nature of most proposals it was even more important that proposals were not evaluated on an arbitrary discipline-specific basis.

Panel reports

A large number of panel reports and recommendations were received and discussed by iPC and then SPC. Among the more significant items were the following.

– proposal for the establishment of an 'Information Services Centre' answerable to IMI, though liaising with SciMP and the Operators, which is responsible for all curation, database management, publication etc. for all platform operations within IODP. This is to be debated further.

– clarification of the status of Site Survey Panel (SSP) and Pollution Prevention & Safety panel (PPSP) rankings of proposed drill sites. It was felt by iPC/SPC that SSP had the power only to make recommendations, and its primary role was to assess whether the site survey information was sufficient to allow the proposed science to be carried out. SPC had the authority to override their recommendations if it saw fit. PPSP, on the other hand, could and did make requirements for site survey information on safety grounds, and they had the authority to prevent sites from being drilled.

– clarification of the procedure regarding the designation of complex drilling proposals (CDPs). By consensus it was decided that a CDP was defined as a project with "an overarching scientific goal and pathway involving a series of interlinked components, each achievable in a reasonably short time, and an overall goal that is not achievable as a series of stand-alone projects". Potential CDPs are identified by the SSEPs and should be presented by the SSEPs co-chairs to SPC for designation after submission of a CDP umbrella and at least one component proposal. SPC designation is not necessary for SSEPs to continue nurturing the component proposals. SPC's role is two-fold: firstly, in designating a proposal as a CDP (as above); secondly, in recommending to SPPOC that funds be committedbased upon evaluation and ranking of externally reviewed proposals. Designation of a CDP does not at that stage commit to it.

Proposal ranking

Seventeen proposals were forwarded by the SSEPs to SPC for ranking and possible scheduling at the Sapporo meeting. As mentioned above, proposal 533 Lomonosov Ridge (Backman et al.) was considered to be in its implementation phase and thus not reconsidered. Presentations of the remaining 16 were made to SPC and the proposals were ranked by secret ballot of the non-conflicted members. Members and guests that were conflicted were barred from the discussions and the entire ranking process. The proposals were ranked from 1 to 16 by each delegate. The results were as follows:

rank:	proposal:	title:	lead proponent:	mean:	st dev:
#1.	519 (MSP)	S Pacific sea level	Camoin	4.43	2.56
#2.	512	Atlantis oceanic core complex	Blackman	4.57	3.16
#3.	545	Juan de Fuca hydrogeology	Fisher	4.64	3.88
#4.	564 (MSP)	New Jersey shelf	Miller	5.21	3.81
#5.	589	Gulf of Mexico overpressures	Flemings	6.21	5.22
#6.	553	Cascadia gas hydrates	Riedel	8.14	4.00
#7.	572	Late Neogene-Quaternary chronology	Channell	8.64	3.67
#8.	482	Wilkes Land Antarctic	Escutia	8.79	4.59
#9.	543	Site 643 CORK	Harris	9.14	3.96
#10.	547	Oceanic sub-surface biosphere	Fisk	9.50	3.25
#11.	595	Indus Fan/Murray Ridge	Clift	9.57	3.13
#12.	584	TAG II hydrothermal	Rona	10.21	3.14
#13.	557	Storegga slide	Andreassen	11.14	3.48
#14.	581 (MSP)	Coralgal banks	Droxler	11.14	3.98
#15.	548 (MSP)	Chicxulub	Morgan	11.57	5.77
#16.	573	Porcupine Bank	Henriet	13.07	3.67

Proposals ranked #1–#12 were forwarded to OPCOM for possible scheduling; of these rankings #1–#5 were assigned highest priority.

OPCOM met immediately after the SPC ranking meeting in order to put together a provisional schedule for JOIDES Resolution for FY04-05. They considered practical matters such as weather windows, a feasible ship track (minimising transits), and financial considerations (presented by Jack Baldauf, TAMU/JOI Alliance) based upon the complexity of the operations proposed. JOIDES Resolution will be in Japan at the start of the scheduling period. It was also emphasised that an "expedition" should not necessary be restricted to a 2-month Leg, as in ODP. Instead, it should be planned so as to maximise the chances of fulfilling the scientific objectives of each proposal. OPCOM's preferred scenario, agreed by SPC, was as follows:

June–Aug 04	545	Juan de Fuca hydrogeology	Fisher
Sept–Nov 04	572	Late Neogene-Quaternary chronology – I	Channell
Nov 04–Jan 05	512	Atlantis oceanic core complex – I	Blackman
Jan 05–Mar 05	512	Atlantis oceanic core complex – II	Blackman
Mar 05–May 05	572+543	Late Neogene-Quaternary chronology – II + CORK	Channell/Harris

This programme plan will go forward to SPPOC for approval in early November 2003. No MSP proposals were considered for scheduling; however, SPC will write to ECORD/ESO urging them to commence planning for proposals #519 (S Pacific sea level) and #564 (New Jersey) as soon as is feasible. Significantly, these two proposals will be automatically forwarded to OPCOM for scheduling at their next meeting without requiring re-ranking (as will Gulf of Mexico Overpressures proposal 589 – i.e., the three top-ranked proposals that were not scheduled). This gives ECORD and ESO a formal mandate to plan and schedule these operations without further input from SPC (though requiring approval from SPPOC before being incorporated into a programme plan).

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 6A

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING
of
European and Other Funding Organisations
on
Membership and Operation of ECORD
in the
Integrated Ocean Drilling Program (IODP)

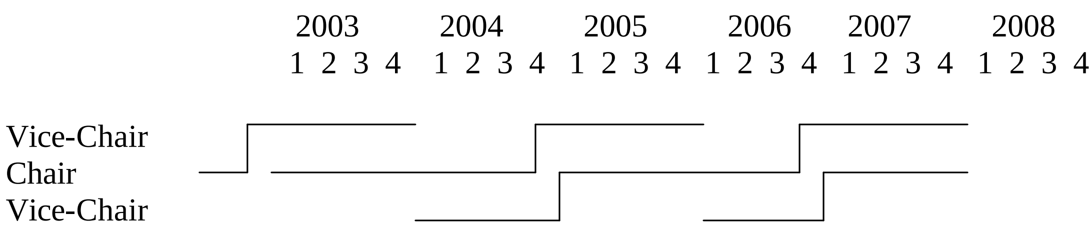
ANNEX D

ECORD Science Support and Advisory Committee (ESSAC)
Terms of Reference

A. Representation

1. The ECORD Science Support and Advisory Committee (ESSAC) consists of a national delegate and an alternate from each participating country in the European Consortium for Ocean Research Drilling (ECORD) appointed by the respective Member Organization(s). Alternates can attend, when in addition to delegates, as non-voting members. Additional non-voting representation may be invited on an ad hoc basis. Terms of office of Committee members will be reviewed every three years. It is advised that there is rotation where possible and that no more than one-third of the membership is replaced each year. The first rotation will be in 2005 after an appointment of 2 years. Terms of office will normally begin in October.

2. A Chair and Vice-Chair shall be elected from among ESSAC members and approved by the ECORD Council. The incoming Chair serves one year as Vice-Chair followed by two years as Chair and rotates off as Vice-Chair during the fourth year (see diagram below). They may not self-succeed. The Chair shall be responsible for reporting to the ECORD Council and liaising with the European Managing Agency (EMA) and European Science Operator (ESO).



3. ESSAC's representation in the Science Planning Committee (SPC) should as a minimum comprise the Chair or the Vice-Chair.

B. Division of membership benefits

1. The IODP assigned quota of Leg participants granted to ECORD shall reflect the financial contributions of each member country and specific interests of each participating country over a rolling three-year period.. ESSAC, in consultation with EMA, shall annually review the division effective as of 1 October 2004 and make recommendations in view of the above target ratio and of specific drilling interests.

2. The delegates and alternates on IODP Science Advisory Structure (SAS) panels shall be designated by ESSAC based on national nominations, authorised by ECORD Council and reflect the financial contribution of each participating country: for the first four years the contribution specified in the MOU and thereafter the contribution over a rolling three year period. Normally all ECORD representatives on SAS bodies shall serve for a three-year period and may not be re-appointed for a second consecutive term.

C. Obligations of ESSAC delegates

3. To ensure that all IODP and ECORD meetings are attended by the delegates or by their alternates. If neither can participate the relevant committee shall be informed and, if possible, a substitute nominated.

4. To ensure that the scientific interests of ECORD as a whole are presented by whoever attends SAS meetings on behalf of ECORD.

5. To ensure that minutes of meetings are distributed to their alternate and to the ECORD bodies.

6. To submit a short written report to ESSAC within two weeks of the meeting.

5\. To be prepared to attend ECORD workshops and report to ESSAC when requested.

D. Voting

A quorum is required before decisions can be taken. There is no power of attorney for absent members. A quorum requires the presence of a majority of the members. Where possible ESSAC shall proceed by consensus; if this is impossible there shall be a majority vote. Each delegate present has one vote and the Chair has a casting vote. If no decision is reached, the issue will be passed to ECORD Council.

E. Secretariat

The Secretariat shall be determined by the ECORD Council and located with the ESSAC Chair. It will be funded from the budget of the EMA. It shall rotate, on a two-yearly basis, with the Chair of ESSAC. The budget shall be sufficient to provide for a science coordinator with a scientific background, the full cost of maintaining an office and resources to compensate the Chair.

F. Tasks

ESSAC is responsible for the scientific planning and coordination of Europe's contribution to and participation in IODP. The main purpose of ESSAC is to maximize ECORD's scientific and technological contribution.

ESSAC is responsible for:

- Advising ECORD funding organisations on IODP issues.
- Responding to the ECORD Council on requests for evaluation of its activities and initiation of evaluations of the European scientific input to IODP.
- Interacting with the appropriate IODP bodies, in particular the IODP scientific bodies.
- Reporting to the ECORD Council.
- Liaising with the EMA and ESO.
- Nominating representatives (delegates and alternates) on SAS panels.
- Co-ordinating applications, nominating shipboard participants and reviewing the division of the quota of shipboard scientists between participating countries.
- ESSAC shall assist the ESO in preparing a Science Operations Plan for MSP Operations.
- Assist and advise EMA on the formulation of proposals for funding European related infrastructure.
- Initiating and monitoring Workshops and syntheses of European IODP programs.
- Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP Initial Science Plan and encouragement of IODP-related activities among participating countries.
- Encourage (a) innovative science and technology development, and (b) the formulation of long-term integrated IODP studies.
- Assist and advise the EMA and ESO on the public outreach.
- Assist and advise the EMA on extending the scientific base of the consortium to non-member countries.

G. Proceedings

1. ESSAC shall meet a minimum of two times each year. Meetings are called at the request of ECORD Council, at the initiative of the Chairman, or at the request of one-fourth of the members. The ordinary agenda shall include:
    - Reports from recent SAS meetings;
    - Staffing nominations, progress and evaluation;
    - Planning of ECORD initiatives for forthcoming SAS meetings;
    - Reports from completed legs;
    - Any other task as set down above.

2. ESSAC can implement working groups and define their terms of reference.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 6B

Draft list of ESSAC Members (as of October 23 2003)

Incomplete and question marks where uncertain

Country	Delegate	E-mail	Alternate	E-mail
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France	Gilbert Camoin	gcamoin@arbois.cerege.fr	Benoit Ildefonse	Benoit.Ildefonse@dstu.univ-montp2.fr
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United Kingdom	Chris MacLeod 2)	macleod@cf.ac.uk	Paul Wilson	paw1@soc.soton.ac.uk

1) Chair
2) Vice-Chair
3) Pending approval national IODP Office
4) Pending internal IODP Canada Consortium decision

Potential members	status of membership
Austria	interested
Belgium	applying for 2005
Ireland	final decision pending
Canada	final decision pending
Turkey	interested
Greece	pending

Official letter
Pending

ESSAC delegates/alternates addresses (as of 20 October 03)

Incomplete and question marks where uncertain

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Sweden alternate pending								
Denmark delegate pending								
Denmark alternate pending								
Pending temp Anders Solnheim								as@ngi.no
Pending temp Rolf Pedersen								

1) delegate
2) alternate

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
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Enclosure 7A

Science Planning Committee (SPC) Meeting Sapporo 18 September 03

SPC ranked 16 proposals; OPCOM's preferred scenario, agreed by SPC, was as follows:

June–Aug 04	545	Juan de Fuca hydrogeology	Fisher
Sept–Nov 04	572	Late Neogene-Quaternary chronology – I	Channell
Nov 04–Jan 05	512	Atlantis oceanic core complex – I	Blackman
Jan 05–Mar 05	512	Atlantis oceanic core complex – II	Blackman
Mar 05–May 05	572+543	Late Neogene-Quaternary chronology – II + CORK	Channell/Harris

No MSP proposals were considered for scheduling; however, SPC will write to ECORD/ESO urging them to commence planning for proposals #519 (S Pacific sea level) and #564 (New Jersey) as soon as is feasible. Significantly, these two proposals will be automatically forwarded to OPCOM for scheduling at their next meeting without requiring re-ranking (as will Gulf of Mexico Overpressures proposal 589 – i.e., the three top-ranked proposals that were not scheduled).

UK
Ge
Fr

Science Planning Committee (SPC) Meeting Sapporo 18 September 03

1) For FY04 3 Legs are scheduled

Sept-Nov 04	572	Late Neogene-Quarternary chronology I	Channel
August 04	533	Lomonosov Ridge	Backman
June–Aug 04	545	Juan de Fuca hydrogeology	Fisher

UK
Ge
Fr

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Enclosure 7B

	2003/04	Arctic		
UK	1.5	1		
Germany	0.75	0.75		
France	2			
Sweden	0.33	0.9		
Norway	0.3	0.7		
Finland	0.06			
Netherlands	**0.32**	0.21	includes additional 0,05	
Italy	0.15			
Denmark	0.5			
Belgium	0.05			
Portugal	0.09			
Ireland	0.03			
switzerland	0.15			
Spain	0.15			
Iceland	0.03			
	6.41	**3.56**		
	-0.06		NL contribution to ESSAC office	
	0.325		Possible Canadian contribution	
	0.75		Possible contribution BMBF Germany 50%	
	-0.05		Belgium is not able to enter programme before 2005	
	7.375	**3.56**	**10.935**	**Revised budget 2004 possible for Arctic**
	-0.075		CNR contribution Italy not yet secured	
	-0.325		Canadian contribution not secured	
	-0.03		Ireland not yet secured	
	-0.75		German contribution BMBF not yet secured	
	6.195	**3.56**	**9.755**	**Minimum budget secured funding**
			12.301	**Provisional budget for Arctic drilling**

	2004/05	2005/06	2006/07	2007/08	FY starts
UK	2.5	3.5	3.5	5.6	
Germany	1.75	1.75	1.75	2.8	1/7 or 1/1
France	2	2	2		01-Jan
Sweden	0.33	0.33	0.33		01-Jan
Norway	-	0.7	0.7		01-Oct
Finland	0.06	0.06	0.06		01-Jan
Netherlands	-	0.21	0.21	0.4	01-Jan
Italy	0.15	0.35	0.35		
Denmark	0.5	0.5	0.5		
Belgium	0.05	0.05	0.05		01-Jan
Portugal	0.09	0.09	0.09		01-Jan
Ireland	?	?	?		
switzerland	0.35	0.35	0.35		01-Oct
Spain	0.35	0.35	0.35		
Iceland	?	?	?		
	8.13	**10.24**	**10.24**	**8.8**	
Germany	1.75	1.75	1.75		
France	1	1.5	1.5		
Canada	0.3	0.3	0.3		
total	3.05	3.55	3.55		
total	11.18	13.79	13.79		
SOCs	7	7	16.8		
POCs	4.18	6.79	-3.01		

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European Consortium for Ocean Research Drilling

Enclosure 7C1

Information for U.S. Participation in IODP Expeditions (draft website)

New application procedure
Until NSF names an awardee for the U.S. Science Support Program for the Integrated Ocean Drilling Program (USSSP-IODP), JOI, which continues to manage the USSSP-ODP, will serve as the "National Office" for U.S. participation in IODP. As such, JOI will coordinate staffing of U.S. participants on IODP vessels. Staffing decisions are made in consultation with the U.S. Science Advisory Committee (USSAC), co-chief scientists, the implementing organizations (JOI Alliance for the non-riser vessel, ECORD Science Operator for mission-specific platforms, and CDEX for the riser vessel Chikyu), and the IODP Central Management Office. Final responsibility for providing USSSP support for successful applicants rests with JOI, and final staffing authority lies with the respective implementing organization. Staffing for expeditions begins 6-9 months precruise. Texas A&M University, which formerly coordinated U.S. staffing for ODP cruises, will no longer accept applications from U.S. community members. To learn more about IODP, see http://www.ig.utexas.edu/imi/ and http://www.iodp.org.

Who can apply?
USSSP-IODP sponsored participation on IODP expeditions is open to scientists and engineers (professors, research scientists, technologists, graduate students, etc.) affiliated with U.S. institutions (U.S. academic institutions, government labs, U.S.-based corporations, etc.). USSSP-IODP will provide travel and salary support to approved members of the scientific expedition party eligible to receive such support. Party members may also be qualified to apply to JOI for USSSP-IODP post-expedition science research funding, in order to meet their obligations to IODP as members of the expedition party.

Non-U.S. affiliated personnel from other IODP member countries should apply for IODP participation through their country's national program office.

When do expeditions begin?
IODP expeditions will begin in late June, 2004, and applications for participation are currently being accepted. The operations schedule for the non-riser vessel (JOIDES Resolution for the first year) is preliminary, and specific sail dates and ports of call have not yet been finalized. Updated information will be provided when available.

Application forms and instructions

Staffing contact: staffing@joiscience.org

Draft Operations Schedule (10/09/03)

Non-riser vessel (JOIDES Resolution): Expedition Name Port (Origin)
Tentative Dates Days at Sea (transit/
operations)
Description
Juan de Fuca Victoria 24 June-25 August, 2004 3/53 Conduct hydrologic, microbiological, seismic, and tracer studies to evaluate formation-scale hydrogeologic properties within oceanic crust. Proposal abstract and Scientific prospectus
North Atlantic I St. John 's 26 September-12 November, 2004 15/32 Investigate Late Neogene-Quaternary stratigraphic records of millennial-scale environmental variability, and document the details of geomagnetic field behavior. Proposal abstract and Scientific prospectus
Ocean Core Complex I Ponta Delgada 14 November, 2004-8 January, 2005 10/40 Drill two sites on the MAR, to document the conditions under which oceanic core complexes develop and characterize the nature of the alteration front within oceanic peridotite. Proposal abstract and Scientific prospectus
Ocean Core Complex II Ponta Delgada 8 January-3 March, 2005 8/41
North Atlantic II Ponta Delgada 3 March-26 April, 2005 15/34 Install a borehole observatory in ODP Hole 642E.to investigate bottom water temperature histories. Proposal abstract and Scientific prospectus

Detailed operations schedule information

Mission-Specific Platforms:
Arctic: Lomonosov Ridge (Tentatively scheduled for August September, 2004 Proposal abstract)

Riser vessel (Chikyu):
None currently scheduled (riser operations expected to commence in 2006).

The links below will be activated as soon as possible:
If you are scheduled to sail on an IODP Expedition

Sample requests
Scientific Prospectus (expedition objectives)
Physical examination information
Travel and port-call information
Pre-expedition information and sailing checklist
Responsibilities of non-riser shipboard scientists
Non-riser Shipboard Laboratory Equipment
Non-riser Shipboard Laboratory Virtual Tour
Non-riser Shipboard Computing
Science Services staff
Information Services staff
Human Resources and Travel staff
After you have sailed on an IODP expedition

Expense account information
Janus database
Core repositories
Sample requests
General information on Completed IODP Expeditions
Preliminary Report (preliminary leg results)
Initial Reports (extensive leg results)
Scientific Results (research papers)
Sample, Data, and Publications Policy
Author Instructions
Manuscript submission deadlines
Online manuscript submission
Science Services staff
Publication Services staff
Travel Staff
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ECORD
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Enclosure 7C2

November 7th, 2003

J-DESC's views of IODP staffing procedures

Japan Drilling Earth Science Consortium

- The IMI will perform as a "Central IO office" proposed by ESSAC. The functions of the "Central IO office" are IO coordination and clearinghouse for applications from all country/consortia. We expect the functions will be performed as a part of IMI "Science Planning and Services" (IMI-J).
- The science organizations (USSAC, ESSAC and J-DESC) will nominate scientists with optional ranking. Science Party of each drilling project (both shipboard and shore-based scientists) will be selected by co-chief scientists and IO (Staff Scientist) like ODP manner.

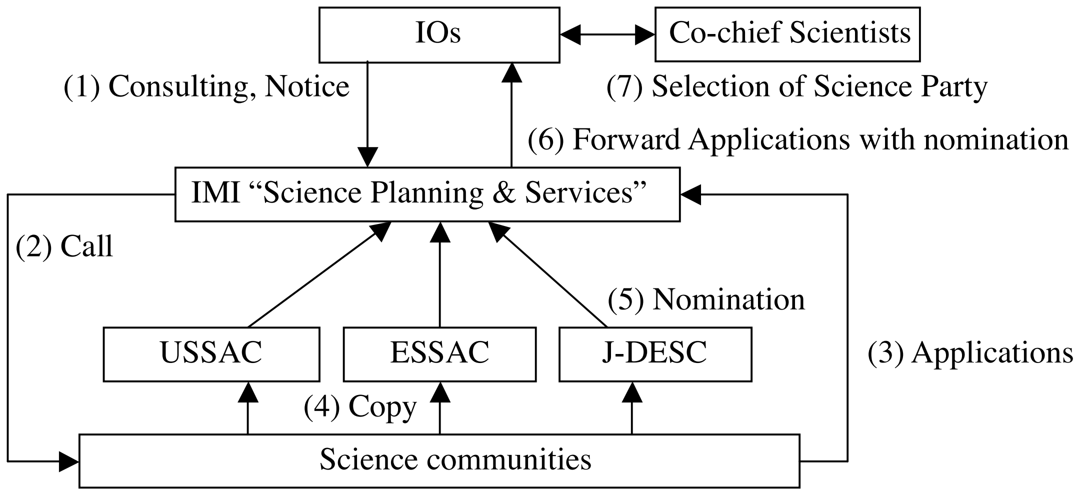

Fig. "Simple" structure of staffing procedures.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
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Enclosure 7C3

Inaugural Integrated Ocean Drilling Program Expeditions to Drill the Pacific, Arctic, and Atlantic Oceans in 2004/2005

Millard F. Coffin
Chair, Science Planning Committee, Science Advisory Office, Integrated Ocean Drilling Program, Ocean Research Institute, University of Tokyo, Japan;
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The Integrated Ocean Drilling Program (IODP; www.iodp.org), an international collaboration of earth, ocean, and life scientists, commenced on 1 October 2003. Building upon the successes of previous scientific ocean drilling programs, the IODP offers scientists worldwide unprecedented opportunities to address a vast array of scientific problems in all submarine settings. The scientific advisory structure of the proposal-driven IODP recently planned the inaugural drilling expeditions, targeting critical scientific problems in the eastern Pacific, central Arctic, and North Atlantic Oceans in 2004 and 2005.

Co-led by Japan and the United States, with initial significant contributions from the European Consortium for Ocean Research Drilling, the IODP is guided by an initial science plan, *Earth, Oceans, and Life* (www.iodp.org/isp.html), developed with broad input from the international geoscientific community. For the first time, scientists will have permanent riser and riserless drilling vessels, and mission-specific capabilities (e.g., drilling barges, jack-up rigs, seafloor drilling systems) at their disposal. Japan is providing the new riser vessel, *Chikyu*, to the IODP; the United States is supplying the riserless drilling vessel, currently JOIDES *Resolution*; and the European Consortium for Ocean Research Drilling (ECORD) is furnishing mission-specific platforms.

The planned IODP expeditions directly address principal themes of *Earth, Oceans, and Life*.

- The Juan de Fuca Ridge Flank Hydrogeology expedition addresses themes relating to the deep biosphere and the subseafloor ocean.
- The Central Arctic Paleoceanography, North Atlantic Neogene-Quaternary Climate, and Norwegian Margin Bottom Water expeditions address themes relating to environmental change, processes and effects.
- The Atlantis Oceanic Core Complex expedition addresses themes relating to solid earth cycles and geodynamics.
- In addition, the Central Arctic Paleoceanography expedition will drill the central Arctic Ocean for the first time, and also represents the first-ever dedicated mission specific platform expedition performed under the auspices of international scientific ocean drilling.

Summaries of the scientific objectives of the FY04 and FY05 expeditions are as follows:

Juan de Fuca Ridge Flank Hydrogeology Expedition

This multidisciplinary research endeavor will evaluate the formation-scale hydrogeologic properties (transmission, storage) within oceanic crust; determine how fluid pathways are distributed within an active hydrothermal system; establish linkages between fluid circulation, alteration, and geomicrobial processes; and determine relations between seismic and hydrologic anisotropy. To accomplish these goals, two existing sub-seafloor observatories penetrating the upper crust will be replaced, and two new holes will be drilled, cored, sampled, instrumented, and sealed. The first multi-dimensional, cross-hole experiments ever attempted in oceanic crust will be conducted, including hydrologic, microbiological, seismic, and tracer components. Following drilling, multiyear tests using this network of sub-seafloor observatories will allow examination of a much larger volume of the crustal aquifer system than has been tested previously. By monitoring, sampling, and testing within multiple depth intervals, the extent to which oceanic crust is connected vertically and horizontally; the influence of these connections on fluid, solute, heat, and microbiological processes; and the importance of scaling on hydrologic properties will all be evaluated. The study area is characterized by (a) thick sediment cover isolates permeable basement, allowing small pressure transients to travel long lateral distances, (b) outstanding coverage of seismic, heat flow, coring, geochemical, and observatory data allowing detailed hypotheses to be posed and tested, (c) existing drill holes and long-term observatories providing critical monitoring points for pre- and post-drilling experiments, (d) a naturally over-pressured formation that will drive multi-year, cross-hole experiments, and (e) a planned, cabled seafloor observatory network that will facilitate long-term experiments, data access, and instrument control. This expedition and associated work will elucidate the nature of permeable pathways in the crust, the depth extent of circulation, the importance of permeability anisotropy, and the significance of hydrogeologic barriers in the crust. It will demonstrate where viable microbiological communities live and how these communities cycle carbon, alter rocks, and are influenced by flow paths. It will also quantify lateral scales over which solute transport occurs, the extent of flow channeling and mixing in the crust, and how these processes relate to rock structure and fabric, and it will determine how to relate seismic velocities and velocity anisotropy to hydrogeologic properties.

Central Arctic Paleoceanography Expedition

The Lomonosov Ridge in the central Arctic Ocean rifted and separated from the continental shelf of the Kara and Barents Sea during early Paleogene time, and subsequently has subsided to its present water depth. Sediment of biogenic, eolian, and ice-rafted origin has accumulated on the ridge crest. Five drill sites on the Lomonosov Ridge crest, all in international waters, are distributed between 81°N and 88°N, in water depths ranging from 800 to 1415 m. Sampling of the entire Cenozoic sediment section will provide an unprecedented and unique opportunity to acquire first-order knowledge about the paleoceanographic history of the central Arctic Ocean. Sampling of the underlying bedrock will provide a similarly unique opportunity to decipher the tectonic history of the Lomonosov Ridge and the formation of the Eurasian Basin. Scientific objectives are to investigate: a) the long-term (<50 Ma) climate history of the central Arctic Ocean and its role in the transition from one global climate extreme (Paleogene greenhouse, lacking glaciation) to another (Neogene icehouse with bipolar glaciation), b) the shorter-term (Neogene) climate history, connecting the Neogene history of the Arctic Ocean to that of the

North Atlantic Ocean at sub-millennial scale resolution, c) the composition and origin of the pre-Cenozoic bedrock underlying the sediment drape, and d) the rifting and subsidence history of the Lomonosov Ridge. The widely spaced latitude and partly overlapping goals of the five drill sites will make the overall expedition less vulnerable to severe local ice conditions. The major goals can be achieved by completing a single site, but if ice conditions prohibit success at this site, a suite of sites from other areas along the Lomonosov Ridge corridor will be drilled to achieve the proposed science.

North Atlantic Neogene-Quaternary Climate Expedition

The objectives of this North Atlantic expedition are to intercalibrate late Neogene-Quaternary geomagnetic paleointensity records, isotope stratigraphies, and regional environmental stratigraphies and thereby develop a millennial-scale stratigraphic template for the past few million years. Such a template is required for understanding the relative phasing of atmospheric, cryospheric, and oceanic changes that are central to our understanding of the mechanisms of global climate change on orbital to millennial time scales. In addition, the high-resolution records of directional, secular variation and geomagnetic paleointensity will greatly improve our knowledge of the temporal and spatial behavior of the geomagnetic field, as well as provide fundamental constraints for numerical models of the geodynamo. Previous drilling and piston coring results indicate that the proposed drill sites (a) contain distinct records of millennial-scale environmental variability in terms of ice-sheet–ocean interactions, deep circulation changes, and sea-surface conditions, (b) provide the requirements for developing a millennial-scale stratigraphy through geomagnetic paleointensity, oxygen isotopes, and regional environmental patterns, and (c) document the details of geomagnetic field behavior. The seven drill sites are located in the Irminger Basin, on the Eirik Drift, off Orphan Knoll, on the southern part of the Gardar Drift, and at Deep Sea Drilling Project Site 607/609. These sites preserve components of ice-sheet–ocean interactions, with potential for chronological control through stable isotopes and geomagnetic paleointensity. Some are located within the North Atlantic belt of ice-rafted debris, between previous drilling sites to the north (60 to 77˚N; Ocean Drilling Program (ODP) Leg 162) and south (30 to 35˚N; ODP Leg 172). The sites also lie in an appropriate bathymetric depth range (2750 to 3719 m) for detecting millennial-scale changes in the formation of deep and intermediate water masses.

Atlantis Oceanic Core Complex Expedition

This expedition will investigate the conditions under which oceanic core complexes develop. Domal massifs capped by corrugated, striated detachment faults have been mapped at several locations on the seafloor. These large, shallow seafloor features apparently form as a result of episodic plate rifting and accretion at slow spreading ridges. However, currently available data are insufficient to characterize the magmatic, tectonic, and metamorphic history and understand the mechanisms of uplift and emplacement of oceanic core complexes. By drilling through the basaltic hanging wall of Atlantis Massif, rock from just above the detachment, the shallowest part of the unexposed fault, and through a portion of the fault zone will be sampled. A second goal is to characterize the nature of the alteration front within oceanic peridotite. Oceanic core complexes expose altered upper mantle peridotites and mafic crustal rocks. The alteration of these rocks and the process of serpentinization greatly affect the geophysical properties of the lithosphere. Mantle seismic velocities have been measured at depths as shallow as several hundred meters on the central dome of the massif; therefore, drilling at Atlantis Massif offers an unprecedented opportunity to determine the nature of the Moho, i.e., to test whether it represents a hydration front or the crust–mantle boundary? The potential for recovering fresh peridotite at Atlantis Massif presents excellent opportunities for advances in understanding residual modes and microstructure within the oceanic mantle. Core of essentially fresh, *in-situ* peridotite will allow documentation of composition, microstructure, evidence for melt production and migration, and relationships among deformation, melt, and syntectonic alteration. Drilling a deep hole on the central dome of Atlantis Massif will allow sampling of the detachment fault zone and the alteration front, and will penetrate and enable recovery of unaltered mantle.

Norwegian Margin Bottom Water Expedition

Knowledge of bottom-water temperature (BWT) variations is important for understanding the vigor and nature of ocean circulation as well as the nature of climatic interactions between the ocean and atmosphere. The biggest obstacles to understanding variability in bottom water are (a) the lack of an observational network and (b) historical records that are too brief and too sparsely spaced. This expedition will investigate the feasibility of reconstructing BWT histories on a decadal to centennial time scale by making highly precise temperature measurements in ODP Hole 642E on the Norwegian margin. Because marine sediment has a low thermal diffusivity, variations in BWT propagate slowly downward, perturbing the background thermal field. These temperature anomalies are a direct thermophysical consequence of a changing BWT condition and will be used to reconstruct BWT histories. To ensure a conductive thermal environment, a thermistor string will be isolated between a borehole seal, or CORK (circulation obviation retrofit kit), at the top of the borehole and a packer below the thermistor string. Hole 642E is ideally located in the climatically sensitive Norwegian-Greenland Sea with a 50-year time-series of BWT measurements taken nearby. A sensitivity analysis using observed variations in BWT at this location indicates the presence of a resolvable signal. Thermal transients will be measured as a function of time at this borehole observatory to isolate directly the transient component of BWT variations.

IODP Infrastructure

The infrastructure of the IODP is functional, yet still under development. The science advisory structure (SAS), currently consisting of 10 permanent committees and panels, is chaired by scientists in the Science Advisory Office at the Ocean Research Institute, University of Tokyo from 2003-2005. An interim SAS office (www.isas-office.jp) in Japan accepts new drilling proposals from scientists worldwide, and the SAS evaluates, ranks, and schedules drilling proposals irrespective of the nationalities of the proponents. Applications for participating on IODP expeditions are being accepted by the Japan Drilling Earth Science Consortium (www.aesto.or.jp) for Japanese scientists, Joint Oceanographic Institutions (www.joiscience.org) for U.S. scientists, and ECORD (www.ecord.org) for European scientists. Implementing organizations for the multiple drilling platforms are: the Center for Deep Earth

Exploration of the Japan Marine Science and Technology Center (www.jamstec.go.jp/jamstec-e/odinfo/cdex_top.html) for the riser vessel *Chikyu*; the Joint Oceanographic Institutions Alliance (www.joiscience.org) for the riserless vessel JOIDES *Resolution*; and the ECORD Science Operator (www.jeodi.org/models/inside.php?pgID=48) for mission-specific platforms. An interim office of IODP Management International, Inc. (IMI; www.ig.utexas.edu/imi), at the University of Texas Institute for Geophysics manages the IODP. Establishment of permanent IMI offices in Japan, including a permanent SAS office, and the United States are anticipated by mid-2004.

Acknowledgements

The IODP is supported by the Japanese Ministry of Education, Sports, Culture, Science, and Technology, or MEXT (www.mext.go.jp); the United States National Science Foundation, or NSF (www.nsf.org); and the European Consortium for Ocean Research Drilling, or ECORD (www.ecord.org).

Table 1. Expeditions planned for drilling from mid-2004 through mid-2005

Figure 1. Locations of IODP expeditions planned for mid-2004 through mid-2005.

Table 1. Expeditions planned for drilling from mid-2004 through mid-2005

Expedition	Port (Origin)	Dates	Platform
Juan de Fuca Ridge Flank Hydrogeology	Astoria	21 June - 29 August 2004	JOIDES *Resolution*
Central Arctic Paleoceanography	Stavanger	1 August - 15 September 2004	Drilling Platform + *Oden* + Icebreaker
North Atlantic Neogene-Quaternary Climate (Part I)	Bermuda	13 September - 30 October 2004	JOIDES *Resolution*
Atlantis Oceanic Core Complex (Part I)	Ponta Delgada	30 October - 18 December 2004	JOIDES *Resolution*
Atlantis Oceanic Core Complex (Part II)	Ponta Delgada	18 December 2004 - 10 February 2005	JOIDES *Resolution*
North Atlantic Neogene-Quaternary Climate (Part II) + Norwegian Margin Bottom Water	Ponta Delgada	10 February - 5 April 2005	JOIDES *Resolution*

Fig. 1. Locations of IODP expeditions planned for mid-2004 through mid-2005.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 7C4

ESSAC DRAFT PROPOSAL TO J-DESC, USSAC

Dear All (USSAC and J-DESC Chairs, Coffin, Austin, Moore and others),

I would like to start and open discussion on the IODP staffing procedures of science projects.

The SPC meeting in Sapporo resulted in the provisional scheduling of two JR type legs as well as the Lomonosov Ridge MSP proposal in FY04:

June-Aug 04	#545	Juan de Fuca hydrogeology	Fisher
August 04	#533	Lomonosov Ridge	Backman
Sept-Nov 04	#572	Late Neogene-Quaternary chronology - I	Channell

These projects are coming up very soon and there is an urgent need for clarifying the application procedure(s) to the science communities in Japan, the US and Europe. Currently, to my knowledge, no such centralized procedure exists for IODP. Especially for the Lomonosov Ridge it is very important to invite applications as soon as possible. Since the MOU between EMA, MEXT and NSF has not yet been signed, an expression of interest could replace an official application for Lomonosov until MOUs are signed and the operational plans are approved.

In my view, as Chair of ESSAC, the general procedure is that every IODP scientist sends applications (or expression of interest) to a central IO office (that combines the interests of – and provides administration for - the three IOs) with copies to their respective science organization (J-DESC, USSAC and ESSAC) and the implementing IO (for MSP applications ESO, etc.) for the science project. The science organizations will nominate (with optional ranking) their scientists for all platforms and forward these nominations to the IO office and operator of that particular science project. The specific IO selects scientists (shipboard and shorebased) reviewing expertise, experience, member quota ("Tokyo rules"), preference by co-chief scientists and possible project specific arguments. As during the ODP days now USSAC, ESSAC and J-DESC negotiate with the IO to make sure that internal quota are respected on a longer time period and the nominations are seriously considered.

ESSAC would certainly prefer to publish a joint USSAC/J-DESC/ESSAC call (with information on the science projects including the number of shipboard versus shore based scientists for MSP operations and if needed the required specialties) for applications for scheduled science projects.

Clearly, centralized staffing is a not a short term options since no funding and staff are in place. However, we need to start the discussion as soon as possible. Mike Coffin will publish his thoughts on this topic in the upcoming issue of EOS.

A practical solution for the current staffing of the upcoming projects in FY04 is that the respective science organization (USSAC, ESSAC, J-DESC) generates a call in consultation with the appropriate IO and forwards this call to the associate science organizations. Applications from the IODP community will than be mailed to the respective IO and copied to the science organizations. These will nominate their scientists and copy those nominations to the IO.

As a result, ESSAC is generating an “expression of interest” for the Lomonosov in consultation with ESO that will be mailed to you later today or latest coming Monday.

As regarding the JR-type projects in FY04, we would like to invite USSAC to provide us with a call prior to the upcoming ESSAC Meeting in Amsterdam, November 14-15.

Best regards,

Jeroen

USSAC REPLY TO ESSAC DRAFT PROPOSAL TO J-DESC, USSAC

X-Sender: jfarrell@joiserver.joiscience.org
Date: Fri, 7 Nov 2003 14:54:15 -0500
To: jeroen.kenter@falw.vu.nl, saito@jamstec.go.jp, tokuyama@ori.u-tokyo.ac.jp,
warren_prell@brown.edu
From: John Farrell <jfarrell@joiscience.org>
Subject: Re: Lomonosov Ridge invitation for interest
Cc: jamie@utig.ig.utexas.edu, mcoffin@ori.u-tokyo.ac.jp, devans@bgs.ac.uk,
aki@bgs.ac.uk, mevel@ipgp.jussieu.fr, schorno@nwo.nl,
herzig@mailtuba.tu-freiberg.de, herzig@mineral.tu-freiberg.de,
Benoit.Ildefonse@dstu.univ-montp2.fr, gcamoin@arbois.cerege.fr,
gilbert_camoin@yahoo.fr, MacLeod@cardiff.ac.uk, paw1@soc.soton.ac.uk,
rburger@joiscience.org, Rodey Batiza <rbatiza@nsf.gov>,
Steven Bohlen <sbohlen@joiscience.org>, npisias@joiscience.org,
izumis@jamstec.go.jp
X-Security: MIME headers sanitized on sheba
See http://www.wolfenet.com/~jhardin/procmail-security.html
for details. $Revision: 1.104 $Date: 2000-05-10 08:51:15-07
X-Spam-Status: No, hits=0.1 required=5.0
tests=AWL,EMAIL_ATTRIBUTION,HTML_10_20,HTML_FONT_BIG,
HTML_MESSAGE,IN_REP_TO,REFERENCES,REPLY_WITH_QUOTES
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

November 7, 2003
Dear Jeroen and others,

Thank you very much for proposing a staffing procedure for IODP. We applaud your initiative and your spirit of collaboration. I write in response on behalf of Warren Prell, USSAC Chair, and myself, JOI's USSSP Director.

In short, we agree that it's essential to develop a robust and effective procedure for IODP staffing in a collaborative effort with other IODP members. As you have noted, we also recognize the urgency of establishing a short-term, practical solution to staffing, in light of upcoming IODP expeditions in 2004-2005. There is, as well, a need to develop a process that can be implemented once all IODP entities (such as IMI, which will provide the CMO) have been fully established. Until IMI is up and running, we will need to have close interaction between the national/consortium programs (i.e., USSAC, JDESC, and ESSAC) and the Implementing Organizations (i.e., JOI Alliance, ESO, CDEX).

During the Conference on US Participation (CUSP) in IODP and at other venues, USSAC discussed procedures for the participation of US scientists in IODP expeditions. USSAC made a number of recommendations in this regard, and requested JOI to develop specific protocols for staffing US scientists on all IODP expeditions. These protocols were reviewed and approved at the July 2003 USSAC meeting. At that meeting, USSAC also urged IMI to establish and support a staffing coordinator to serve as the central communication point between national committees and IOs. The goals of USSAC's recommendations are to develop an integrated procedure that will staff the appropriate scientists on all expeditions. The proposed process is described below. Before going into it in detail, I provide some

definitions and background information on US participation, since we have some practices that may not be commonplace in Europe or in Japan (e.g., US participants receive salary support from the USSSP).
We look forward to ESSAC's views, and those of J-DESC in regard to the process proposed here.

As time is short, USSAC, JOI, and NSF have agreed that the JOI office will directly solicit applications from US scientists to participate as members of both offshore and onshore scientific party members for the first year of IODP non-riser operations, and for the Arctic MSP expedition. This solicitation will be published in EOS later this month, and will be announced via JOI's listserver. Applicants will be directed to our dedicated website www.joiscience.org/USSSP/CruiseApps/sailing_info.html, which has not yet been publicly announced.

Sincerely,

John Farrell
USSSP Director

Terms and background information on US participation in IODP

1. The national program that supports many aspects of US participation in international scientific ocean drilling programs is called the U.S. Science Support Program (**USSSP**). There was a USSSP for ODP, and there will be a USSSP for IODP. The program is funded by **NSF** and managed by an entity (**JOI**, a not-for-profit corporation, managed USSSP in ODP and is currently bidding to NSF to continue such management in IODP, through a new agreement. NSF will likely announce the successful bidder in Feb. 2004). JOI's agreement with NSF to run USSSP-ODP extends until Feb. 28, 2006 (although most activities are now in phase-out mode). JOI will handle transitional issues until the successful bidder for USSSP-IODP has been identified.

2. A (JOI) **Program Director** (currently John Farrell), **Associate Program Director** (Bob Burger) and staff manage USSSP and have programmatic, fiscal, and contractual responsibilities as defined in a cooperative agreement between NSF and JOI.

3. In managing USSSP, JOI is advised by a 15-person committee of volunteers called the U.S. Science Advisory Committee (**USSAC**). Warren Prell will continue to serve as **USSAC Chair** until September 30, 2004. USSAC's Terms of Reference define their role and responsibilities. A copy is attached below, as Appendix 1.

4. U.S. participants in ODP and in IODP will receive financial support from the entity (e.g., JOI) that will be selected to manage USSSP-IODP. Such support will include travel, salary, and post-expedition research.
5. We presume that as in ODP, implementing organizations (IOs, such as ESO (MSP), CDEX (riser), and the JOI alliance (non-riser)) have the final decision regarding vessel staffing. In reaching their decisions, the IOs receive advice and guidance from the advisory structure (e.g., for co-chiefs), from national programs, and possibly from other sources. As such, a U.S. scientist could be invited to be a member of an offshore scientific party, and opt to do so, yet not necessarily receive financial support from USSSP for travel, salary, and post-expedition research. Although this situation is rare, I mention it solely to illustrate the differences in responsibilities of USSSP (national program) and the IODP (IOs).

Proposed application process for U.S. (and non-US) participation in IODP scientific parties

1. **Announce the opportunity**. Once an operational schedule (for non-riser, MSP, and riser operations) has been approved by the IODP Science Advisory Structure, JOI will announce to the U.S. scientific community opportunities to apply for membership in IODP scientific parties (both off- and onshore). Announcements will be placed in AGU's *Eos* (and other publications as necessary) and will be distributed via the *JOI/USSAC Newsletter*, the JOI website, and via the JOI listserver, which includes over 2000 recipients. The announcement will briefly describe each expedition and the application process. We

presume that ESSAC and J-DESC will prepare and distribute similar announcements to the communities they serve. A deadline for applications will probably be useful to spur our communities into action, but in practice, I think it's highly likely that we will receive and consider applications after deadlines have passed, in light of evolving needs to staff expeditions.

2. **Apply directly (and only) to national/consortium program offices**. USSAC proposes that U.S. applicants apply directly, and only, to their national program office. US scientists apply to JOI (presuming JOI is selected by NSF to serve as the program office for the US Science Support Program). Japanese scientists would presumably apply to J-DESC. ECORD/ESSAC may prefer that applications (or expressions of interest) be sent to national offices as well as to ESSAC.

We think that copying the initial application to the implementing organizations (IOs, i.e., ESO, JOI alliance, CDEX) or to IMI (CMO) at this initial stage may ultimately result in confusion. For example, as the status of an application evolves, it will have to be updated at each entity. Efforts at multiple institutions will be expended to ensure that applications are complete, to monitor changes in status, and to determine whether applications are withdrawn, deferred, etc. We think it would be more effective for the national/consortium programs to be tasked with receiving initial applications and in order to ensure their completeness and timeliness.

To facilitate the application process in the US, JOI proposes to develop an interactive, online application form, as well as application forms in PDF format, as an alternative. All applications would be submitted directly to JOI and a dedicated email address staffing@joiscience.org will be established to assist in this effort. In anticipation of this need, JOI has developed a preliminary US application site at: www.joiscience.org/USSSP/CruiseApps/sailing_info.html. JOI also intends to develop a database of applicants that supports queries, such that we will be able to track statistics of U.S. applicants and participants in IODP. This information will be critical to assess the extent to which U.S. participants reflect the broader scientific community, as well as the rights of participation agreed to in international memoranda. We assume that IMI will also maintain such a database, of all IODP participants, once it becomes established.

3. **Co-chiefs**. IOs will select co-chief scientists based on input from SPC, which will forward recommended names (often proposal proponents, but not always) to the IOs after SPC meetings where IODP scheduling, ranking, and operations are discussed, prioritized and planned. IMI will be responsible for coordinating with the IOs to maintain the agreed-upon balance based upon signed memoranda of Co-chiefs among the IODP members. Co-chiefs will be asked by IOs to sign a "co-chief agreement" that spells out their roles, responsibilities and rights.

4. **Processing applications.** JOI staff will review submitted applications to ensure that they are accurate and complete. After the application deadline, JOI will assemble a portfolio of applications for each scheduled drilling expedition.

5. **Defining nominations and coordinating with other IODP entities.** A selection committee consisting of a subset of USSAC and JOI staff will review the applications and consult with the U.S. co-chief scientist (if one was previously selected by the IO) to assess further the particular staffing needs of each expedition. At this point in the process, the JOI/USSAC selection committee would forward the names and requisite application materials of US candidates along with affiliated notes regarding preferences and other relevant matters to the IMI staffing coordinator who, in turn, would distribute these to the appropriate IO. Informal communication and negotiation would begin among these parties. USSAC sees IMI as eventually having responsibility for the long-term balance of staffing in accordance with the IODP memoranda.

6. **Selecting participants.** A JOI program director will serve as a US point of contact and will actively interact with IMI and the IOs during the selection process. The IOs will officially invite scientists to serve as scientific party members, and the scientists must respond accordingly. At this point, the IOs inform the invitees of their SAS-defined rights and responsibilities to IODP as members of scientific parties. SCIMP and SPC have initiated discussion on these obligations.

7. **USSSP-IODP support for US members of IODP scientific parties**. After the IOs have received positive confirmation from invited scientists, the IOs will inform the national/consortium program offices.

JOI will then contact the approved US party members and will inform them regarding USSSP support to enable them to meet their obligations to the IODP.

In summary, the national or consortium member receives applications from scientists in their own countries/consortium and forwards candidates to IMI, which coordinates staffing with the IOs.

Appendix 1: Terms of Reference for USSAC for USSSP-IODP

1. USSAC (the U.S. Science Advisory Committee to JOI for USSSP-IODP) shall act on behalf of the U.S. scientific ocean drilling community to:
* Formulate scientific and policy recommendations to JOI, Inc. with respect to the U.S. Science Support Program (USSSP) associated with the Integrated Ocean Drilling Program (IODP).
* Assist JOI in the development of the USSSP Program Plan that establishes long-term goals and objectives
* Assign priorities within the USSSP Program Plan to allocate resources to support US participation in the IODP.
* Evaluate the USSSP accomplishments against Program Plan goals and objectives.
* Interact with the international IODP Science Advisory Structure (SAS) to promote and facilitate U.S. participation in all aspects of IODP.
* Stimulate and coordinate wide participation by the US scientific community in IODP
* Act as a U.S. advocate for US-wide distribution and access to IODP data and archives

To foster effective contributions to and interaction with IODP by the U.S. scientific community, USSAC shall:
* Assist JOI in nominating US scientists for membership in IODP scientific parties.
* Provide nominations for U.S. members of the Science Planning and Policy Oversight Committee (SPPOC) and the Science Planning Committee (SPC) to the JOI Board of Governors who will forward a slate to the board of IODP Management International (IMI) for ratification.
* Nominate USSAC members to the JOI Board of Governors, which makes the appointment.
* Appoint US representatives to all other panels, committees, and groups of the IODP Science Advisory Structure.
* Promote communications within the SAS (especially among the US representatives) and between SAS, USSAC and the community.
* On behalf of the US science community, advise and consult with NSF, JOI BoG, and US members of IMI on all aspects of IODP-related programs.

To foster an effective and productive USSSP, USSAC shall:
* Review and provide advice to JOI on the use of USSSP funds.
* Recommend levels of salary support and post expedition research funds for US scientific party members.
* Encourage and facilitate education and outreach efforts by US participants in IODP.
* Encourage and support syntheses of scientific ocean drilling results at meetings and in publications.
* Coordinate USSAC activities with other large science programs (RIDGE, MESH, MARGINS, etc.)

To promote effective U.S. planning for IODP activities, USSAC shall:
* Promote the development of US proposals to IODP
* Promote the planning of collaborative drilling-related science programs, such as seafloor observatories, within IODP and the US community
* Promote, support and disseminate the results of workshops to explore and plan new initiatives and drilling programs
* Encourage and provide support for the formation of long-term integrative studies
* Encourage and provide support for the formation of long-term planning activities, for example in support of CDP

* Encourage and provide support for innovative drilling-related measurements, experiments, and new technologies
* Review the status of regional field studies and site surveys and their effectiveness in developing new drilling programs and sites

2. USSAC shall consist of 15 members including representatives from academic institutions, government, and industry. The JOI Board of Governors will appoint the members of the USSAC based on recommendations from USSAC.
* USSAC will select a Chair from among its members, who shall serve for a period of two years and may not self-succeed.
* USSAC will select a Vice Chair from among its members, who shall serve for a period of up to two years and will succeed the Chair.
* The Chair, in consultation with the full Committee, will appoint an Executive Committee of three members plus the Chair.
* The Chair may create standing and fixed-term subcommittees as needed.
* Terms of office of USSAC members will be limited to three years and will be staggered so that one-third of the membership is replaced each October. Immediate reappointment of an individual will be made only in exceptional circumstances. A member's term may be extended if appointed to the Chair.

3. USSAC will generally act by consensus. If a vote is required, USSAC shall act by majority vote of members present at any scheduled meeting, provided a quorum (60% -- (9 of 15 members) is present, or by a majority electronic vote, provided all members are notified of the issue at hand and at least 12 of the 15 members respond.

At 1:16 PM +0100 11/5/03, jeroen.kenter@falw.vu.nl wrote:

Dear Prof. Hidekazu Tokuyama and Prof. Warren Prell,

As Chair of ESSAC I would like to ask your attention to the following. As planning for the IODP proposal 533 to drill the Lomonosov Ridge in the Arctic Ocean is progressing rapidly and this expedition is anticipated in the summer of next year, there is an urgent need to invite the science community to express interest in participation. As a result, a draft invitation for interest was phrased by ESO and ESSAC, see below. ESSAC and ESO would like to advertise this call as a concerted action between J-DESC, USSAC and ESSAC and, before mailing this officially to you (to be distributed within your science communities), would like your comments and additions (contact information).

Could you, please, provide us with your comments before the end of this week?

Sincerely,

Jeroen Kenter

IODP proposal 533 to drill the Lomonosov Ridge in the Arctic Ocean was recommended for inclusion in the FY2004 operations schedule by the IODP

Science Planning Committee. As of today, final authorization of this expedition by the IODP SAS and key operational details are still to be confirmed. However the ECORD Science Operator (ESO) anticipates providing detailed information about the proposed expedition, in particular the scientific staff required, in the near future. The expedition is intended to be during August & September 2004, with dedicated onshore scientific party activities around November 2004. Please register your interest with ESSAC (for ECORD member country representatives), USSAC (for USA representatives), or JDESC (for Japan representatives). You will be sent more information as soon as it is available. The proposal abstract is available at
http://www.isas-office.jp/active_pdf/abstract/533-Full3_Backman_cover.pdf.
Applications (including information on field of expertise, experience, and a CV) for this expedition may be sent to ESO and copied to ESSAC (and ECORD member national office), USSAC, or JDESC as appropriate.

Contact names and addresses:

ECORD Science Operator (ESO)
Dr Dan Evans
ESO Science Manager
British Geological Survey
Murchison House
West Mains Road
Edinburgh EH9 3LA
Tel: +44 (0)131 667 1000
Tel: +44 (0)131 650 0404 (direct line)
Mobile: 07876 748524
Fax: +44 (0)131 668 4140
email: devans@bgs.ac.uk

ECORD Science Support and Advisory Committee (ESSAC)
Sam Purkis/Xavier van Laanen
Department of Sedimentology
Faculty of Earth and Life Sciences
Vrije Universiteit
De Boelelaan 1085
1081 HV Amsterdam
The Netherlands
Phone: +31 20 4447272
Fax: +31 20 4449941
E-mail: essac.amsterdam@falw.vu.nl

U.S. Science Support and Advisory Committee (USSAC)

Japan Drilling Earth Science Consortium (J-DESC)

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 7C5

X-Sender: hac02370@rio.odn.ne.jp
X-Mailer: QUALCOMM MacOS X Eudora Version 5.1.1-Jr4
Date: Tue, 11 Nov 2003 22:09:04 +0900
To: jeroen.kenter@falw.vu.nl, jfarrell@joiscience.org, warren_prell@brown.edu
From: Saneatsu Saito <saito@jamstec.go.jp>
Subject: Re: IODP staffing procedures - discussion
Cc: jamie@utig.ig.utexas.edu, mcoffin@ori.u-tokyo.ac.jp, devans@bgs.ac.uk,
aki@bgs.ac.uk, mevel@ipgp.jussieu.fr, schorno@nwo.nl,
herzig@mailtuba.tu-freiberg.de, herzig@mineral.tu-freiberg.de,
Benoit.Ildefonse@dstu.univ-montp2.fr, gcamoin@arbois.cerege.fr,
gilbert_camoin@yahoo.fr, MacLeod@cardiff.ac.uk, paw1@soc.soton.ac.uk,
rburger@joiscience.org, Rodey Batiza <rbatiza@nsf.gov>,
Steven Bohlen <sbohlen@joiscience.org>, npisias@joiscience.org,
izumis@jamstec.go.jp, suyehiro@jamstec.go.jp, tokuyama@ori.u-tokyo.ac.jp
X-Spam-Status: No, hits=0.8 required=5.0
tests=EMAIL_ATTRIBUTION,FORGED_MUA_EUDORA,IN_REP_TO,
QUOTED_EMAIL_TEXT,REPLY_WITH_QUOTES
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear ESSAC and USSAC Chairs and others,

It is our pleasure to develop mutual understandings among three scientific organizations for the coming FY04-05 drilling projects. We would like to send you additional comments on "Lomonosov Ridge invitation for interest" by ESSAC and "US staffing procedures in IODP" by USSAC.

- Lomonosov Ridge invitation for interest

We agree with scientific staffing required to IODP proposal 533 to drill the Lomonosov Ridge in the FY 2004. However, it is necessary to take care the timing of final authorization of IODP SAS. This case should be recognized as an exceptional case. J-DESC can prepare joint advertising call for this expedition as soon as possible to the Japanese scientific community.

We would like to know more detailed information for that purpose to call! We should be grateful for make any information to the following:

1. Shipboard and shore-based will perform all of the analyses that a typical JR paleoceanography leg would.
2. How many people to be sailed and how many people required shore-based work?
3. How about plans for logging?
4. What kind of shipboard facilities to be loaded on the ship, and what kind of shore-based description, measurements, and sampling party are anticipated?

- Common staffing procedures in IODP

We believe that the staffing coordination should be one of the major functions of the IMI Science Planning and Services in the IMI Japan office. Before establishing such functions in the IMI office, however, three scientific organizations (J-DESC, USSAC, and ESSAC), with mutual understandings, shall act as national offices for the staffing coordination for the FY 2004-05 drilling projects.

J-DESC is able to start the announcement to the Japanese scientific community for call applications of participation in IODP for the FY 2004-05 drilling projects. Before that, scientific

organizations should make common agreement about deadline that is
correlated with "pre-cruise meeting". Each scientific organization
needs ranking schedules based on the deadline. We also suggest that
to make a common application form to IOs that is possibly useful.

- Contact information:

Japan Drilling Earth Science Consortium (J-DESC)
Prof. Hidekazu Tokuyama
Chairman of IODP Section, J-DESC
Ocean Research Institute, the University of Tokyo
1-15-1 Minamidai, Nakano-ku
Tokyo 164-8639, Japan
Phone: +81 3 5351 6441
Fax: +81 3 5351 6438
E-mail: tokuyama@ori.u-tokyo.ac.jp

Sincerely,

Sanny Saito, J-DESC IODP Secretary
for Prof. Hidekazu Tokuyama

At 1:09 PM +0100 03.11.11, jeroen.kenter@falw.vu.nl wrote:
>Dear Dr. Sanny Saito and Prof. Hidekazu Tokuyama,
>
>Thanks so much for your quick and interesting response. I am carefully
>reading your comments as well as those forwarded by John Farrell and will
>come back with a response before the upcoming ESSAC meeting this friday and
>saturday in Amsterdam where this issue will be an important item on the
>agenda.
>
>Sincerely,
>
>Jeroen Kenter
>
>
>
>At 06:24 PM 11/7/2003 +0900, you wrote:
>>Dear Dr. Jeroen Kenter (Cc: USSAC Chair and others)
>>
>> Thank you for your proposal of IODP staffing procedures. We
>>think your proposal is very practical and reasonable for FY 04-05.
>>For your "Central IO Office" model, we concur with your thought. We
>>would like to show you our view of IODP staffing procedures. We
>>basically follow your proposal. Our view is that the function of the
> >"Central IO Office" will be conducted by IMI, more specifically, IMI
>>"Science Planning and Survices" portion. Please find FY04 tentative
>>procedure (body text below) and J-DESC's views of IODP staffing
>>procedures (attached file).
>>
>>**** FY04 tentative procedure (for MSP) ******
>>
>>(1) Consulting
>>ESO --> ESSAC
>>(2) Generate call and forward
>>ESO & ESSAC --> USSAC & J-DESC
>>(3) Joint call
>>ESSAC/USSAC/J-DESC--> Each science community

>>(3) Application
>>Applicants --> ESO (Copy to ESSAC, USSAC, or J-DESC)
>>(4) Nomination
>>USSAC/J-DESC/ESSAC --> ESO
>>(5) Select
>>ESO & Co-chief Scientists --> Applicant & USSAC/J-DESC/ESSAC
>>
>>**
>>
>>Best regards,
>>
>>Dr. Sanny Saito
>>J-DESC IODP Secretary
>>
>>for
>>
>>Prof. Hidekazu Tokuyama
>>Chair of IODP Section, J-DESC
>>
>>
>>P.S.
>>Regarding "Lomonosov Ridge invitation for interest". We are basically
>>agree with your thought. But please give us a couple of days to
>>summarize J-DESC's comments and questions on this issue. We would
>>like to respond to your proposal early next week.
>>
>>
>>At 4:10 PM +0100 03.10.31, jeroen.kenter@falw.vu.nl wrote:
>>>Dear All (USSAC and J-DESC Chairs, Mike Coffin, Jamie Austin, Ted Moore,
>>>John Farrell and others),
>>>
>>>With the upcoming FY science projects "on the horizon" I would like to
>>>start and open discussion on the IODP staffing procedures of science
>projects.
>>>
>>>The SPC meeting in Sapporo resulted in the provisional scheduling of two JR
>>>type legs as well as the Lomonosov Ridge MSP proposal in FY04:
>>>
>>>June-Aug 04 #545 Juan de Fuca hydrogeology Fisher
>>>August 04 #533 Lomonosov Ridge Backman
>>>Sept-Nov 04 #572 Late Neogene-Quaternary chronology - I
>>> Channell
>>>
>>>These projects are coming up very soon and there is an urgent need for
>>>clarifying the application procedure(s) to the science communities in
>>>Japan, the US and Europe. Currently, to my knowledge, no such centralized
>>>procedure exists for IODP. Especially for the Lomonosov Ridge it is very
>>>important to invite applications as soon as possible. Since the MOU between
>>>EMA, MEXT and NSF has not yet been signed, an expression of interest could
>>>replace an official application for Lomonosov until MOUs are signed and the
>>>operational plans are approved.
>>>
>>>In my view, as Chair of ESSAC, the general procedure is that every IODP
>>>scientist sends applications (or expression of interest) to a central IO
>>>office (that combines the interests of - and provides administration for -
>>>the three IOs) with copies to their respective science organization
> >>(J-DESC, USSAC and ESSAC) and the implementing IO (for MSP applications
>>>ESO, etc.) for the science project. The science organizations will nominate
>>>(with optional ranking) their scientists for all platforms and forward
>>>these nominations to the IO office and operator of that particular science

>>>project. The specific IO selects scientists (shipboard and shorebased)
>>>reviewing expertise, experience, member quota ("Tokyo rules"), preference
>>>by co-chief scientists and possible project specific arguments. As during
>>>the ODP days now USSAC, ESSAC and J-DESC negotiate with the IO to make sure
>>>that internal quota are respected on a longer time period and the
>>>nominations are seriously considered.
>>>
>>>ESSAC would certainly prefer to publish a joint USSAC/J-DESC/ESSAC call
>>>(with information on the science projects including the number of shipboard
>>>versus shore based scientists for MSP operations and if needed the required
>>>specialties) for applications for scheduled science projects.
>>>
>>>Clearly, centralized staffing is a not a short term options since no
>>>funding and staff are in place. However, we need to start the discussion as
>>>soon as possible. Mike Coffin will publish his thoughts on this topic in
>>>the upcoming issue of EOS.
>>>
>>>A practical solution for the current staffing of the upcoming projects in
>>>FY04 is that the respective science organization (USSAC, ESSAC, or J-DESC)
>>>generates a call in consultation with the appropriate IO and forwards this
>>>call to the associate science organizations. Applications from the IODP
> >>community will than be mailed to the respective IO and copied to the
>>>science organizations. These will nominate their scientists and copy those
>>>nominations again to the IO.
>>>
>>>As a result, ESSAC is generating an "expression of interest" for the
>>>Lomonosov in consultation with ESO that will be mailed to USSAC, J-DESC and
>>>the ECORD science community later today or latest coming Monday.
>>>
>>>As regarding the JR-type projects in FY04, we would like to invite USSAC to
>>>provide us with a call prior to the upcoming ESSAC Meeting in Amsterdam,
>>>November 14-15.
>>>
>>>Please, provide me with your thoughts, suggestions and comments.
>>>
>>>Best regards,
>>>
>>>Jeroen
>>>
>>>Dr Jeroen A.M. Kenter (present ESSAC Chairman and ECORD member on IODP SPC)
>>>Faculty of Earth and Life Sciences
>>>Dept. of Sedimentology
>>>Vrije Universiteit
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>>>	(31) 36 5404607 (home)
>>>E-mail	kenj@geo.vu.nl (office)
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>>>and forwarding mail until 2008)
>>>URL:	http://www.geo.vu.nl/users/sedimar/index.htm
>>>	http://www.geo.vu.nl/~esco/
>>>
>>>Out of office:
>>>

>>>I ususally check e-mail when travelling, if urgent, contact me on my mobile
>>>phone.
>>>
>>>Home address:
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>>Attachment Converted: "c:\program files\eudora light
>3.0.6.32\attach\scistaff031107.pdf"
>Dr Jeroen A.M. Kenter (present ESSAC Chairman and ECORD member on IODP SPC)
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>E-mail kenj@geo.vu.nl (office)
>New e-mail address: jeroen.kenter@falw.vu.nl (old address will be active
>and forwarding mail until 2008)
>URL:	http://www.geo.vu.nl/users/sedimar/index.htm
>	http://www.geo.vu.nl/~esco/
>
>Out of office:
>
>I ususally check e-mail when travelling, if urgent, contact me on my mobile
>phone.
>
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DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for
Ocean Research Drilling

Enclosure 7D

Dr Jeroen A.M. Kenter (present ESSAC Chairman and ECORD member on IODP SPC)
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E-mail kenj@geo.vu.nl (office)
New e-mail address: jeroen.kenter@falw.vu.nl (old address will be active and forwarding mail until 2008)
URL: http://www.geo.vu.nl/users/sedimar/index.htm
http://www.geo.vu.nl/~esco/

Out of office:

I ususally check e-mail when travelling, if urgent, contact me on my mobile phone.

Home address:
Damveld 6
1359 HE Almere-Haven
Netherlands

--

John Farrell
Director, USSSP
Associate Director, ODP
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IODP proposal 533 to drill the Lomonosov Ridge in the Arctic Ocean was recommended for inclusion in the FY2004 operations schedule by the IODP Science Planning Committee. As of today, final authorization of this expedition by the IODP SAS and key operational details are still to be confirmed. However the ECORD Science Operator (ESO) anticipates providing detailed information about the proposed expedition, in particular the scientific staff required in the near future. The expedition is intended to be during August & September 2004, with dedicated onshore scientific party activities around November 2004. Please register your interest with ESSAC (for ECORD member country representatives), USSAC (for USA representatives), or JDESC (for Japan representatives). You will be sent more information as soon as it is available. The proposal abstract is available at http://www.isas-office.jp/active_pdf/abstract/533-Full3_Backman_cover.pdf. Applications (including information on field of expertise, experience, and a CV) for this expedition may be sent to ESO and copied to ESSAC (and ECORD member national office), USSAC, or JDESC.

Contact names and address:
ECORD Science Operator (ESO)

ECORD Science Support and Advisory Committee (ESSAC) Office
Sam Purkis/Xavier van Laanen
Department of Sedimentology
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U.S. Science Support and Advisory Committee (USSAC) Office

Japan Drilling Earth Science Consortium (J-DESC) Office

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for Ocean Research Drilling

Enclosure 7F

X-WebMail-UserID: kenj_mailhost.geo.vu.nl
Date: Sun, 5 Oct 2003 23:20:53 +0200
Sender: "kenj_mailhost.geo.vu.nl" <jeroen.kenter@falw.vu.nl>
From: "kenj_mailhost.geo.vu.nl" <jeroen.kenter@falw.vu.nl>
To: jeroen.kenter@falw.vu.nl
X-EXP32-SerialNo: 00104131, 00104369, 00104371
Subject: FWD: Co-chief prioritization
X-Mailer: InterChange (Hydra) SMTP v3.61.08
X-Spam-Status: No, hits=-97.3 required=5.0
tests=AWL,MIME_LONG_LINE_QP,RCVD_IN_OSIRUSOFT_COM,
USER_IN_WHITELIST,X_OSIRU_OPEN_RELAY
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

>===== Original Message From "kenj_mailhost.geo.vu.nl" <jeroen.kenter@falw.vu.nl> =====
Dear Nobu and Jeff,

Here a late response (my sincere apologies) to the prioritization of co-chief nominations for legs #572 (I and II), #512 and # 543. You already received a note by Chris MacLeod on Leg 512 (Ocean Core Complex) that expanded the original list with two Japanese candidates and added specializations. In addition, we confirm Chris his preference of nominating proponents as a priority over non-proponents – unless good reasons indicate otherwise. We also recognize the, current, delicate position of ECORD with respect to IODP membership.

In summary, ESSAC (ECORD) suggests the following:

512 (Ocean Core Complex Part I)
Considering the mix between US and ECORD proponents we propose to select one US co-chief and one ECORD co-chief for this Leg. ECORD proposes Donna Blackman (#1) Javier Escartin (#2), Benoit Ildefonse (#3) and Gretchen Fruh-Green (#4)

512 (Ocean Core Complex Part II)
N/A at the meeting

572 (Late Neogene-Quaternary North Atlantic Part I)
No ECORD proponents on the proposal but when considering the preference for proponents as co-chiefs we propose Jim Channell (#1), Jerry McManus (#2) and non-proponents Michael Weber (#3) and Ian McCave (#3).

572 (Lage Neogene-Quaternary North Atlantic Part II)
N/A at the meeting

543 (CORK Hole 642E)
No prioritization required since two nominations are available: Robert Harris (Univ of Utah) and Makoto Yamano (ERI, U Tokyo).

---

4 November 2003
Dear SAS Office,

In my message of October 5th 2003 I sent you ECORD's prioritized list of co-chief nominations for the legs scheduled on JOIDES Resolution for FY04-05. In reviewing your request again I now realize that you were also asking us to provide names for potential co-chiefs for the second leg of proposal 512 as well at this time (marked N/A in my list at that time). That I sent no names does not mean that ECORD have no nominations: Chris MacLeod (one of the proponents of 512) had already been proposed elsewhere as a potential co-chief for this leg, and I would like to make it clear that ECORD fully endorses this suggestion. I apologize for the lateness of this message but just wish to clarify the situation now in the hope that it is not too late.

Best regards,

Jeroen Kenter

ESSAC Chair

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

Enclosure 8A

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Planning Committee (iPC) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Planning Committee

1.1General Purpose. The Interim Planning Committee (iPC) will be responsible to the International Working Group (IWG) of IODP for its guidance and direction. The iPC reports to the IWG, provides advice to IWG, facilitates the establishment of the IODP Science Advisory Structure, develops guidelines for evaluations on science proposals for IODP, and continues scientific planning for IODP. More specifically, the iPC is responsible for:

- custody and initial implementation of the IODP Initial Science Plan;
- categorizing of mature drilling proposals (*i.e.*, proposals having been grouped by the iSSEPs , undergone external review, and judged to be complete by iPC) that address the scientific themes and initiatives of the IODP Initial Science Plan

- advising how these proposals might be most effectively mapped into a drilling plan based on the IODP multiple platform concept;
- carrying out science planning, over the 2-year period of ODP to IODP transition;
- fostering communications among and between the international community, the JOIDES and OD21 Science advisory structures, and the IWG.

1.2 Mandate. iPC will encourage the international community to submit drilling proposals for IODP, and will foster the further development of those proposals. Proposals submitted to JOIDES that remain unscheduled in ODP by September of 2001 will be forwarded to the iSAS Support Office. The Co-Chairs of iPC will contact proponents of these proposals requesting from them a statement of intent regarding submittal of their proposal to IODP, as well as any modifications or amendments they wish to make in their proposals that help focus the proposed drilling on important scientific objectives of the IODP Initial Science Plan.

In addition, iPC may assign special tasks to iSAS panels and planning groups. The iPC Co-Chairs convene the iSAS panel meetings and approve the meeting dates, locations, and agendas of all the iSAS science advisory committees, panels, and groups. iPC, through the iPC Support Office, assigns proposals for review to iSAS Science Steering and Evaluation Panels (iSSEPs) and, if relevant, to the three service panels - the interim ScientificMeasurement Panel (iSciMP), Site Survey Panel (iSSP), and Pollution Prevention and Safety Panel (iPPSP). After proposals are reviewed by the panels and judged to be complete, with well-documented scientific objectives and drilling plans, they are considered to be mature and sent out for external (mail) review. After external reviews of these proposals are received, the iPC discusses the iSSEP comments and external reviews of each proposal and categorizes the scientific objectives of the proposals within the major thematic areas of the IODP Initial Science Plan. The iPC then categorizes all proposals based on their scientific merit and provides an assessment of their technical requirements and feasibility within the IODP multiple platform program. The final evaluation and ranking of these proposals will be carried out by the IODP Science Advisory Structure when it is established.

The iPC reviews the interim advisory structure in the light of developments in IODP planning, and recommends to IWG changes in the panel structure and mandates for IODP Science Advisory Structure. Much of the work of iPC is carried out by the commissioning of reports from other interim science advisory panels, including Detailed Planning Groups, *ad hoc*working groups, *ad hoc*subcommittees of its own membership, and its Co-Chairs.

1.3 Structure. iPC is empowered, with the approval of IWG, to modify the iSAS structure as appropriate to the definition and accomplishment of assigned tasks. Communication with the panels and active iPPGs and iDPGs is maintained by having their chairs meet with the iPC annually, and by assigning iPC members as liaison members to its panels and planning groups. Where counsel and communication are deemed important, other individuals may be

asked *ad hoc* to meet with the iPC or its panels.

1.4 Meetings. iPC meets at least twice a year, normally right before or after the meeting of JOIDES SCICOM.

1.5 Membership. iPC will consist of approximately fifteen to eighteen members. All appointees to iPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. If members of the iPC miss two meetings in succession, the iPC Co-Chairs will discuss the problem of iSAS representation with the appropriate country representative on IWG.

1.6 Liaison. The Co-Chairs of IWG, or nominees thereof, are liaisons to the iPC. The iPC Co-Chairs are liaisons to IWG.

1.7 Procedure of Decision Making. Decisions concerning substantive issues (e.g. the categorization of mature proposals) are made through consensus among members present.

1.8 Co-Chairs . The iPC will be co-chaired by the chair of IPSC and the designated iPC representative from the OD21 Science Advisory Committee.

Proposed Interim Science Advisory Structure (iSAS)

for the Transition to IODP

- interim Science Steering and Evaluation Panels (iSSEPs) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Science Steering and Evaluation Panels

1.1 General Purpose: The Interim Science Steering and Evaluation Panels (iSSEPs) interact with proponents (and interim Program Planning Groups, as necessary) during the ODP-IODP transition (2001-2003), in order to nurture submitted drilling proposals to maturity, make an initial assessment (in cooperation with the iPC) about the suitability of proposals for a particular drilling platform or technology, and recommend mature proposals for external comment.

• Environmental Change, Processes and Effects iSSEP: Areas of Interest
The interests of this iSSEP are explained in detail in the Initial Science Plan

of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- internal and external forcing of environmental change
- environmental change induced by internal and external processes
- extreme climates and rapid climate change initiatives
- the deep biosphere and the sub-seafloor ocean
- gas hydrates

• Solid Earth Cycles and Geodynamics iSSEP: Areas of Interest

The interests of this iSSEP are explained in detail in the Initial Science Plan of IODP. Within the context of this plan, important thematic areas of investigation addressed by proposals that will be considered by this panel include:

- formation of rifted continental margins, oceanic LIPs and oceanic lithosphere
- the dynamics, processes, and record of the solid Earth and fluid movement therein.
- recycling of oceanic lithosphere and formation of crust
- the seismogenic zone
- the deep biosphere and the sub-seafloor ocean

1.2 Mandate. Each iSSEP reports to the iPC and will respond directly to requests from the iPC. Each iSSEP will be responsible for:

- examining and reviewing drilling proposals and determining whether they address important scientific problems that are related to the scientific themes outlined in the Initial Science Plan of IODP.
- nurturing to maturity, and examining and reviewing the scientific merits of these drilling proposals, by interaction with proponents and Program Planning Groups (as necessary) ;
- providing proponents, and iPC with written reviews and comments on the proposals through the iSAS Support Office;
- selecting proposals for external comment, suggesting appropriate reviewers, and providing iPC with external comments and a written review and summary of those comments;
- advising iPC on initiatives and themes that need further development (through the formation of interim Program Planning Groups, as necessary);
- facilitating communications among iPC, interim Program Planning Groups, and proponents.

1.3 Meetings. The iSSEPs will meet approximately twice per year, normally right before or after their counterparts in JOIDES. The iSSEPs will have overlapping sessions, as overlap in thematic coverage is expected to continue to evolve. The iPC Co-Chairs will approve iSSEPs agendas and meeting dates, and locations (normally in consultation with JOIDES).

1.4 Membership. The iSSEPs will consist of approximately fifteen to eighteen

members each. The iPC, in consultation with JOIDES and OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise. Members of the iSSEPs will not be members of any interim Program Planning Group. With the approval of the iPC Co-Chairs, guests may be invited to iSSEPs meetings on an *ad hoc*basis to help with examinations and reviews of proposals.

1.5 Liaisons. The Chairs of the iSSEPs are liaisons to the iPC and will meet with the iPC. The iSSEPs chairs will assign liaisons from their membership to the active iPPGs, as appropriate. The iPPG Chairs will normally meet with the iSSEPs at least once per year.

1.6 Chairs The iSSEP Chairs are appointed by iPC.

9. interim Industrial Liaison Panel (iILP)

9.1 General Purpose: To facilitate ongoing communication and cooperative scientific activities between IODP and selected industries, with the goal of benefiting IODP science and technology and maximizing economic benefits from sharing resources, such as drilling of sites for shared scientific and technical goals, development of joint drilling and sampling technologies, and the development of improved downhole measurement and observatory capabilities. Industrial sectors of interest include oil & gas companies (e.g., offshore deepwater technology, petroleum geology, and engineering), mining (e.g., understanding potential economic targets), microbiology (e.g, development of new enzymes, etc.), insurance industry (e.g., hazards and climate predictions) and research and development organizations in these fields.

9.2 Mandate: The iILP will:

- Develop effective links between academic and industry scientists with mutual research, technical, and engineering interests,
- Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers,
- Develop mechanisms for sharing industry data, expertise, and resources between IODP and industry scientists**,**
- Act as the liaison group for IODP to industry and selected industry associations, and promote IODP educational and outreach activities within selected industry professional organizations,
- Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP,
- Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities between IODP and industry,
- Assist iPC in the establishment of interim Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programs and/or interim Program Planning Groups as needed.

9.3 Meetings: The iILP should meet twice per year. The iILP may hold its meetings separately or in conjunction with other iSAS panels or professional societies as appropriate.

9.4 Membership: The iILP will consist of 15 members representing as many IWG member nations as possible to maintain reasonable size and balance of expertise and research interests, with an ideal goal of about two thirds of the members from industry and one third from academia. Nominations will be solicited from the JOIDES and OD21 science advisory structures, industry colleagues, and national ODP offices. The iPC Co-chairs will consult the iILP Chair and recommend candidates for membership as needed. Academic iILP members should have experience in scientific ocean drilling and scientific expertise related to industry interests or else an active involvement in academic/industrial collaborations. The iPC will approve the iILP membership.

9.5 Liaisons: To ensure that iILP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific programs, the iPC Co-chairs or their designates will brief the iILP at least once per year on the status of the science program. In addition, the iILP should establish liaisons with the iSSEPs and the iPC.

9.6 Chair: The iPC will appoint the iILP Chair.

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Pollution Prevention and Safety Panel (iPPSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Pollution Prevention and Safety Panel (iPPSP)

1.1 General Purpose. The general purpose of the interim Pollution Prevention and Safety Panel (iPPSP) is to provide independent advice to the iPC with regard tosafety and pollution hazards that may exist because of general and specific geologic circumstances of proposed drill sites, and advice on what drilling technology should be applied in order to avoid drilling hazards.

1.2 Mandate. This panel will review all drilling proposed in IODP and advise on safety requirements and appropriate technology needed to meet these requirements. All drilling operations involve the chance of accident or pollution. The principal geologic safety and pollution hazard in ocean drilling is the possible release of substantial quantities of high-pressure fluids and volatiles

including hydrocarbons from subsurface reservoir strata. However, the riser capability of the IODP will permit application of blow out prevention (BOP) technology to mitigate this hazard in a number of geological environments. In other environments, such as most of the deep-sea regions, the risk of hydrocarbon release can be reduced or eliminated by careful planningand proper site surveys.

Those who develop IODP drilling plans and select drilling sites are initially responsible to carefully assess sites in terms of safety and indicate the appropriate mode of drilling for each site. The iPPSP independently reviews each site to determine if and how drilling operations can be conducted safely.

The preliminary site survey information and the operational plan are examined for each site. Advice is communicated in the form of:

1. site approval, for riser/BOP or non-riser drilling,
2. lack of approval, or
3. technical advice for relocation or amendment

Approval is based on the judgment of the Panel that a proposed site can be safely drilled in light of the available technology, information, and planning.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after of the JOIDES PPSP meeting, as approved by the iPC Co-Chairs.

1.4 Membership. Members of the iPPSP are specialists who can provide expert advice on the safe drilling of proposed drill sites, including sites in hydrocarbon prone areas. Members of the iPPSP are primarily selected on the basis of this specific expertise, with a view toward a fair representation of IWG members as a second priority. Membership is determined by iPC based on nominations from IWG countries. Panel membership, not to exceed 15, should be maintained as small as is allowed by the range of expertise necessary to meet mandate requirements.

1.5 Liaison. The iPPSP maintains liaison with the interim Site Survey Panel, and a designated iSSP member attends its meetings. Representatives from the main drilling operators will also be invited to attend the meetings. The iPC Co-Chairs or a designate from iPC attends as a liaison.

1.6 Chair. The Chair is appointed by iPC.

Proposed Interim Science Advisory Structure (iSAS)
for the Transition to IODP
- interim Science Measurement Panel (iSciMP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Scientific Measurements Panel (iSciMP)

1.1 General Purpose. The interim Scientific Measurements Panel (iSciMP) will contribute information and advice to the IODP community through the iPC with regard to the handling of IODP data and information, on methods and techniques of IODP measurements, on laboratory design, portable laboratory needs and downhole measurements and experiments.

1.2 Mandate. iSciMP will provide advice on IODP information related to scientific measurements made onboard the riser and non-riser ships and on _as-needed_ platforms, within and around boreholes, and on samples collected by IODP and associated programs. Its specific mandates are to develop guidelines concerning said measurements and to furnish advice about scientific

measurements which will assist iPC in developing recommendations to IWG regarding equipment and measurement procedures in IODP.

Specific responsibilities for the panel are publications, databases, curation, computers, shipboard equipment usage and needs, measurement calibrations and standards, and borehole measurements, equipment, usage, and needs.

iSciMP recommendations will be sent to iPC.

1.3 Meetings. The panel will usually meet twice a year, and will normally meet right before or after the JOIDES SciMPmeeting. Agendas are approved by the iPC Co-Chairs.

1.4 Membership. iSciMP will consist of fifteen to eighteen members. The iPC, in consultation with JOIDES and OD21, will advise on membership replacement (if vacancies occur), based upon maintaining breadth of expertise. Members should have expertise representing the three core areas of the panel mandate covering information handling, downhole measurements, and shipboard measurements. With iPC approval, the panel may bring inadditional information about its mandate issues by setting up *ad hoc*advisory committees whose lifetimes are mandated by iPC.

1.5Liaison. The iSciMP will have liaisons from iPC. Liaisons to other iSAS advisory bodies may be sought with the approval of iPC. Representatives from the main drilling operators will also be invited to attend the meetings.

1.6Chair. The Chair will be appointed by iPC.

Proposed Interim Science Advisory Structure (iSAS) for the Transition to IODP

- interim Site Survey Panel (iSSP) -

The Interim Science Advisory Structure for the IODP

The interim Science Advisory Structure (iSAS) is a joint working group representing JOIDES and the OD21 Science Advisory Committee. The functions of iSAS are: 1) to plan for the Integrated Ocean Drilling Program (IODP); 2) to facilitate the transition from the Ocean Drilling Program (ODP) into the IODP; 3) to make recommendations on the science advisory structure for IODP; 4) to develop guidelines related to evaluations of science proposals, site surveys and form of drilling proposals submitted to IODP; and 5) to examine, review and nurture potential drilling proposals for IODP. Final recommendations for the scientific drilling program of IODP will be developed once IODP begins in 2003.

The iSAS committees, working groups, and panels will report and direct their advice through the interim Planning Committee (iPC) to the International Working Group (IWG) of IODP. Representation on most iSAS panels and committees will be proportional to the optimal international participation in IODP (1/3 Japan, 1/3 United States, 1/3 other IWG members) and will be restricted to IWG members seeking full IODP participation. Members of iSAS committees and panels will be nominated by JOIDES and the OD21 Science Advisory Committee. To the extent possible, it is expected that JOIDES nominations will be consistent with the membership on corresponding JOIDES panels and committees. JOIDES and the OD21 Advisory Committee will confer and consider appropriate disciplinary balance and expertise in making their nominations to IWG. The term of membership on iSAS panels and committees will be until 1 October 2003 (unless replaced before that time by the IWG member nations they represent). The iSAS is open to suggestions and proposals from the entire scientific community, and its plans will be open to continued review and discussion.

1. Interim Site Survey Panel

1.1 General Purpose. The general purpose of the interim Site Survey Panel (iSSP) is to provide information and advice to the iPC on the adequacy of, and need for, site surveys in relation to proposed drilling targets.

1.2 Mandate. The interim Site Survey Panel (iSSP) is mandated to:

- Review site survey data packages prepared by the IODP Site Survey Data Bank and to make recommendation as to their adequacy to the iPC in light of the needs defined in mature proposals of the interim Science Steering and Evaluation Panels, interim Program Planning Groups and interim Detailed Planning Groups;
- Identify data gaps in proposed future drilling areas and recommend

appropriate action to ensure that either:

(1) sufficient site survey information is available to pinpoint specific drilling targets and interpret drilling results; or

(2) sites will not be drilled until specific information has been reviewed.

- Provide guidelines for proponents and panels regarding required site survey data and examine the opportunities and requirements for the use of new technologies for surveying potential drill sites;
- Promote international cooperation and coordination of site surveys for the benefit of the IODP, particularly between participating IODP partners'survey activities;
- Promote the submission of all data used for planning drilling targets to the IODP Data Bank.
- Interface with the JOIDES Site Survey Panel to assure a smooth transfer of site survey data from ODP to IODP*.

1.3 Meetings. iSSP will normally meet right before or after the JOIDES SSP meeting or as requested by iPC. One meeting will usually be at the location of the JOIDES Site Survey Data Bank.

1.4 Membership. The iSSP is composed of 15 to 18 Members. It will be made up of experts who can provide advice on the site survey requirements of proposed drill sites. The membership will have an equal number of appointees from Japan and the US, with at least one appointee from eachof the other IWG members. The iPC, in consultation with JOIDES and the OD21 Science Advisory Committee, will advise on membership replacement (if vacancies occur), based upon maintaining scientific balance and breadth of expertise.

1.5 Liaison. The Panel maintains liaison with the IODP Site Survey Data Bank Manager, and the iPC Support Office, each of which sends representatives to iSSP meetings. iSSP maintains liaisons to the iSSEPs.

1.6 Chair. The iSSP Chair is appointed by iPC.

**Note: IODP Site Survey Data Bank represents a function for IODP data repository to be defined by IWG.*

8. interim Technology Advice Panel (iTAP)

8.1 General Purpose: The interim Technology Advice Panel (iTAP) will advise the iPC and, through the iPC, the IWG (and the management office) on matters related to the technological developments necessary to meet the scientific objectives of the IODP Initial Science Plan.

8.2 Mandate: The iTAP will identify long-term (2-5 year lead time) technical needs and recommend ways to meet those needs. Appropriate topics of concern may include:

1. Advice and recommendations on performance requirements for specific technological needs.
2. Assessment of whether commercial "off-the-shelf" technology can most optimally meet those needs or whether they require research and development within IODP.
3. Recommendations concerning the appropriate mode for pursuing such research and development (i.e., through IODP, universities, industry, or joint ventures).
4. Advice and recommendations on the process and procedures for developing and evaluating program contracts in support of technical design and innovation.
5. Regular review of the progress made by iSAS and the science community in planning for the technological needs of IODP.

8.3 Meetings: The iTAP should meet twice per year or as required and approved by the iPC co-chairs. The iTAP may hold its meetings separately or in conjunction with the iSciMP when appropriate.

8.4 Membership: The iTAP will consist of fifteen to eighteen members, with a nominal term of three to five years for individual members. Each IWG member may name one representative to the iTAP and nominate other candidates for membership. The iPC will select and approve all other iTAP members from the additional nominees based on the expertise needed on the panel. Members of iTAP should specialize in the fields of marine operations on a variety of platforms, down-hole logging and instrumentation, drilling technology (including mining technology and drilling under extreme conditions), geotechnics and other disciplines as necessary. To meet the need for added breadth of expertise and the receipt of technical advice in a timely manner, the iTAP may recommend the establishment of working groups to address specific technological issues.

8.5 Liaisons: To ensure that iTAP members stay fully apprised of the scientific objectives of the IODP as well as the progress of the scientific program, the iPC Co-chairs or their designates will brief the iTAP at least once per year on the status of the science program. In addition, liaisons from the operators, the management office, the interim Industrial Liaison Panel, the data centers and other cooperating scientific programs may regularly attend iTAP meetings. The iTAP Chair should attend iSSEPs meetings as a liaison.

8.6 Chair: The iPC will appoint the iTAP Chair.

Operations Committee (approved by iPC and IWG) (12 August 2003)

1.1 General Purpose: The Operations Committee (OPCOM) is an independent committee within the Science Advisory Structure whose general purpose is to recommend the most logistically and fiscally effective means to achieve IODP scientific objectives as defined in the long-range IODP science plan and prioritized by the Science Planning Committee (SPC). OPCOM reports to SPC and, through SPC, to the SAS Executive Authority.

1.2 Mandate: OPCOM is responsible for recommending the optimal means to implement IODP drilling projects that are highly ranked and prioritized by SPC. Following IODP project management principles, OPCOM should consider, in addition to SPC prioritizations, (a) capabilities of IODP drilling platforms, (b) budgetary and logistical constraints, and (c) advice from SAS service panels on safety, environmental, and technological factors. Following the annual SPC prioritization and ranking of proposed IODP drilling programs, OPCOM will specifically recommend options for the schedules of IODP drilling platforms for the appropriate year(s) (as defined by the annual IODP program plan) and will also project a longer-term schedule for future drilling operations. In addition, OPCOM must monitor progress toward achieving the longer-term drilling schedule and therefore is also responsible for recommending any modifications to both the short- and long-term drilling schedules that may be necessary as developments occur or constraints arise after SPC has prioritized relevant IODP science projects.

1.3 Consensus and Quorum: The Operations Committee will reach all decisions by consensus. In defining consensus, a quorum shall be required consisting of 2/3 of the scientific participants and 2/3 of the management representatives as defined in Section 4.

1.4 Participants Counting Toward Consensus and Quorum: The Operations Committee will be chaired by a knowledgeable scientist who is non-conflicted in both scientific and operational matters and is appointed by the SAS Executive Authority. Participants from SAS shall include the SPC chair and as many additional representatives from the SPC as there are Implementing Organizations. Participants from IODP management shall include one designated representative from each Implementing Organization (IO), and one designated representative from the Central Management Organization (CMO). The terms of the Chair and representatives from SPC should extend no longer than three years, and rotations should be staggered.

1.5 Liaisons, Observers, and Guests: Each Lead Agency is expected to nominate one liaison to OPCOM. Lead Agencies, the CMO, and IO's may send additional observers as needed. A chair of each of the SSEP's, SciMP, PPSP, SSP, TAP and ILP will serve as liaisons to OPCOM. When necessary to provide additional expertise, guests may be invited at the discretion of the Chair. Approximately one year before the end of the Chair's term, the next Chair should be identified and he or she should attend that year's meetings as a guest.

1.6 Meetings: OPCOM shall meet at least twice per year. One of the OPCOM meetings will be coordinated with the annual SPC ranking exercise, in order to construct the appropriate year's schedules of the IODP drilling platforms. The other meeting will be held about half a year apart, to recommend adjustments to the drilling schedules if needed. If drilling schedules or modifications recommended by OPCOM are not approved by SPC and/or the SAS Executive Authority, then additional OPCOM meetings may be required to recommend alternative schedules.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 9

JEODI
Joint European Ocean Drilling Initiative

A research project supported by the European Commission under the Fifth Framework Programme and contributing to the implementation of the Key Action 2 "Global Change, Climate and Biodiversity" within the Energy, Environment and Sustainable Development.
Contract N° EVR1-CT-2001-2003

TOP SECRET

R[illegible]
(extracted from the JEODI 24-month draft report)

Work-Package 1 (+ core management group): Co-ordination and management

Deliverables completed

- Twice yearly reports on all the WPs activities.
- Definition of the political structure and funding geometry of the European consortium, ECORD, involved in IODP. Establishment of a European secretariat and management structure for IODP.
- Creation of the European Consortium for Ocean Research Drilling-ECORD in January 2002 with the ECORD interim Council.
- Calls for tender for the European Science Operator and European Management Agency, October 2002. Creation of EMA-ECORD Managing Agency- and ESO-ECORD Science Operator.
- Starting up of ECORD Council (Oct 03)

Milestones – *progress*:

- Implementation of the strategy for European involvement in IODP following the termination of ODP Mid-2003
  The ECORD interim Council has mandated EMA to negotiate a Memorandum of Understanding together with NSF and MEXT.

- Set up ECORD through a Memorandum of Understanding : *Awaiting the final signature between the European and other funding organisations on membership and operation of ECORD in the IODP. The ECORD structure comprises ECORD Council, EMA, ESO and ESSAC (ECORD Science Support and Advisory Committee).*

Work-Package 2: Technology and Operation of Mission Specific Platforms

Objectives of WP 2

- Define what alternative drilling technologies and platforms are available (or may be available 2003 and beyond).
- Define which scientific targets they are most suited for (e.g. Arctic, Shallow water, coral reefs)
- Define how alternative platforms infrastructure should be accessed and how data and cores may be dealt with

Deliverables completed

- **A portfolio of drilling targets and experiments for IODP using Alternate Platforms**
  The Aplacon Conference reported on by WP3 has addressed this in the generic methodology put forward by WP2 to cover all scientific requirements and referred to in the objectives above.

- **A five (and ten) year implementation plan for drilling using alternate platforms as part of an IODP**
  In September 2003 IODP ranked three mission specific platform proposals as amongst the 5 highest priorities of the program (Arctic, Great Barrier Reef and Tahiti, New Jersey margin). The planning for the Arctic is underway and that for the other two proposals for drilling before end 2006 is now being scheduled into the ESO programme using principals established for ESO under the JEODI network. This will allow an initial five-year plan of activity using the Arctic, Great Barrier Reef/Tahiti and the New Jersey Margin as the first three projects for MSP activity.

- **Technical developments required to achieve the implementation of an alternative platform programme (joint WP2,WP6 and WP7 meetings in Amsterdam)**

  On many MSP platforms, perfectly suited to obtaining the core data a complete re-think on how the science reporting can be achieved. As part of WP2 JEODI ESO will build on the ICDP model.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

European Consortium for Ocean Research Drilling

Enclosure 10A

DRAFT 1.6.1 (19 August 2003)

Minutes

Joint Meeting of the Interim
Scientific Steering and Evaluation Panels for the
Dynamics of Earth's Interior (ISSEP) and Earth's Environment (ESSEP)

May 22-25, 2003

Niigata University and Toki Messe, Niigata Convention Center, Niigata (Japan)

Thursday, May 22 9:00 - 18:00

1. Opening and Introduction of Members

The formal part of the Niigata SSEP meeting began following an enjoyable optional day field trip "Middle Miocene oil/gas and alcohol fields in Niigata" on 21 May lead by Dr. Kouichi Hoyanagi (Shinshu University), Dr. Susumu Kato (JAPEX), Dr. Hiroyuki Arato (Teikoku Oil), and Dr. Norie Fujibayashi (Niigata University). The fourth and the last meeting of the interim Scientific Steering and Evaluation Panels was opened by Hitoshi Mikada, who explained four working group discussions to be proceeded in the afternoon. He also explained how to proceed with group discussions on IODP Guides and SSEP structures to be conducted in the later part of the meeting. Introduction of all the members in the room began with Norie Fujibayashi, who was a hosting member.

2. The minutes from previous Montpellier meeting were approved.

3. Joint session for iESSEP and iISSEP, Reports

3.1. MEXT Report (O. Miyaki)

Osamu Miyaki first reported on "Chikyu" construction with its secured budget of US$105M for JPFY 2002 and US$65M for JPFY 2003. The preparation for Chikyu operation will require US$14M for JPFY 2003 and hence a total of 184M will be required for JPFY 2002-2003. Thus, 95% of construction money has been already approved. This includes budgets for site surveys.

He explained on the latest development on MEXT and NSF- agreement, which was the form of the Lead Agency Memorandum, signed by the NSF Director and MEXT Minister in Tokyo on April 22, 2003. NSF and MEXT has been continuously developing draft contract with CMO. IWG meeting will be held in Capri, Italy on 11-13 June, 2003. Mr. Shingo Satomura was appointed as IODP Unit Chief in Ocean and Earth Division, MEXT as of 1 April, 2003. Finally, a message from Daisuke Yoshida, Director for Ocean and Earth Division, MEXT, was relayed with his greetings and blessing towards success of the iSSEPs meeting in Niigata.

3.2. NSF Report (T. Byrne)

Tim Byrne reported about the Memorandum signed by NSF and MEXT finally materialized after 10 years of hard work towards IODP. NSF budgets have seen 12-13% increases in ocean science and geosciences and they will be doubled in the next several years. NSF has changed its strategy in drill ship operation. That is, a non-riser drilling ship will be available for drilling for IODP in summer of 2004. 2005 and 2006 will be the time for renovation or for a new ship to be designated. There will be an overseeing committee above SPC in IODP. This is Science Planning and Policy Oversight Committee (SPPOC), which will be essentially equivalent of the former EXCOM. Thus, the governing bodies of IODP will be held by SPPOC as an internal body and IMI as an outside body.

He further described that NSF has requested that the US Science Support Program quickly identify a process for selecting: (1) US members of the IODP Science Policy, (2) US members of the Science Planning Committee; and (3) SPC Vice-Chair. As a near future plan, on May 29 and 30, NSF, MEXT and the Interim IODP CMO will meet in Austin, TX to discuss start-up activities, including the establishment of a Science Policy.

3.3. ECORD Report (G. Camoin)

Gilbert Camoin gave a report from ECORD, the European Consortium for Ocean Research Drilling, which is the official European consortium for IODP. ECORD aims to provide co-mingled funds equivalent to 2 participation units for the first 4 years of IODP and will provide additional funds for Mission-Specific Platform (MSP) operations for 2004. Thus, ECORD's primary intention is to push for drilling using MSPs (mission specific platforms). Europe intends to provide MSPs for the areas inaccessible to riser-less and riser ships, whose missions are necessary to accomplish goals of the Science Plan, whose plans must be dealt case-by-case basis.

Two important meetings were held:

-ESSAC--Terms of Reference in Amsterdam, January 17th, 2003: and

- EMA and ESO in Dublin, April 24-25th, 2003.

The structure of ECORD is constituted by (1) EMA, which is an agency of the ECORD management, (2) ESO, which governs operation, and (3) ESSAC, ECORD science support and advisory committee. These three subgroups are mediated by interim ECORD council, which oversees the whole entity.

Major roles of the ECORD Management Agency (EMA) are:

- Organize the European participation to IODP, which is done with the following actions:
    - -Memorandum Of Understanding (MOU) with European partners
    - -MOU with the US and Japan
    - -Contracts with European partners to raise the funds
    - -Contracts with NSF and MEXT for the European IODP funds
    - -Contracts with ESO to operate the « MSPs »
    - -Support ESSAC for the scientific activity.
    - -Promote IODP in the European funding agencies.
    - -Dissemination of Information to the public

Major tasks of ESSAC (ECORD Science Support and Advisory Committee) are:

- -Scientific management of the Programme for the European countries.
- -Interacting with the IODP Central Management Office (CMO), SAS and IODP scientific bodies.
- -Nominating representatives on SAS panels.
- -Coordinating applications for shipboard participation.
- -Initiating and monitoring Workshops.
- -Providing stimulation and guidance for the writing of drilling proposals in accordance with the IODP Initial Science Plan and encouragement of IODP-related activities among participating countries.

Assisting and advising ESO and/or EMA are done:

- -On the development of scientific planning and priorities for ECORD.
- -On the preparation of a Science Operations Plan and budget for MSP operations which is to be presented to the EMA and the ECORD Council to ensure a constant flow of funds for MSP operations by coordinating and preparing funding proposals to the European Commission and other funding bodies.
- -On the public outreach within and beyond ECORD member countries to raise public awareness and inform funding agencies, the public, the scientific community, schools etc. on scientific advances made through IODP drilling, and the benefit to society of the work carried out though Europe’s participation in IODP.
- -In encouraging new members to join ECORD.

Camoin then distributed ECORD's brochure, which clearly describes its roles of European participation in IODP.

3.4. IMI Report (K. Suyehiro)

Kiyoshi Suyehiro presented the recent chronicle of IODP Management International, Inc. (IMI), which has been established on 1 March 2003. On December 4-5 2002 the IMI Founders' meeting took place in San Francisco and they agreed on 6 Japanese and 6 US interim officers reflecting the funding scheme of IODP. On March 27-28 2003 the founders, members and board of governors (BOG) met in Honolulu and reached the following conclusions"

- -Adopted IMI by-Laws
- -Approved new members (7J and 15 US institutions)
- -approved Board of Governors (10 and 4 alternates)
- -Search Committee established for president and office location
- -IMI-Japan office in Sapporo with Science Planning Director; IMI-USA office with Program Operation Director
- -Recommended Science Planning and Policy Oversight Committee (SPPOC) as executive authority of SAS.

The plan for the forthcoming IMI related meetings and the approval schedule for committee members such as those of SPPOC and SPC are also presented. The decision concerning the nomination of a permanent IMI President will occur during the BOG Seattle meeting September 9 and 10, 2003. Information concerning IMI can be accessed via [http://www.ig.utexas.edu/imi/]

3.5. J-DESC Report (Y. Tatsumi)

The newly formed Japan Drilling Earth Science Consortium (JDESC), which is equivalent of USSAC or ECORD, was introduced by Yoshi Tatsumi. This group was formed in February in order to promote drilling activities among the Japanese scientific community. JDESC will recommend IODP panel members and IMI members from Japan. It also aims at assisting in getting Japanese government funds for drilling activities.

3.6. iPC/IWG Report (T. Moore)

Ted Moore as an iPC Chair first reported the recent signing of Memorandum of Understanding (MoU) between NSF and MEXT. He then stressed the importance of smooth transition from iSAS to SAS, maintaining the chairmanships of various committees. However, iPC Co-Chairs will change from T. Moore and H. Kinoshita to Chair and Vice Chair whose terms are for two years. The Vice Chair will become Chair, after completing the two-year term. The Chair can remain as a member when rotated off.

He then reported on iPC meeting held in Austin, Texas in March 2003. The iSSEP's complex drilling procedures are worth praising. An Operation Committee Working Group was formed, which is the last committee to be formed. iPC approved the fromation of the committee WG and sent this notion to IWG for approval.

iILP helps the IODP community to gain access to seismic data base, otherwise not possible to have. In the Amsterdam meeting he has attended he acquired the information that riser drilling will take 5 years of preparation. And hence even if IODP shorten it as much as we could, it will take a minimum of three years of planning. Because it takes so long, IODP needs to describe the flow of work, evaluate risks, solve safety issues, and so on. IODP needs to re-evaluate our science because of the riser, which is new to IODP. It will be better making an early decision than late. One can red flag on non-achievable goals early in the decision process. Initial scope groups using the riser vessel already exist in the form of Nankai and Costa Rica proposals, which are general ones. If there are any problems or risks associated with the drillings, they should be identified and discussed for the success of the IODP.

Meeting in June in Austin, Texas, USA initial science group

There are initiatives in getting public involved in the planned Lomonosov Ridge drilling in the Arctic Ocean. That is, to take some tourists and/or students for observation and/or education for advertisement of the project as well as to fulfill the need of funding. Regarding the iPC policy on the Arctic drilling, it is acceptable to take public in as long as they do not interfere with the scientific drilling operation.

3.7. iSSP Report (McIntosh)

Kirk McIntosh presented (1) iSSP Bologna meeting; (2) Data Bank Working Group (DBWG); and (3) MATRIX Working Group.

At the Bologna meeting 9 full proposals and 9 pre-proposals were reviewed. Presentation from the Data Bank Working Group was made and significant discussion followed. The panel formed the MATRIX Working Group together with iSciMP.

The following three items are the major outcome of DBWG:
-Recommendations will help shape the request for proposal for the successor IODP Data Bank;
-Formed from a subset of the iSSP panel and liaisons from iPPSP and iSciMP; and
-Group has met partially, or in full, three times, with the most recent meeting occurring before the iSSP meeting February 2003 in Bologna, Italy.

The iSSP DBWG recommended on (1) digital vs. analog data submissions; (2) allowable data formats; (3) mechanism and timing of communications with IODP panels and proponents; and (4) facilities, hardware, software, and personnel for Data Bank.

The panel recommended that data submitted to the IODP Data Bank (DB) be in a digital form unless this is not possible for the proponent(s) to accomplish. The panel recommended continuing the current policy of early review. DBWG recommended that IODP adopt a GIS-capable, web-accessible, software system. The panel suggested further improvement of the Site Survey data review process during the Bologna meeting (February 2003).

3.8. iSciMP Report (Escartin, iSciMP liaison)

Xavier Escartin presented an iSciMP Report focused on the last meeting that was held in Edmonton, Canada in December 2003. Regarding the Pre-proposal 621, MBARI Observatory, iSSEPs forwarded it (621-pre) to iSCiMP and iTAP for comment and input. An ad-hoc Working Group was then established, whose recommendations were reported to iSSEPs chairs and proponents in February. This 621-pre had proposed to drill a shallow hole near MBARI to be used as a test bed for seafloor observatory technology.

The summary of the recommendations is given below:

- Drill a minimum of 2 or 3 holes so that there are available sites for testing while one or more are being used in long-term experiments and therefore not accessible.
- Open access of the sites to the ODP and the larger community, and not limit the site to the seafloor observatory effort
- Use a standard drill pipe size in coordination with iTAP and iSCiMP, to allow the test of new ODP tools in the future
- Add a scientific component to the proposal (i.e., 3D permeability problems, high-resolution cross-hole geophysics…)

During the Edmonton meeting a series of recommendations and plans was given as follows:

-Database operator. iSCiMP recommends that there is a single database operator for all platforms to insure accessibility of data, standardization of input, storage and retrieval of information collected during IODP operations.
-Database working Group. It is recommended that a database working group be established to insure consistency of data across the program and in time.
-Drill pipe standardization. iSCiMP recommends that there is a single standard of drill pipe size (when possible for the MSP). This needs to be done in coordination with iTAP.
-Chiukyu instrumentation list. The list of instrumentation of the new Japanese vessel will be reported to the panel members to be reviewed during next July meeting.
-Microbiology Working Group. A working group has been established to develop and investigate news issues that arise from microbiological studies in ODP samples. In particular, iSCiMP encourages efforts to develop sampling techniques that avoid microbial pollution (i.e., JAMSTEC's antimicrobial gel).
-Archival, analysis and disposal of cuttings. iSCiMP will interact with other iSAS panels to recommend a policy of archival, analysis and disposal of cutting material.
-Sample data policy. The sample data policy was reviewed and submitted to iPC for approval.

Future agenda items for the July meeting in Rhode Island include:

-Joint iTAP/iSCiMP meeting. Some overlap exists between iTAP and iSCiMP and a joint meeting will allow the two panels to interact in specific aspects (i.e., drill standards), and establish a working mode and partition of tasks.

-Scientific staffing. Given the complexity and length of CDPs, a new policy and recommendations regarding staffing will be reviewed, including assignation of scientists, access to samples, etc.

-Scientific measurements in the new program. The presence of multiple platforms and the length of CDPs, makes it necessary to re-evaluate both the list of measurements to be performed, and their evolution in time, so as to insure quality and standardization of data across the program. This requires both a closer link with iSSEPs to identify required technologies/measurements that may be needed in he future based on available proposals, and the follow-up of CDPs in time.

3.9. iTAP Report (Masuda; iTAP liaison)

Yoshihiro Masuda reported the proceedings of iTAP. The second iTAP meeting was held on February 21-22, 2003 in Amsterdam, the Netherlands. This was a joint meeting iTAP–iILP on the morning of the 2nd day. The main discussion points were as follows:

- Platform operations (Chikyu, Non-riser, MSP)
- Standards: Drill pipe diameter, core diameter
- Borehole stability & Temperature
- Technical challenges in Complex Drilling Programs (CDPs) including NanTroSEIZE and CRISP [Costa Rica]
- Project Management System in IODP
- Efficient way to extract technical challenges from proposals
- Short discussion on technical challenges included in ISP such as climate history, gas hydrates, hydrogeology, and zero-age crust

iTAP recommended the followings:

Recommendation 03-01:

Evaluation on Use of 6-5/8” Drill pipe for IODP Drill ship:

- iTAP recommends that the Ocean Drilling Program, through its prime contractor, subcontract an evaluation of the technical, operational, and scientific benefits (e.g. core quality, core volume, tool deployment) and costs of outfitting the JR-replacement to be able to handle up to 6 - 5/8” drill pipe.
- iTAP will provide a recommended work statement to ODP. Proposed work statement on evaluation of use of 6-5/8” drill pipe will be attached to the minutes of iTAP #2.

Standard Pipe Diameters:

- Important for standardizing logging, sampling and specialty tools as an integrated program
- 6 5/8” is commonly used in industry
- More advantages than disadvantages: Potential for larger logging tools, easier fishing, faster wireline trips and less swabbing, higher torques, better hole cleaning due to higher annular velocity, etc.
- Chikyu can handle this size
- Outfit the non-riser vessel to handle 6 5/8”, recommending a small study.

Recommendation 03-02:

- iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program.
- The plan should include near-real time analyses during the drilling program that uses real-time drilling parameters.
- These parameters should also be captured into the IODP data base to be used to improve future drilling plans.

Recommendation 03-03:

- iTAP recommends that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP.
- iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

Recommendation 03-04:

- iTAP recommends the formation of an IODP Working Group that will develop a

project-based management planning system. The system will be similar to those used by the petroleum exploration industry.
- It will conform to the management structure of IODP and consider the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project.
- This Project Management Working Group would be charged with developing the project management system by June 2003.
- Proposed working group membership: iTAP, iILP, iSCIMP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, OPCOM working group representatives.

iTAP Advice to Proponents

- Begin developing a list of specifications (e.g. , measurements and coring/sample requirements that need to be made (depth, location, resolution, temperature and dynamic range, measurement life) and collaborate on development of this list.
- Complete iSCIMP’s new cover sheet measurement list
- Select sites based on science objectives
- Do not identify the type of drilling vessel or drilling methods
- Provide proposals early to the DPG

Where appropriate, develop technical/operational options based on the science objectives

- Joint with iSCIMP

Finally, the dates for the next iTAP meeting will be for July 14-16, 2003 at Graduate School of Oceanography, University of Rhode Island, USA.

3.10. iILP Report (H. Arato)

Hiroyuki Arato, the iILP liaison, first explained the mandates of iILP.

Mandate 1:

General purpose:

To facilitate ongoing communication and cooperative scientific activities between IODP and selected industries, with the goal of benefiting IODP science and technology and maximizing economic benefits from sharing resources, such as drilling of sites for shared scientific and technical goals, development of joint drilling and sampling technologies, and the development of improved down hole measurement and observatory capabilites. Industrial sectors of interest include oil & gas companies (e.g., offshore deepwater technology , petroleum geology, and engineering), mining (e.g., understanding potential economic targets), microbiology (e.g., development of new enzymes, etc.), insurance industry (e.g., hazards and climate predictions) and research and development organizations in these fields.

Mandate 2:

The iILP will:

1. Develop effective links between academic and industry scientists with mutual research and technical/engineering interests.
2. Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers.
3. Develop mechanisms for sharing industry data/expertise/resources between IODP and industry scientists and provide advice to IODP scientists where appropriate.
4. Act as the liaison group for IODP to industry and selected industry associations, and promote IODP;
   educational and outreach activities within selected industry professional organizations.
5. Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP as needed. These might include Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programmes and/or interim Programme Planning Groups.
6. Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities

Discussion 1: PROMOTIONS
- introduction of IODP to industries:
    oral presentations in conferences (incl. Local meetings),
    articles on journals / newsletters, (preparation for presentation materials)
    chair a session in AAPG, and invite proposals,
- education for IODP proponents:
    conduct seminars for well operation, wellsite geology,
    seismic interpretation, or well log analysis, etc.
- education for potential proponents:
    conduct seminars for students, and young scientists

After all, linking industry with academia.

Discussion 2: SUPPORTS for PROPONNENTS
- support proposals of industry interests:
    reviewed and categorized proposals,
    examine possibilities of industry collaboration,
- provide a database of meta data:
    seismic line index maps,
    well location maps,
    availabilities of other data ,
- mediation of industry data

Discussion 3: INDUSTRY PARTICIPATION disclosure to IODP proponents
- establishment of contacts with the industry groups:
    energy, microbiology,
    mining, insurance, …..
- mutual promotion:
- support proposals of industry interests:

Current Action Plans

Review proposals submitted to IODP for interest to industry;
- identify data, analyses, etc that could apply
- suggest enhancements and advice for proposals
- meet with proponent(s) when and where requested

Identify areas of interest for joint industry/academic studies and coordination;
- identify topics on list of industry interests
- identify workers in industry and academia that share these interests
- conduct workshops for planning of new proposals
- make new proposals

Promote IODP and its benefits to industry;
- develop advertisement materials
- present to companies, meetings

Liaise between industry and academia on IODP issues;
- make connections where requested
- nominate for committees and panels

3.11. OD21 Report (Y. Yamada and K. Kodama)

Yasuo Yamada explained that a supplementary budget of US$1M for the building of the "Chikyu" was obtained from the Japanese government and hence the completion date of the ship construction will be in early USFY2007 (October 2006), one year earlier than anticipated. He illustrated graphic scenes from the sea trial first leg of Chikyu (April 22-29, 2003), including the departure of the ship from Tamano Ship building area as well as the interior of ship such as the core and the geochemistry labs. He showed that "Japan National Science Plan" in Japanese version had been published in November 2002 and its English version in January 2003.

Kazuto Kodama reported on the newly built Marine Core Research Center at Kochi University, which is celebrated for its opening at this moment. It consists of a core storage laboratory and a core analysis center with the state of the art analytical equipment. There are four sections in the Center: Core repository, sampling room, office space and rooms for advanced measurements including mass spectrometry, microbiology, and paleomagnetics.

Furthermore, Yasuo Yamada showed a video tape containing the footages of the signing of the NSF-MEXT Memorandum and the current operation of Chikyu in the Seto Inland Sea.

3.12. CDEX Report (T. Murayama)

Tatsuya Murayama presented the newly established (1 October 2002) Center for Deep Earth Exploration within JAMSTEC (JAMSTC); Asahiko Taira is the Director General of CDEX. This is a Riser Platform Implementing Organization with the following Services/Tasks:

- Platform Operation
- Science Operation
- Engineering Site Survey

Its missions are to contribute to the accomplishment of the IODP scientific goals, through safe and efficient operation of Chikyu. CDEX acts on:

- Site survey data acquisition;
- Interpretation and evaluation of the site survey data;
- Well planning and preparations;
- Supervising drilling and logging operations; and
- Supervising science services.

He described about the Drilling Hazards:

(1) Ocean Meteorological conditions
(2) Shallow Gas
  - Methane Hydrate
  - Shallow Water Flow; Met Ocean
(3) Geo Pressure
  - Blowout
  - Mud Loss
(4) Geological Condition
(5) Drilling Problems
  - Low Frac Grad
- Stuck pipe

He further illustrated the requirements for typical operations. For example, it will take about a year to drill 5000 m below sea-floor. Riser drilling preparations will take 52 months and thus at least four years must be the starting point before actual drilling. Riser drilling will require stepwise pressure control by setting up number of different size of casing strings.

3.13. iSAS Office Report (N. Eguchi)

Nobu Eguchi reported on statistics of proposal submissions for the last deadline (April 1st, 2003) as well as for those in the past two years. For the last deadline, a total of 26 proposals were submitted including 8 new proposals and 18 revised proposals. As before, slightly more than a half of the proposals concern the Environmental Change theme of the ISP and the others are almost equally distributed between the Deep Biosphere and the Solid Earth themes. A total of 101 proposals have been submitted during the past two years. Approximately the same ratios between the different themes of the ISP have been observed.

3.14. CDP Update (T. Byrne)

Tim Byrne updated the most recent discussions on Complex Drilling Programs. During the Montpellier meeting, iSSEP working Group 1 was formed to discuss about a CDP. The followings are summary of current consensus and recommendations.

Complex Drilling Programs: overview

- Development of CDP Proposals
- Mentoring CDP Proposals within the SAS
- Evaluation of CDP Proposals by SAS
- Assignment of DPGs to CDPs by iPC

- Scheduling of CDP Drilling
- Management of CDP Drilling through Time

Characteristics of a CDP:

- There is one or more, clearly articulated, overarching goal(s)
- The pathway to achieving these goals requires completion of a series of linked scientific and operational components
- All components can be completed in a reasonably short time
- The fundamental goal(s) cannot be achieved through completion of a series of independent drilling projects

Composition of a CDP

1. CDP Preface (umbrella):
   - Overview of the entire project with the vision, goals, context of ISP, and general drilling strategy
   - Accompanies all following component proposals
2. One or more linked (full) proposals

Dealing with a CDP proposal

- Submitted as a pre-proposal
- SSEPs evaluate appropriateness and readiness for full CDP (preface + component)
- If ready: external review of full CDP

Dealing with a CDP proposal

- If ready: reviewed CDP proposal goes to iPC
- If accepted, iPC forms DPG(s)
- Subsequent components submitted to SSEPs as full proposals, which, with the CDP Preface, are sent for external review.

4. Introduction to reviewing processes: Gilbert Camoin

Before starting with the reviewing processes, Gilbert Camoin presented the 4 recommendations made by the iSSEPs co-chairs at the last iPC meeting. During that meeting it was proposed by the iSSEPs co-chairs to organize an electronic meeting in August to review the external reviews and the related PRLs for the proposals sent out for external review after the Niigata meeting. The four recommendations were the following:

1. The iSSEPs should decide when a proposal is ready to be forwarded to the iPC.
2. The iSSEPs may hold one additional meeting this year in early August.
This meeting should be conducted electronically and focus on new external reviews and related response letters from proponents. The iSAS Office should confirm in advance the external reviewers for all proposals that could potentially be sent out for external review following the May 2003 iSSEPs meeting.
iPC also approved the following:
3. The iPC gives its approval for the iSSEPs and their iSAS service panel liaisons to identify proposals that could benefit from advice by particular service panels. The iSSEPs co-chairs must request the iSAS Office to seek permission from the proponents to distribute such proposals to the appropriate service panel for comment.

He also reviewed the conflict of interest rules and confidentiality requirements prior to the start of proposal reviews (see attached Table 1). Proponents are excluded from being in the room during proposal discussion, as are those having active projects closely related to the projects proposed. iSSEP members at the same institutions as a proponent must identify themselves to the iSSEP chairs prior to review discussions.

5. Working Group meetings.

The objectives of these working group meetings was to start discussions and exchanges on the proposals that are related to the same scientific theme, so that everyone will feel comfortable during the plenary sessions when the proposals will be reviewed. We expected that these working group meetings could improve the presentation of the proposals and the impact of discussions on each proposal. The following four groups were met. Proponents were asked to leave the room when his/her proposals were discussed, applying usual conflict of interest rules.

- WG1: Fluid flow/Deep biosphere : 505, 545, 547, 553, 629 and 633
  iISSEP members: Ashi, Henry, Rosenberg, Ruppel
  iESSEP members: Ge, Smith, Yamamoto, Takahashi
  Other: Takai

- WG2: Seismogenic zones : 537 and 603
  iISSEP members: Bangs, Chen, Tokunaga, Byrne
  iESSEP members: Hill, Ohkouchi

- WG3: Paleoceanography and paleoclimatology : 477, 549, 602, 626, 630, 514, 627, 595 and 618
  iISSEP members: Kominz, Yamazaki
  iESSEP members: Ravelo, Weissert, Wilson, Camoin

- WG4: Solid Earth/geodynamics and Climate tectonic links: 512, 631, 632, 595, 618, 612, and 628
  iISSEP members: Devey, Fujibayashi, Pedersen, Mikada
  iESSEP members: Brumsack, Filipelli, Kodama, Soh
  Other: Tatsumi

Friday May 23 8:30-19:00

6. Joint session for iESSEP and iISSEP: Proposal Reviews.

During the review meetings the panels considered the following proposals:
505-Add3, 545-Full3, 547-Full4, 553-Full2, 629-Full and 633-Pre, 537-CDP2, 537A-Full2, 603-CDP2, 603A-Full2, 603B-Full, 477-Full3, 549-Full4, 602-Full, 626-Full, 630-Pre, 514-Full4, 627-Pre, 618-Full, 512-Full3, 512-Add2, 631-Pre, 632-Pre, 595-Add, 612-Full, and 628-Pre.

The conflict of interest rules and confidentiality requirements have been respected during the whole review procedure (see Attachment Table 1).

7. ICDP Report (Harms)

Ulrich Harms explained the proposal review process by ICDP. In each fall proposals are submitted to ICDP Management, an iSAS equivalent and reviewed and ranked by Science Advisory Group, which is an equivalent of iSSEP. The ranked proposals are forwarded to Executive Committee, an equivalent of iPC, for authorization along with approval by Assembly of Governors. Then drilling operations are started.

There are five major categories of ICDP operations: paleoclimate, impact events, earthquakes, volcanoes, and continental dynamics. He then showed current and future drilling programs.

7.1. Unzen Drilling Project is taking place on an active volcano located in southern Japan and the objectives of the drilling are as follows. Two drill holes with casings and estimated maximum temperatures of 550-600˚C are located on the northern flank of the volcano:
- Eruption mechanism
- Conduit Formation
- Degassing
- Cooling
- Structure & Evolution
- Drilling Technology

7.2. Hawaii Scientific Drilling Project is continuing on Mauna Kea. The upcoming schedule for the operation was presented.

7.3. Dabie Sulu Project attempt to drill more than 5 km of rocks including metamorphic rocks. Thus far 2900 m of drilling has been achieved. It involves with a new 5.5 km ICDP wireline drill string and power swivel; that is the integration of GFZ power swivel into Chinese drill rig.

7.4. Lake Malawi Drilling Project is to drill high-resolution paleoclimatic records and decipher human evolution in the South East Africa. The project has the following key questions and objectives:

- Obtain a continuous, high-resolution (annual-decadal) record of past climates in tropics over 800 kyr
- Paleoclimate studies on unique sensitive lacustrine basin.
- Basin evolution studies in large closed basin.
- Evolut. biology in a system of unparalleled endemic biodiversity.
- Issues of Human origin in area of earliest human ancestors.

7.5. Lake Bosumtwi Drilling Project aims at drilling of 360 m lacustrine sediment of the 1.07 Ma impact which left a lake of 10.5 km diameter and 80 m deep in Ghana in the West Africa.

7.7. Impact workshops are planned for the coming September 2003:

- Deep Drilling in the Central Crater of the Chesapeake Bay Impact Structure, Virginia, USA.
- Anatomy of an Impact Basin- Scientific Drilling of the Sudbury Structure, Ontario, Canada.
- Marine Impact Processes: Drilling the Mjolnir Crater in the Barents Sea, Oslo, Norway

7.8. Fault Zones and Seismogenesis: Chelungpu Fault Drilling in Taiwan is planned and the specifics of the studies were presented.

Saturday May 24 8:30-17:30

8. Joint session for iESSEP and iISSEP: Proposal Reviews.

Sunday May 25 8:30-12:30

9. Joint session for iESSEP and iISSEP:

9-1. Grouping of two proposals (512Full3, 545Full3).

The grouping procedure was organized during a joint session and the panel members were invited to vote for all proposals.

The panel members were invited to group the relevant proposals in two categories:

I: Highest priority for iSSEPs regarding the scientific objectives of the Initial Science Plan ;

II: Important for iSSEPs regarding the scientific objectives of the Initial Science Plan.

9-2. The dispositions of all proposals considered have been summarized in Attachment Table 2. The panels will write a single joint review for each of the proposals of joint interest. The reviews will be edited and passed around to all panel members before being forwarded to the iSAS office for transmission to proponents.

9-3. Gilbert Camoin explained the forthcoming electronic meeting to be organized in August 2003. The iSSEPs electronic meeting will be held during the two weeks starting on 25 August 2003 by this date the anticipated external reviews will be available.

9-4. Guidelines for submitting IODP proposal to SAS

The following specifics are implemented in the Guidelines for submitting IODP proposal to SAS: The maximum length of full proposals: 25 pages, references are excluded from the 25 p limit; Pre-proposals: 10 pages maximum, references are excluded from the 10 p limit. In the past, color figures have been discouraged, but SAS will no longer enforce this and thus color figures are acceptable. Concerning the style of references, we recommend that proponents should write author names in the text and they should include titles in the reference list and thus avoiding the unpopular Nature style. Two pages of CV will be allocated for the lead proponents and one page each for all of the rest of the proponents. The latter inclusion of all proponents will ensure that lead proponents have in fact consulted the other proponents and thus prevents from unauthorized listing of proponent names. Line spacing of 1.5 space for text should be better specifies such as 32 lines maximum. This is because that 1.5 spacing in some word processing programs (e.g., Word 98 Japanese version which can handle English) would tell 20-30% less line numbers than the western ones due to spacing governed by the main language ruler.

9-5. SSEP structures

Kozo Takahashi expressed his and other Japanese members' deep concern about the efficiency of the panel structures and ways of evaluating proposals. The current format of a total of 32 members of iISSEP and iESSEP meeting size is significantly larger than he felt was desirable because there are cultural differences between Japan and the western societies and some people feel intimidated in speaking up, especially for initial and earlier meetings for individual participations rather than the seasoned ones.

It is necessary to overcome the cultural differences among the different nations and all IODP partners must be able to work together closely. Specifically, mutual understanding and communications must be made.

However, he felt that the current system is rather difficult in promoting some panel members' opinions and ideas. One of his suggestions to remedy this would be to reduce the size of meeting group and he suggested about 15 members as a possible candidate, although he also expressed his concern in inability in covering adequate expertise with such a size. He also stated that current proposal reviews in oral discussions are fairly complete and rigorous.

Gabe Filipelli commented that the problem of non-English native panel members has been well recognized by English-native members but could not find a solution. Also he has pointed out the necessity to discuss this issue as a panel.

Hans Brumsack commented that European members had a kind of culture shock when they started participating as members in the ODP/SAS system and that they gradually adapted to the system. He suggested as for the solution that every panel members should pay attention to non-English panel members, try to speak slowly to them, and try to listen to them

Hitoshi Mikada stated the followings. We should think about long and short-term solutions on this problem. The long one is the improvement of the Japanese education system and the short term one is to involve as many Japanese people as possible to the discussions in the iSSEPs. After 4 meetings, we feel the situation is getting improved and this improvement might continue just as many Europeans have applied themselves to the current ODP system. Kazuto Kodama stated that it has been well accepted that the small-sized working group discussions prior to the large sized ~30 people discussions worked out reasonably well. However, the time allocated was too short for satisfaction. And the large sized people's discussion appeared to be one sided.

Shemin Ge expressed the difficulty of non-English native members to jump in discussions and suggested the inclusion of possible future panel non-English native members in the panel meetings as observers.

Concerning this point, Rolf Pederson from Norway expressed his opinion as a non-English speaking point of view. That is, all panel members including non-English speaking representatives are expected to participate in oral debates equally, which cannot be easily done even though they try very hard just because of their handicap as non-English speakers. The speed and the way the meetings are handled cannot simultaneously easily be digested for non-English speaking people. He expressed that the review writing is very hard for non-English speakers and you cannot expect them to be able to complete in a few hours. He also shared his experience on the drilling ship where he was a co-chief scientist. When a cruise begins everyone is equal but gradually a hierarchy is generated. The top of such a hierarchy is lead by English speaking leaders and the bottom of the hierarchy is normally held by Japanese and other non-English speaking people such as Chinese people. Thus, it is desirable to fill the moat we currently have in order to have an equal participation from everyone.

David Smith mentioned his gratitude that this issue has been brought up this time and such an issue has never been brought up in iSciMP and thus he will try to bring it up in the panel. Kirk McIntosh also expressed his gratitude and the necessity to discuss this issue in iSSP.

Finally, Nao Ohkouchi suggested an opinion that 15 members as a new panel size and external reviews to cover adequate expertise in proposal handing, as a radical way to improve the inadequacy that we face.

Some panel members commented to Ohkouchi's opinion in terms of the difficulties of conducting external reviews. Gilbert Camoin suggested as one of the directions of the discussions as follows: (1) the iSSEPs panel co-chairs will pay attention to non-English members to express their opinions, (2) the co-chairs perceived the value of working group meetings of smaller scale before the review meeting as a whole.

Kozo Takahashi also brought up the conflict of interest issue. Because that Japan is such a country that substantial part of ocean sciences are dealt by JAMSTEC or ORI, most ODP proposals have proponents from these institutions and thus the conflict of interest issue will eliminate many JAMSTEC or ORI panel members in proposal reviews and thus it does not help. Gabriel Filippelli asked if, in the case that a proposal by a superior was negatively reviewed by iSSEPs in the presence of a junior lab member this might cause trouble with the superior in a tightly clustered Japanese society. Kozo Takahashi noted that it may well be the case, but it depends on the situation. Gilbert Camoin stated that the current rule does not say that the panel members from the same department of the same institute must declare co-chairs that he or she is from the same department, but it does not say beyond that. Hitoshi Mikada mentioned that the role of iSSEPs is to improve the quality of proposals and not to be rigorous about the conflict of interest issue, which should be one of the discussion items in SPC, SPPOC, etc. Tim Byrne told that the co-chairs have noticed some Japanese people were pretty nervous about the conflict of interest and summarized that the panel member should not feel the issue so deeply in iSSEPs unless they are included as one of proponents of proposals under review. Kozo Takahashi stated that most of us have not been encouraging them to participate in discussions on the conflict of interest cases thus far, but that in the future we should encourage people more in this attitude.

9-6. Discussion on CDP guide

A vision statement part of a CDP proposal should be 15 pages maximum in length. One to three pages each components should also take part in the proposal. The maximum length of a CDP proposal should be 25 pages.

9-7. Announcement on the coming SSEPs Meetings

Regarding the next SSEP meeting, Shemin Ge offered that the next meeting can be held in Boulder, Colorado. Two possible dates were given: 13-16 November or 20-23 November. The spring of 2004 meeting may be held in Europe somewhere.

The co-chairs thanked the iSAS Office and host Norie Fujibayashi for the excellent arrangements for the meeting.

9-8. Adjournment of the meeting and writing of proposal reviews in the afternoon.

List of Participants:

iISSEP
Juichiro Ashi
Nathan Bangs (Alternate to Donna Blackman)
Tim Byrne (co-Chair)
Colin Devey
Norie Fujibayashi (Host)
Michelle Kominz
Hitoshi Mikada (co-Chair)
Rolf Pedersen
Nina Rosenberg
Tomo Tokunaga
Toshi Yamazaki (Alternate to M. Yamano)

iESSEP
Gilbert Camoin (co-Chair)
Gabriel Filippelli
Shemin Ge (New member)
Phil Hill (New member)
Kazuto Kodama
Nao Ohkouchi
Christina Ravelo
David Smith (Alternate to Katrina Edwards)
Wonn Soh
Kozo Takahashi (co-Chair)
Helmut Weissert
Paul Wilson
Hiroyuki Yamamoto

iSAS Representatives
Minoru Yamakawa, iSAS Office
Nobu Eguchi, iSAS Office

Liaisons and Guests
Ken Aoike, CDEX observer
Hiroyuki Arato, iILP liaison
Millard F. Coffin, ORI observer
Javier Escartin, iSciMP liaison
Ulrich Harms, ICDP liaison
Jimmy Kinoshita, iPC liaison
Yoshihiro Masuda, iTAP
Tadao Matsuzaki, OD21 observer
Kirk McIntosh, iSSP liaison
Osamu Miyaki, MEXT
Ted Moore, iPC liaison
Tatsuya Murayama, CDEX observer
Kyoko Okino, iSSP liaison
Kiyoshi Suyehiro, iPC member, IMI secretary
Ken Takai, iSciMP liaison
Yoshi Tatsumi, iPC liaison, J-DESC
Yasuo Yamada, OD21 observer

Meeting Logistics
Toru Nishikawa, AESTO
Yu Shinmyo, AESTO
Mariko Tanaka, AESTO

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

Enclosure 10B

			1st proponent	proponents	Not active during the iPeriod
455-Rev3	**Piper**	**Laurentide Ice Sheet Outlets (LISO)**	**Canada**		XXXXXXXXXXXXXXXXXXXXXXX
477-Full4	**Takahashi**	**Okhotsk/Bering Plio-Pleistocene**	**No**	**Yes**	
478-Full4	**Tokuyama**	**Eastern Nankai Subduction**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
482-Full3	**Escutia**	**Wilkes Land Margin**	**No**	**Yes**	
489-Full3	**Barrett**	**Ross Continental Shelf**	**Yes**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
491-Full3	**Hinz**	**Cretaceous S. Atlantic Accretion**	**Yes**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
503-Full2	**Jokat**	**Weddell Basin**	**Yes**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
505-Full5	Fryer	Mariana Convergent Margin	No	No	
512-Full3/Add2	**Blackman**	**Oceanic Core Complex**	**No**	**Yes**	
513-Full2	Opdyke	Scott Plateau Paleoceanography	No	No	XXXXXXXXXXXXXXXXXXXXXXX
514-Full4	Droxler	Maldives Sea Level	No	No	
515-Full	**Flood**	**Black + Marmara Seas Sediments**	**No**	**Yes**	
519-Full2	**Camoin**	**South Pacific Sea Level**	**Yes**	**Yes**	
522-Full3	**Alt**	**Superfast Spreading Crust**	**No**	**Yes**	
531-Pre2	**Snow**	**Max Spreading Rate Core Complex**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
532-Full	**Tucholke**	**Kane Megamullion**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
533-Full3	**Backman**	**Arctic - Lomonosov Ridge**	**Yes**	**Yes**	
535-Full3	**Dick**	**735B Deep**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
537-CDP3	**von Huene**	**Costa Rica Seismogenesis Project**	**Yes**	**Yes**	
537A-Full3	**Vannucchi**	**Costa Rica Seismogenesis Project Stage 1**	**Yes**	**Yes**	
539-Full2	**Holbrook**	**Blake Ridge Gas Hydrates**	**Yes**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
541-Full	Anderson	Chilean Fjord Sediments	No	No	XXXXXXXXXXXXXXXXXXXXXXX
542-Pre	Mortimer	Hikurangi Plateau LIP (SW Pacific)	No	No	XXXXXXXXXXXXXXXXXXXXXXX
543-Full2	Harris	CORK in Hole 642E	No		
545-Full3	**Fisher**	**Juan de Fuca Flank Hydrogeology**	**No**	**Yes**	
547-Full4	**Fisk**	**Oceanic Subsurface Biosphere**	**Yes**	**No**	
548-Full2	**Morgan**	**Chixculub K-T Impact Crater**	**Yes**	**Yes**	
549-Full4	**von Rad**	**Arabian Sea OMZ**	**Yes**	**Yes**	
550-Full	Bradshaw	Carbonate Clinoforms, NW Aust/.	No	No	XXXXXXXXXXXXXXXXXXXXXXX
551-Full	**Gillis**	**Hess Deep Plutonic Crust**	**Canada**	**Yes**	
552-Full3/Add	**France-Lanord**	**Bengal Fan**	**Yes**	**Yes**	
553-Full2	**Riedel**	**Cascadia Margin Hydrates**	**Canada**	**No**	
554-Full4	Kennicutt	Gulf of Mexico Hydrates	No	No	
555-Full3/Add	**Kopf**	**Continental Collision, Crete**	**No**	**Yes**	
556-Full	**Wefer**	**Malvinas Confluence**	**Yes**	**Yes**	
557-Full2	**Andreassen**	**Storegga Slide Gas Hydrates**	**Yes**	**Yes**	

560-Full	Taylor	Return to Woodlark Basin 1108	No		
561-Full3	**Duncan**	**Caribbean Large Igneous Province**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
562-Full2	**Norris**	**J Anomaly Ridge Transect**	**No**	**Yes, ECORD+Can**	XXXXXXXXXXXXXXXXXXXXXXX
564-Full	Miller	New Jersey Shallow Shelf	No	No	
565-Pre	**Feary**	**Eucla Carbonate Platform**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
566-Full3	**Ashi**	**Nankai Trough Gas Hydrates**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
567-Full	Rea	South Pacific Paleogene	No	No	
568-Pre	Droxler	Northern Nicaragua Rise	No	No	XXXXXXXXXXXXXXXXXXXXXXX
569-Full	Goldberg	CO2 Sequestration	No	No	
570-Full	Haymon	East Pacific Rise Crust	No	No	
572-Full3	Channell	Late Neogene-Quaternary Climate Records	No	No	
573-Full2	**Henriet**	**Porcupine Basin Carbonate Mounds**	**Yes**	**Yes**	
574-Full	**Fouquet**	**Rainbow Hydrohtermal Field, Mid Atlantic Ridge**	**Yes**	**Yes**	
575-Full3	**deMenocal**	**Gulf of Aden African Climate**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
576-Pre2	**Deville**	**S. Barbados Accretionary Prism**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
578-Pre	**Hiscott**	**Marmara Sea Gateway**	**Canada**	**No**	
579-Pre	Anderson	Pacific Climate Variability - Skan Bay	No	No	XXXXXXXXXXXXXXXXXXXXXXX
581-Full2	Droxler	Late Pleistocence Coralgal Banks	No	No	
584-Full2	**Rona**	**TAG II Hydrothermal**	**No**	**Yes**	
586-Full2	Rubenstone	Hawaiian Coral Reefs and Basalts	No	No	
587-Pre	**Nelson**	**Gulf of Mexico Mini-Basin**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
588-Full	**Gradstein**	**Arctic-Atlantic Cretaceous Gateway**	**No**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
589-Full3	**Flemings**	**Gulf of Mexico Overpressures**	**No**	**Yes**	
590-Pre	Armentrout	Coop. JOIDES-Industry GoMex	No	No	XXXXXXXXXXXXXXXXXXXXXXX
591-Full2	**Herzig**	**Conical/Desmos Hyd., PNG**	**Yes**	**Yes**	
592-Pre2	**Andriessen**	**Shallow Water Dogger Bank**	**Yes**	**Yes**	XXXXXXXXXXXXXXXXXXXXXXX
593-Full	Flower	Gulf of Mex. Neogene Climate	No	No	
595-Full3/Add	**Clift**	**Indus Fan and Murray Ridge**	**No**	**Yes**	
596-Pre2	**Morrissey**	**Rockall-Hatton Cretaceous Hotspot**	**Yes**	**Yes**	
597-Full	Jaeger	S. Alaska High-resolution Sediments	No	No	
600-Full	Fulthorpe	Canterbury Basin	No	No	
601-Pre	Takai	Iheya Ridge	No	No	
602-Full2	**Edgar**	**Tropical Epeiric Seas**	**No**	**Yes**	
603-CDP3	**Kimura (Tobin)**	**NanTroSEIZE Overview**	**No**	**Yes**	
603B-Full2	**Underwood**	**NanTroSEIZE Reference Sites**	**No**	**Yes**	
603B-Full	**Kinoshita**	**NanTroSEIZE Updip Sites**	**No**	**Yes**	
604-Pre	Lee	Ulleung Basin	No	No	
605-Full	Tada	Asian monsoon	No	No	
606-Pre	Nishi	Mesozoic Greenhouse	No	No	
607-Full2	Dugan	New Jersey Slope	No	No	

608-Pre	Hasegawa	NW Pacific/ Cretaceous Greenhouse	No	No	
609-Pre	**Spiess**	**Himalaya-Bengal system**	**Yes**	**Yes**	
610-Full2	Mallinson	W Florida Margin	No	No	
611-Pre	Stott	Pacific Warm Pool	No		
612-Full	Yamazaki	Geodynamo	No	No	
613-Pre	Hoyanagi	NW Pacific Margin Transect	No	No	
614-Pre2	Tamura	Izu-Bonin Arc	No	No	
615-Pre	Matsuda	NW Pacific Coral Reefs	No	No	
616-Pre	Bralower	North Carolina Margin	No	No	
617-Pre	White	Hudson Bay and Strait	No	No	
618-Full	**Clift**	**East Asia Margin**	**No**	**Yes**	
619-Pre	**Mackensen**	**Indian Southern Ocena Latitudinal Transect**	**Yes**	**Yes**	
620-Full	Sager	Hotspot Seamounts	No	No	
621-Full	Bekins	Monterey Bay Observatory	No	No	
622-Pre	**Dunbar**	**Chilean Fjords**	**No**	**Yes**	
623-Full	**Neal**	**Ontong Java Plateau**	**No**	**Yes**	
624-Pre	**Pudsey**	**Atlantic Southern Ocean Paleoclimate**	**Yes**	**Yes**	
625-Pre	**Gersonde**	**Pleistocene Pacific Southern Ocean**	**Yes**	**Yes**	
626-Full	**Pälike**	**Pacific Equatorial Age Transect**	**Yes**	**Yes**	
627-Pre	Linsley	Clipperton Atoll	No	No	
628-Pre2	**Dypvik**	**Mjolnir Impact Crater**	**Yes**	**Yes**	
629-Full	Inagaki	Chamorro Seamount Deep Biosphere	No	No	
630-Pre	**Erba**	**Magellan and Manihiki Plateaus**	**Yes**	**No**	
631-Pre	Stephen	ION Observatories	No	No	
632-Pre	Lundstrom	Lamont Seamount	No	No	
633-Pre	**Brückmann**	**Middle America Slope**	**Yes**	**Yes**	
634-Pre	Barker	Antarctic Circumpolar Current	No	No	
635-Pre	Torres	Hydrate Ridge Observatory	No	No	
636-Pre	**Koppers**	**Louisville Seamounts**	**No**	**Yes**	
637-Pre	**Person**	**Nantuckett Hydrogeology**	**No**	**Yes**	
638-APL	**Dunbar**	**Adelie Drift**	**No**	**Yes**	
639-Pre	**Tamura**	**Izu-Bonin Arc Crust**	**No**	**Yes**	
640-Pre	**Ohara**	**Godzilla Mullion**	**No**	**Yes**	

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for
Ocean Research Drilling

Enclosure 11A

IODP Interim Industry Liaison Panel

Final minutes of first meeting, 20 – 22 February 2003

Vrije Universiteit, Amsterdam

Present:

iILP:

Hiroyuki Arato, Philippe de Clarens, Harry Doust*, Ryosuke Fudou, George Grabowski, Masao Hayashi, John Hogg*, Garry Karner, Hiroto Kanno, Isabelle Moretti, Heiko Moller, Martin Perlmutter, Carlos Pirmez, Weilin Zhu.

Guests (some part-time)

Jamie Allen, Nobu Eguchi, Michael Enachescu, Jimmy Kinoshita, Ted Moore, Kate Moran, Jeff Schuffert, Brian Taylor,

Absent (with apologies):

Alan Hoffman, David Roberts.

***iILP co-chairs**

AGENDA:

1. **Welcome and introduction of iILP members to each other.**
   - Areas of individual expertise and ODP experience were noted
   - Panel members are overwhelmingly energy industry-related, with relatively little representation from academia or the microbiology sector. There are no representatives from the mining or insurance industries. Expansion of the panel to redress this imbalance may be required in due course

2. **Presentation on opportunities for industry-academic cooperation in IODP by Harry Doust, prepared for lecture to the Geological Society, London, in April 2003.**
   - Harry will update this presentation and make it available to all iILP members as soon as possible, for their use in publicising iILP activities.

3. **Presentation by Jeroen Kenter on status of European Consortium for Ocean Research Drilling (ECORD)**
   - ECORD will forge the way to European membership of IODP. There are 4 members, UK, France, Germany and a consortium of 12 countries (including The Netherlands, Sweden, Norway, Spain, etc.)

- ECORD aims to fund Mission Specific Platform (MSP) operations such as the planned Arctic Lomonosov Ridge drilling in 2004 (but may not be the only sponsor of MSP's)
- A full report on ECORD status will be made at the iPC meeting in Austin, Texas (March 2003)

4. Presentation by Harry Doust on the history and current status of iILP, past initiatives in identifying areas of potential industry interest in relation to the IODP Initial Science Plan (ISP), reports on recent iPC and iSSEPs meetings, and some important and urgent issues/concerns for panel consideration

5. Brainstorming of some of the main issues to be addressed by iILP in the next couple of years. The following are in no ranked order:

1. The average 5 year period between proposal submission and programme execution has been a discouragement to industry participation in ODP, as has been the relatively low acceptance rate of proposals.
2. How can the iILP provide effective support to industry proponents, such that the evaluation procedure can be streamlined?

In the discussion and breakout sessions that followed, the following points were made or raised

3. The 5 years from Proposal to Drilling may be excessive (Leg 147, 182, drilling has been done in less than three years), and is perhaps no longer than some industry projects. ODP normally commits to a leg 2 years ahead of execution. It would be prudent to plan on a minimum of 3 years. Wherever possible industry should seek to piggy-back on existing proposals or aim to submit proposals at operationally favourable times. W.r.t. MSP's there is in principle no scheduling issue – if a budget exists the programme can be carried out.

4. iILP needs to establish clear links with the other IODP planning panels and understand their precise mandates and methods of working. Strong and active championship of industry-parented proposals will be needed.

5. In order to streamline the process, academic help will be needed with preparation and writing of proposals, especially multi-disciplinary ones. The minimum time for approval is 1.5 years, each revision adds about 0.5yr. Typical reasons for revision requests are that the scientific argument has not been fully articulated or formulated properly. So far only one fully industry-sourced research hole has been drilled (DSDP 96) so industry experience is small.

6. Industry objectives will have to be translated effectively into strong scientific objectives. It is anticipated that manner of presentation will be crucial, so close links to SSEPs panels must be established and maintained. The potential advantages of industry participation must be made clear to the academic community (possibly through some case-histories).

7. Cooperation between industry and academic IODP scientists will be essential in order to identify mutual areas of benefit and deliver the science plan. In the beginning, industry could consider small experimental add-on projects to already-planned legs
8. IILP must advertise its role to industry, for example in AAPG, AGU, GSA, EAGE, SEG, OGJ through presentations, publications and posters.

9. Industry can potentially contribute its experience in risk-assessment to IODP (both planning and operational).

10. The industry-dominated nature of iILP is beneficial to the urgent need to raise the profile of IODP science in industry, but in the longer-term the panel must avoid being seen as a pressure group.

11. Industry access to high quality 2D and 3D seismic data should be used to enhance IODP scientific objectives, but liaison with the site-survey panel will be crucial to separate scientific and safety aspects. Ideally, industry panel representatives should be in a position to decide whether their companies can release data or not. This will likely be on a case-by-case basis, whereby iILP will assume a liaison role. Scope is seen for involving geophysical service companies/vendors in the iILP (owners of much seismic data).

12. Industry could profitably consider convening (a)workshop(s) to identify the most urgent themes, objectives or key fundamental questions to answer in order to get maximum involvement, for instance in the context of Source-to-sink (S2S) proposals. Essential here is that such workshops are not funded by IODP (could be NSF, JOI, companies, national committees, etc).

13. Some concerns were expressed that IODP may seek funding from industry. While not encouraged, in special cases industry priorities may be addressed through such financial support.

14. The iILP panel composition is overwhelmingly oil/gas industry, with one from microbiology and none from mining/insurance. The mining industry should be approached, initially via academia.

15. iILP should make a recommendation to IODP on the scope for repackaging of ODP thematic data, assuming industry interest.

16. If set up, an ODP data base group would benefit from iILP participation. iILP might assist IODP in the creation of a meta-database of seismic/well data if requested – a recommendation should go forward to SSP to initiate such a meta-db.

6. Establishment of contacts. IILP needs to establish the manner of contacts with the industry groups. First thoughts are as follows:

- Energy / Microbiology. Where relevant objectives are seen in proposals that justify contact with these groups, iILP members will ensure that appropriate staff are informed

- iILP will develop a coordinated outreach plan to encourage participation of the above industries
- Energy service companies, as owners of considerable data sets, will be approached on a case-by-case basis for release of seismic to specific proposals as appropriate
- Contacts with insurance companies are likely to be in the areas of hazards and climate change (eg if sea-level research is involved). Exploratory contacts to be made in due course, as the extent of proposals covering these themes becomes clearer
- Mining – a possible champion may be identified in Canada. In addition, the AGI (to be contacted) has identified mining people involved in education
- Other parties – governments etc. are to be contacted as required (eg for permission to release data

7. Facilitation of academic/industry cooperation. Among iILP responsibilities will be

- Advice to other IODP panels (scientific, technological, organizational) on industry staff, funding, testing industry equipment, etc.
- Facilitation of industry data identification and availability, advice on confidentiality issues, and help with access. In general it is expected that locating appropriate data, establishing legal constraints to release and allocating/charging time to handling data transfer may represent the main challenges for iILP
- Help IODP with advice on complex operations and logistics (probably via DPG's).
- Working on scientific objectives together with IODP academics will require considerable mutual commitment. Perhaps a high-level IODP industry policy is needed to get this going? iILP will identify which projects could be enhanced through accessible industry seismic data and propose where the objectives could be enhanced
- Training plans. The widespread shortage of earth-science students makes attracting new staff imperative to industry. IODP may represent an opportunity for young staff to obtain training? This possibility will be explored. Further action will be contemplated later. Staffing of 3 platforms is likely to be a challenge, so there may be mutual value here. The programme offers of opportunities and greater flexibility time-wise than previously, so advertise!

8. Promotional material: requirements and preparation

- IILP panel members will commit to oral presentations at conferences – These should be identified and a tentative roster prepared. Preferably, a single story should be prepared, though flexibility will be needed to account for variations in place, emphasis and time of presentation. Perhaps need two talks, one for industry, one for academia
- Press releases, trade journals/newsletters
- iILP panel members should volunteer to chair dedicated IODP sessions at AAPG conferences – this could be an opportunity to present proposals of possible industry interest? Another option would be a booth at AGI, GSA (this is often a better means to bring the message over)

9. Examination of the current list of active IODP proposals

See http://www.isas-office.jp/active.html. Summary sheets of the 97 active proposals were examined and categorized as below. 28 were not seen, and those not mentioned were considered to be of no interest to industry.

- **S** = Clear interest to industry. **A/B** = no direct industry interest, but industry may be able to enhance proposal with data or experience. **C/D** = potential industry interest if industry objectives could be incorporated. **E** = general interest to industry scientists, but unlikely to attract direct industry participation
- **S**: 533 (Arctic), 547 (Biosphere), 552 (Bengal Fan), 554 (GOM hydrate), 564 (N.Jersey Shelf), 589 (GOM Overpr.), 595 (Indus), 600 (New Zealand), 601 (Microbiology),606 (Somalia), 607 (N.Jersey slope) (total 11)
- **A/B**: 455, 477, 549, 593, 596, 602, 608, 617, 618 (total 9)
- **C/D**: 505, 515, 519, 537, 553, 570, 573, 581, 584, 591 (total 10, includes some of potential mining/microbiology industry interest)
- **E**: 489, 555, 557, 564, 576, 578, 603, 604, 605, 609 (total 10)

It was agreed that proponents of S-category proposals would be requested to allow iILP to examine them for possible industry collaboration. After iILP panel members have read them, one or two will be nominated “active readers” to make recommendations on action at the next iILP meeting.

10. Discussion of the draft iILP Mandate and proposed modifications

See attached sheet

11. Joint meeting with iTAP: Discussion of respective areas of responsibility

Both iTAP and iILP provide links from IODP to industry. SSPPs may recommend to all proponents of proposals that they consult one or both panels**.**

- **iILP** will concern itself with promoting IODP in industry and providing advice on industry participation. It will also have in an advice liaison function to identify appropriate data, staff, etc. to provide advice on specific elements of the programme. It will primarily concern itself with scientific and data issues.
- **iTAP** will provide advice to IODP on the technical challenges that will need to be met in order to realize the medium to long-term scientific programme. This may involve R & D programmes and establishment of engineering teams, collaborative projects or commercial contacts. Technical challenges are likely to include deep water/penetration well design, HPT wells, gas-hydrate penetration and deep biosphere sampling.

Presentations were made by iTAP and iILP co-chairs, and on NanTroSEIZE (Harold Tobin – see full proposal at ees.nmt.edu/nantroseize) and CRISP (Roland von Huene).

Operations planning advice: For Chikyu operations, planning needs to commence in 2003, although there is as yet no defined programme in place. Two detailed planning groups (DPGs) are needed:

- A Drilling Operations Group, to carry out well planning (define hole design and experimental programme, etc.)
- A Complex Drilling Programme Group, to provide practical scheduling, logistic and planning advice

Both iTAP and iILP are requested urgently to identify industry staff potentially able and willing to serve as advisers to operators on these groups, and to provide nominations prior to the mid-March iPC meeting in Austin. In discussion it was suggested that participation in IODP planning could be in one of two ways:

- through membership of these DPGs, implying a longer-term commitment by individuals to specialist provision of advice. The manner of working and the likely time commitment need to be urgently addressed before industry staff could be approached
- through participation in peer reviews at critical phases in the project planning cycle. This would imply less time commitment by individuals and may, for many companies, be a more acceptable alternative

iTAP and iILP will prepare a project planning road-map, similar to those used in industry, for consideration by IODP.

ITAP/iILP liaison: From the above it is clear that iTAP and iILP need to keep close links with each other. This could be achieved either by

- regular joint meetings, as on this occasion. This would be beneficial but would be logistically difficult to maintain, especially when one or other panel may need to jointly meet with other iSAS panels
- ensuring that at all iTAP and iILP meetings, at least one, and preferably two members of the other panel are present. This option was preferred, being considered adequate and cost effective.

12. Plan for coming year and action items

The focus in coming year is likely to be on the following elements of the mandate:

- reviewing existing proposals for potential industry participation
- update of list of industry “burning questions”
- promotion of IODP in industry
- identification of barriers to industry participation and possible solutions

13. **NEXT MEETING**.

At the meeting, it was proposed to hold the next meeting on the occasion of the AAPG International Conference/Exhibition in **Barcelona, Spain, 21-24 September 2003**. The iILP meeting would then probably take place on Saturday and/or Sunday 21 September. Panel members will investigate a possible venue (AAPG, university, CSIC, hotel). **Subsequently, it appeared that the timing is difficult to accommodate with that of the September iPC. IILP co-chairs are investigating alternatives (eg October 9-11, London PESGB, October 25-26, Dallas SEG, November 1-3, Seattle GSA),**

Please note that proposals for additions or modifications are welcome. They will be discussed at the second iILP meeting.

Interim Industrial Liaison Panel (iILP)
– Draft mandate –
Version following first meeting (February 2003)

9.1 General purpose: As in the final draft document. No change proposed.

Possible addition for the future (after, say, 5-10yr): Identification of major scientific objectives to contribute to IODP. This would follow the identification, in the first few years, of specific projects of industry interest.

Italics are additions to original mandate

9.2 Mandate: The iILP will:

1. Develop effective links between academic and industry scientists with mutual research and technical/engineering interests.

2. Identify barriers to industry participation in IODP and recommend solutions for overcoming these barriers.

3. Develop mechanisms for sharing industry data/expertise/resources between IODP and industry scientists *and provide advice to IODP scientists where appropriate.*

4. Act as the liaison group for IODP to industry and selected industry associations, and promote IODP educational and outreach activities within selected industry professional organizations.

5. Assist with the identification of scientists and engineers from industry to serve on panels, committees and working groups of IODP as needed. These might include Detailed Planning Groups for complex multiple-platform, multiple-leg drilling programmes and/or interim Programme Planning Groups.

6. Define industrial priority research within the IODP context and facilitate communication and cooperative scientific and technical development activities between IODP and industry.

(Note: item 7 has been incorporated in item 5)

9.3 Meetings: The iILP should meet twice per year, separately or in conjunction with other iSAS panels or professional societies as appropriate. *Representatives from iILP will attend all iTAP meetings.*

9.4 Membership: The iILP comprises16 members, representing a broad range of IWG member nations, with a balance of expertise and research interests. It has an ideal goal of about two thirds of the members from industry, one third from academia. …Remainder as in the final draft

9.5 Liaisons: as in final draft

9.6 Chair: as in final draft

9.10 Housekeeping:
Contacts: Through twice yearly meetings and e-mail. Documents will be stored under the iSAS web-site. Action: request iSAS office to open a protected document environment.

Communication of decisions and nominations: Co-chairs will contact panel members as appropriate.

Individual responsibilities: Liaisons for proposal review will be nominated when the proposals are in – they will then be distributed.

Work plan: An iILP work-plan will be prepared and circulated.

Common story-line, material and plans for update: HD will update the existing story and circulate to members. Following comments from all, a common story will be prepared by end March. This should be updated each 6 months.

Conference representation: iILLP to be represented at AGU (December), preferably in a booth (also AAPG, GSA, EAGE, JAPT, etc).

9.11 GOALS OF IILP

- Achieve 5 industry-linked proposals or proposals with significant industry input in IODP, either with highly-ranked status or in a schedule phase within 5 years.
- Maintain a short list of the most relevant proposals for industry, and proactively offer advice in improving them/adding industry-related objectives.
- An as yet to be defined number of new project proponents come to iILP for advice per year.
- Maintain an evergreen list of industry scientific objectives, including longer-term (10yrs+) areas of interest.
- Achieve placement of industry representatives on all iSAS advice panels, including SSEPs.

- Achieve increased industry support for IODP, for instance including representatives on DPG’s, through active promotion.
- Aim to get at least one industry representative as co chief-scientist on an IODP leg within 7 years.

CURRENT iILP ACTION PLAN

Review proposals submitted to IODP for interest to industry and:

1. **identify data, analyses, etc that could apply**
2. **suggest enhancements and advice for proposals**
3. **meet with proponent(s) when and where requested**

Identify areas of interest for joint industry/academic studies and coordination

1. **identify topics on list of industry interests**
2. **identify workers in industry and academia that share these interests**
3. **conduct workshops for planning of new proposals**
4. **make new proposals**

Promote IODP and its benefits to industry

1. **develop advertisement materials**
2. **present to companies, meetings**

Liaise between industry and academia on IODP issues

1. **make connections where requested**
2. **nominate for committees and panels**

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 11B

iPPSP Meeting #3 – Minutes
June 16 – 17, 2003
Sola Strand Hotel
Stavanger, Norway

iPPSP members present:	Bob Bruce, Neil DeSilva, Martin Hovland, Hans Juvkam-Wold, Barry Katz (Chair), Susumu Kato, Jean Mascle, Toshifumi Matsuoka, Nobuo Morita, Craig Shipp, Dieter Strack, Manabu Tanahashi, and Joel Watkins
iPPSP members absent:	Juanjo Danobeitia and Tim Francis
Guests:	Jan Backman (MSP-533), Jack Baldauf (TAMU), Serge Berné (Promess), Colin Brett (BGS), George Claypool (Leg 204), Mike Coffin (UORI, University of Tokyo), Andre Droxler (iSSP), Nobu Eguchi (iSAS), John King (Lake Bosumtwi), Hajimu Kinoshita (iPC), Yngve Kristoffersen (MSP-533), Ted Moore, (iPC), Kate Moran (MSP-533), Dennis Nielson (DOSECC), Yoshifumi Nogi (iSSP), Terje Olsen (Smedvig Offshore), Dan Quoidbach (LEDO SSDB), Alister Skinner (BGS), Uko Suzuki (CDEX), Shinichi Takagawa (JAMSTEC), Masaoki Yamao (GODI)

The meeting was called to order by the chair on June 16, 2003 at 08:30.

Martin Hovland, acting as host, explained the safety procedures and meeting logistics.

Self introductions were performed by panel members and guests.

Minutes of the second meeting were approved, noting that the revisions suggested by panel members after the draft minutes were circulated had been incorporated.

The proposed agenda was reviewed.

<u>Report on ODP Drilling Activities</u>

Jack Baldauf reviewed drilling activities beginning with Leg 204 and discussed the remaining program.

> Leg 204 (Gas Hydrates Oregon) examined nine sites at South Hydrate Ridge. This leg was considered the most complex leg in the program's history because of the number of new tools introduced, changes in operations in response to observations and other scientific operations in the drilling area, the use of LWD prior to coring, and the number of staffing

changes. On-shore storage facilities for the hydrate cores were built for their storage under pressure and with liquid nitrogen in response to the amount of material recovered. Thermogenic hydrocarbons were encountered during the leg. The relative abundance of the higher molecular weight hydrocarbons was greater below the hydrate stability zone.

Leg 205 (Costa Rica) was drilled to examine fluid flow along the decollement and the igneous alteration history of the down-going plate. A modified CORK was successfully deployed at two locations. Problems were encountered in the deployment of the CORK on two other occasions.

Leg 206 (Fast Spreading Crust) drilled Site 1256 into the upper section of the crust in the eastern Pacific. The leg was designed to sample the crustal sequence in a fast spreading center. A follow-up leg is planned for the next drilling program.

Leg 207 (Demerara Rise) was a paleoceanographic cruise designed to sample along a paleodepth transect. The leg targeted Cretaceous anoxic events, the Cretaceous/Tertiary boundary, and the Paleocene/Eocene thermal maximum. The leg recovered significant amounts of black shales, recovering material from three different Oceanic Anoxic Events (OAE's). The Cretaceous/Tertiary boundary was sampled at 3 sites. The Paleocene/Eocene thermal maximum was recovered at five sites.

Leg 208 (Walvis Ridge) drilled sixteen holes as part of a paleoceanographic program. Drilling was performed along a paleodepth transect. The stratigraphic records recovered were near complete.

Leg 209 (MAR Peridotite) is currently drilling at the 15^{o}12' Fracture Zone. Five sites have been completed on the south-side of the fracture zone.

Leg 210 (Newfoundland Margin) is planned to assess the stratigraphic sequence of the margin, the nature of the basement, and its subsidence history. Plans are for a ~2100 meter cased hole.

At the completion of Leg 210 the ship will be demobilized. Demobilization will take place between September 21 and 30, ending the current program.

Leg 204 Detailed Review

George Claypool provided a more detailed review of the results of Leg 204 as it may impact PPSP policy. It was noted that the ODP PPSPl had approved the drilling into a frozen gas accumulation of ~9.2 BCF on top of the structure. Only the first site was cored prior to logging. The remaining sites were first drilled using LWD (logging while drilling) with follow-up coring. The holes were routinely deepened because of the position of the tool on the drill string. No real time LWD was available to the scientific party. LWD resistivity data clearly showed massive hydrates and free gas intervals. During the leg, hydrocarbon monitoring clearly lagged the coring operation. As per the *Safety Manual* the C_1/C_2 ratio was monitored. The data revealed slightly different values for the vacutainer and headspace samples. The headspace values tended to be lower (appeared more thermogenic) as a result of the loss of methane. The vacutainer data appeared similar to the actual hydrate values. Within the region, gas was largely present either in the hydrate or dissolved in water. There was no evidence for massive amounts of free gas below the BSR (i.e., it did not appear to represent a viable seal). Low C_1/C_2 ratios were observed in the shallow portion of the sedimentary sequence. These values increased with depth as a result of dilution by significant amounts of biogenic gas (methane). There tended to be a significant reduction in the C_1/C_2 ratio below the BSR. Hole 1248B was terminated because of the rapid decrease in the C_1/C_2 suggesting a greater proportion of thermogenic hydrocarbons. It was also noted that there was poor core recovery at the BSR. The gas expansion on deck was a clear safety issue. Sufficient expansion occurred in some cores to "explode", shattering the liner. H_2S was encountered in some shallow cores. The levels of H_2S required that the core technicians wear protective breathing equipment.

Key learning LWD as performed on Leg 204 was not providing real-time monitoring of the well and was not providing information on conditions near the drill bit. This suggests that those sites drilled using LWD were largely drilled "blind". This will be an item to be discussed at the next PPSP meeting in December.

Report on iPC Activities and IODP

Ted Moore briefly reviewed the status of drilling proposals that may come before the panel. There are currently seven proposals to be ranked in September. Additional proposals may be ready to rank by the September iPC/SPC meeting. A listing was provided and is presented below.

Ready to Rank
- 482 – Wilkesland
- 557 – Storegga Slide
- 573 – Porcupine Basin Mounds
- 584 – TAG II Hydrothermal
- 589 – Gulf of Mexico Overpressure
- 543 – CORK 642E
- 572 - N. Atlantic, Late Neogene

Pass to iPC
- 545 - Juan de Fuca Hydrothermal

External Review August '03 (may go to iPC/SPC for September ranking)
- 512 - Ocean Core Complex

- 547 - Ocean Subseafloor Biosphere
- 553 - Cascade Margin Hydrates
- 595 - Indus Fan

Report on iSAS Activities

Nobu Eguchi presented a brief report on iSAS activities. This review included a summary of the current panel meeting calendar and the distribution of proposals. A map was presented showing the distribution of proposals that may come before the panel in the near-future.

Riser Program Status and Operations

Uko Suzuki presented a status report on the riser program. He began with the presentation of a promotional video entitled “Journey into the Unexplored World”. The first proposed riser program is planned for the Nankai Trough. It currently appears that this program will deviate from the originally proposed timeline. The timeline appears compressed relative to the original guidelines suggested by both iPPSP and the operator. A complete science review for this initial program is being delayed pending additional seismic data. The *Chikyu* has completed its first sea trial and is currently in Nagasaki for installation of equipment modules, rigging, etc. Plans are that the CDEX safety panel will meet in association with the PPSP.

Review of Proposal 533-Arctic Lomonosov Ridge

Jan Backman presented a brief reminder of the scientific and drilling proposal for MSP-533. It was noted that the program includes five primary and three alternate sites. Four of the proposed sites are planned to penetrate below the unconformity by 50 meters. The program will address a series of tectonic and paleoceanographic objectives. The proponents reported that they believed, where appropriate, that they satisfied the issues raised at the panel’s December, 2002 meeting. These issued included:

- A need to clearly demonstrate that proposed drilling locations are off-structure. Structure maps, with posted control, might be a viable alternative for the lack of cross-lines;
- Better images of the shallow section are required, as is a seafloor swath map. The deeper seismic should be migrated, with “light AGC”; and
- Drilling order should be considered. The drilling sequence may permit deeper penetration.

Yngve Kristoffersen provided a review of the activity of the proponents since the preview and the geologic and geophysical framework required for the site by site review. Post-unconformity thickness is commonly 450 meters, but may be vary. Much of the variability is thought to be a result of mass wasting, resulting from ice movement. The erosion patterns suggest that the ice was diverted indicating that it was in the form of large icebergs rather than as a massive ice sheet. Problems associated with seismic data collection were reviewed. Depth control on both source and receiver was complicated by the presence of ice. These variations resulted in the need to manually edit the data. Maps were presented which indicated that locations 13A and 14A were not associated with structural closure at or below the unconformity.

It was noted by Alister Skinner that the capability to "kill" the hole with a wireline tool exists and will be available.

A site by site review was presented by Jan Backman.

LORI-06A was approved to a depth of 650 meters for shot point range 940 to 1350 on Line 98590. (An unusual BSR was observed. The panel's consensus was that it was not a reflecting a hydrate zone as a result of its continuity.)
LORI-12A was approved to a depth of 500 meters for shot point range 575 to 625 and to a depth of 720 meters for the shot point ranges 150 to 350, 450 to 575, and 625 to 840 on Line 98580.
LORI-5A was approved to a depth of 350 meters for shot points from 500 to 1100 and to 400 meters for shot points 1100 to 1600 on line 98565.
LORI-10A was approved to a depth of 400 meters between 980 and 1180 on line 96012.
LORI-4A was approved to a depth of 200 meters for shot point ranges 150 to 275 and 300 to 500, to a depth of 375 meters for shot point range between 500 and 650, and 475 meters for shot point range 650 to 800 on line 96015.
LORI-13A was approved to 500 meters for shot points between 1400 to 2100 and to 450 meters (drape only) for shot point range between 2100 to 2300 on line 91091.
LORI-8A was approved to a depth of 500 meters for shot points between 1800 and 3300 on line 91090.
LORI-14A was approved as requested to 400 meters at shot point 240 on line UB-0105.

The approvals are base on the assumption that the seismic line width is 200 meters with the stated navigation as the center point. Deviation beyond these defined limits would require review and approval by PPSP.

The proponents have requested that a member of PPSP participate on the cruise. Alternatively, the panel was asked to provide the name(s) of potential petroleum geochemists that may be able to participate.

(Martin Hovland was the watchdog for this proposal.)

The dataset should be consistently labeled (i.e., no data shifts exist) and available for review in its entirety (i.e. truncated data limited the panel's ability to assess site viability and lengthened discussions and review).

Courtesy Review Promess-1 Drilling

Serge Berné presented an overview of the Promess-1 program which is the drilling component of the Eurostrataform project. It was originally envisioned to be a test of the European participation as the operator for mission specific platforms. Promess-1 plans to drill within the Gulf of Lyon and within the Adriatic Sea. The idea is to examine the sedimentary systems linked to two major river systems, the Rhone and the Po. Specifically, the program will examine:

- Processes associated with the formation of sedimentary strata and the architecture of sedimentary bodies;
- Processes and timing associated of slope instability and the evolution of canyons; and
- Rapid climate change.

Rapid sedimentation in the study area makes it an ideal area to examine the climate change issue. Pockmarks were identified on sequence boundaries. These are thought to be areas of venting. There was no evidence of stacking of these pockmarks. These data suggest that venting was intermittent.

The panel required no additional review of the Adriatic Sea sites. The proposed deepest penetration in the Adriatic was only 70 meters. The seismic data from the Gulf of Lyon was briefly reviewed, where penetrations as great as 300 meters were proposed. No significant concerns were raised by the panel. They reminded the proponent that shallow gas should be avoided when attempting these deeper cores. The panel suggested that the seismic data should be reviewed/reexamined with this in mind.

The panel recommended that the data be reprocessed for reflectance amplitude to identify shallow gas.

Courtesy Review of Lake Bosumti Drilling

John King presented an overview of the proposed Lake Bosumti (Ghana) drilling program. The lake formed about 1.1 million years ago as a result of meteor impact. The lake is 8 km in diameter and does not currently fill the crater. It has a maximum water depth of about 80 meters. The maximum sedimentary thickness is ~310 meters. The sediments rest on Precambrian metasediments. The upper 10 meters of the water column is oxygenated. The remainder of the lake is anoxic. H_2S is present in the water column. The high reflectivity of the bottom water reflector represents shallow gas in the section. The gas is also thought to be responsible for the poor imaging along the lake basin flanks. Shallow piston cores reveal the presence of significant amounts of organic carbon (up to 10%). Even though the sedimentary section is organic-rich and there is seismic evidence for shallow gas recovered cores did not display significant expansion. Nine sites are planned along the available MCS lines. Drilling is planned to take place between March and June. This is considered the lake's most stable period during which turnover is least likely to occur. After the initial presentation, which included a summary of the proposed drill sites, no specific PPSP concerns were expressed about any of the proposed locations.

The primary concern expressed by the panel was how the drilling operation could impact the stability of the water column. It was recommended that the gas content and character be determined in the water column prior to drilling to determine how close to saturation it is and that gas content be measured while drilling. If gas content in the water column shows a significant, approaching saturation levels, it is recommended that coring be stopped.

Review of DOSECC (Drilling, Observation, and Sampling of the Earth's Continental Crust) Lake Drilling Capability

Dennis Nielson presented an overview of the DOSECC's lake drilling capability. The program currently has three drilling systems capable of operating over different water depth ranges. Details were presented for the GLAD 800 system, which will be used in the Lake Bosumti program. The rig has a water depth limit of ~200 meters. It is designed for operation under calm lake conditions because it lacks heave compensation capability. Minimal crew shelters are available on-board. The drilling barge is non-motorized and requires a support vessel. A 6 5/8" riser is used to stabilize the drill string. In addition to supporting the drill string the riser may be inserted into the mud to prevent sloughing. Mud and cuttings are returned to the lake flow.

Preview of Proposal 564-New Jersey Margin

Greg Mountain presented an overview of the scientific program and history of the New Jersey margin drilling program. The program was developed to examine the sea level curve and the depositional model associated with the development of clinoforms. The clinoform pattern within the area is well developed through at least the Miocene. The proponents recognized early that there was a need to use an alternate platform to complete this program This assessment was based on the limitations placed on prior drilling within the region. Leg 150 was restricted to slope drilling. Leg 174 included plans for shallower holes, but operator restrictions imposed after site approval limited drilling to water depths greater than 75 meters. The drilling of these two legs also identified a number of potential problems associated with the use of a dynamic positioned ship in shallow water including hole stability. Prior drilling also suggested that sand control could be a problem. It was assumed that a jack-up rig would be the preferred drilling platform.

Prior to the final review the panel requests that the following be made available:

- An independent assessment of the distribution and risk of shallow gas (products should include a map with the distribution of any gas accumulations, if present, and the proposed drill sites);
- Side-scan sonar over the sites to examine for possible surface hazard. If these data are unavailable, the panel will consider granting approval with the stipulation that a visual (ROV) inspection be made prior to final positioning; and
- A map of subsurface channel distributions with proposed site locations.

PPSP requests that the implementing organization contract for the necessary shallow gas risk assessment. It is our understanding that safety required surveys are not the responsibility of the proponents but of the implementing organization. PPSP would like this assessment completed before its December 2003 meeting so that it may hold a final review of this proposal.

Any required permitting by MMS is the responsibility of the operator. The operator and proponent should work together to insure that this process is completed in a timely and efficient manner.

The panel recommended that alternate sites be proposed and that the sites be located on the hazard survey line crossings. The panel will, however, consider approval based on a series of structure maps built from the available seismic dataset.

(Craig Shipp is the assigned watchdog.)

Review of the Data Bank and MATRIX Working Groups

Andre Droxler presented a review of the progress made by the two working groups which impact both iPPSP and iSSP. iSSP was recommending greater involvement including an annual review of the data bank, and assisting in defining the role of the data bank. There was also a suggestion that a report template should be defined. The MATRIX working group discussed an integrated, “automated” approach for the problem of data requirements for drilling program development for scientific and safety purposes. The MATRIX working group simplified merging of the data requirements and provided a foundation for the planning of a database/data bank. The recommendations from the MATRIX working group are attached.

The discussion following the presentation indicated a need to clarify the difference between recommendations and requirements. A timeline is needed to show when the data are needed in the review process and who is responsible for the collection of a given dataset (operator vs. proponent).

Panel members are asked to review the data requirements and provide any suggested revisions prior to the July meeting of the iSSP. Jack Baldauf, Alister Skinner, and Uko Suzuki will provide input from an operator's perspective.

Review Guidelines for Drillsite Selection and Near Surface Drilling Hazard Surveys

Bob Bruce presented on overview of shallow hazard survey requirements and final site selection. It was noted that the term shallow refers to the position within the sedimentary column and is independent of water depth. The draft guideline document was discussed (attached). It was noted that the single most dangerous hazard was the encountering of free gas before any pressure control system is in-place. The draft document was considered an excellent starting point clearly noting the many potential hazards and the data required to mitigate their associated risks. The discussion which followed raised questions concerningf responsibilities (operator vs. PPSP). It was agreed that this discussion will be continued at the next meeting after the three operators for the program have been established.

e-Review Process

The e-review process was discussed. It was agreed that panel members will be given two weeks to review the drilling proposal and return their votes and comments to the panel chair. As with all proposals the databank will handle the distribution of the safety package. The operator should be included in the proposal distribution. If there are concerns expressed by any of the panel members or the operator a full review will occur at the next meeting. If any panel member feels that a full review is required or that a site needs to be disapproved an explanation will be required so that the proponent can take the necessary actions to satisfy the panel member's needs, if possible.

Discussion on Coral Reef Drilling

Much of this discussion will be deferred to a later meeting (December, 2003). The key concerns are environmental, specifically how the drilling operation itself may impact the reef.

Jack Baldauf will provide a name of a contact to discuss environmental issues associated with reef drilling. The panel chair will then extend an invitation to participate in our December meeting.

Preview of Proposal 519-South Pacific Sea Level

No formal presentation was made on Proposal 519. A brief general discussion took place. (The proponent was not present.) Jack Baldauf noted that prior drilling in the Great Barrier Reef by the *JOIDES Resolution* required an understanding of the environmental zonation of the reef. Different restrictions were placed on different environmental zones. It was noted by Alister Skinner that the proposal is currently in review by the Australian authorities. It was suggested that the rules and restrictions imposed by Australia be accepted as the standard since they are likely to be stricter and considered a "best practice". The panel had requested at its last meeting the following items be prepared and/or considered prior to its final review:

- A map showing the distribution of living reefs and man-made objects relative to the proposed drill sites.
- High resolution back-scatter imagery/maps.
- An assessment as to how drilling might impact hydrologic conditions and ultimately impact existing reefs. Comments on proposed abandonment/completion procedures should be included.
- The type of drilling platform should be identified and a statement concerning the environmental impact of this selection should be included in the final package.

The final review of this program will be the first attempt an e-review.

The proponent will be asked to provide all necessary material to the data bank by September 22, 2003 so that it can be distributed to the panel by September 30. Panel members will be asked to respond by October 15 so that the proponent can be advised as to whether it will be necessary to make a formal presentation at the December meeting.

Dan Quoidbach will provide paper copies of the safety package to members of the PPSP and Alister Skinner who will be acting for the potential MSP operator.

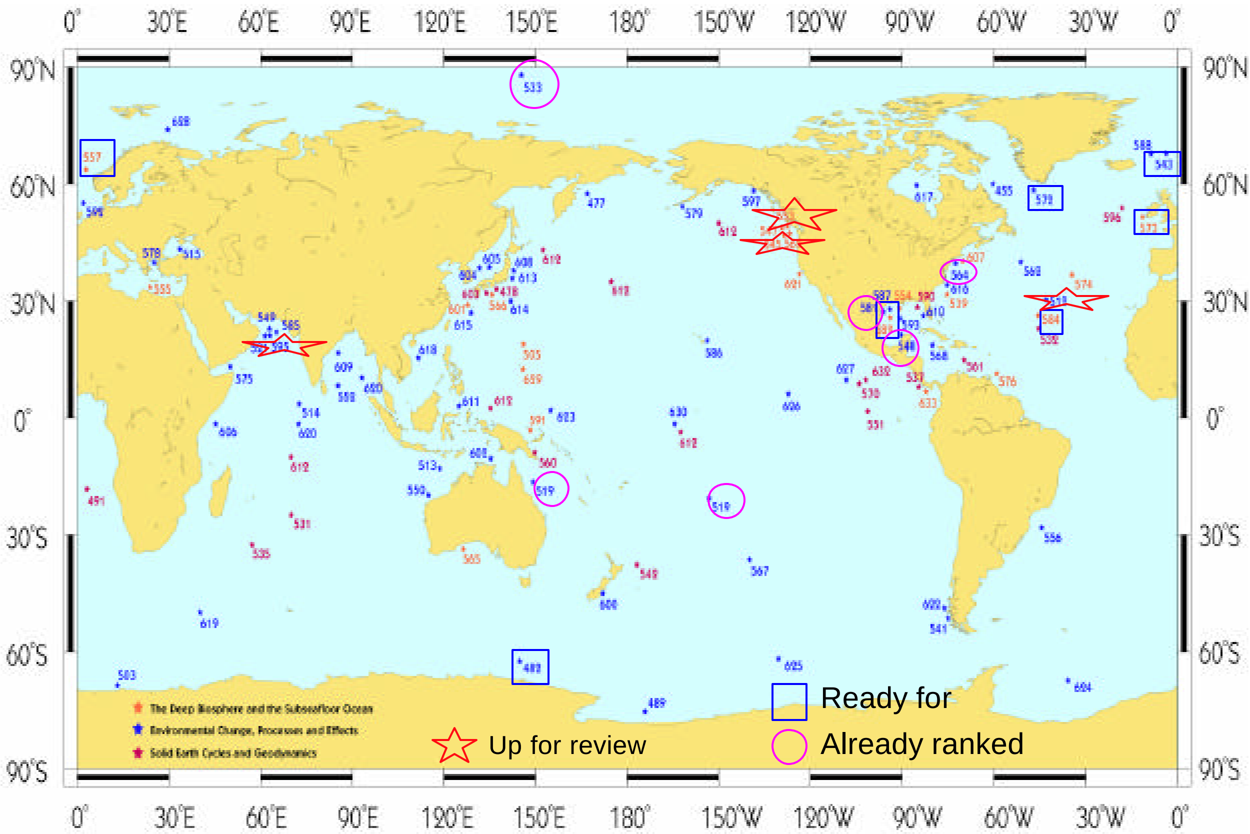
(Dieter Strack is the watchdog for the proposal.)

Next Meeting

The proposed next meeting date is December 15-16, 2003 (alternate dates December 18-19, 2003) in Nagasaki, Japan. Nobuo Morita will act as meeting host. Tentative items for inclusion in the meeting agenda are reviews of non-riser legs 1-3 (to be determined by SPC), review of Proposal 564-New Jersey, preview of first riser leg, discussion on philosophy of LWD vs. coring order, definition of roles of PPSP and platform operators, and environmental consideration for reef drilling. Additional safety items may be added as suggested by members of the panel, and as needed by the SPC and SAS.

The meeting was adjourned at 4:05 (June 17, 2003).

IODP Proposed Sites



MATRIX WORKING GROUP DATA NEEDS AND REQUIREMENTS

	Information/data (common data)	Special requirements	When needed
Basic needs	Depth of penetration Tectonic/depositional setting Nearby wells	**Man-made hazards* **HC shows* **Environmental ristrictions*	
Surface	3.5KHz	Video/photography	"Hard" irregular rock outcrop
		Side-scan	*Suspect gas seep, Bottom founded*
		Swath bathymetry	Active margin, bare rock, tectonic window, All riser
		Surface samples	Paleo (sed), bare rock and tectonic window (rock), re-entry sites **Surface slope >10°**
		Geotechnical properties	*Bottom-founded rig (MSP)* *Anchored-suspected hard bottom (MSP)*
Sub-surface	Lithologic projection Structural configuration (Seismic types be defined: see below)	*Shallow drilling hazard assessment*	*PPSP TO REVIEW*
		Heat flow	*Suspected HC provinces, suspected high heat flow*
		High resolution magnetic (hazard)	*Bottom-founded rigs, anchored rigs (pipeline?)*
		Velocity profile (time-depth control)	All riser, only passive & active margin >200m non-riser, *Case by case*
		Gravity/Magnetic	All riser(influenced by basement), non-riser tectonic window

Other		*Currents *Ice *Weather window *Tidal	
		Pour pressure Fracture gradient Pressure prediction	*Riser, suspected over-pressure*
		Maturity	*Potential HC provinces >2km sediment*
		Well program	*Riser, over-pressure w/o riser*
		Waste disposal	*Returns to sea floor EEZ drilling as required*
		Abandonment	*Riser*
		Environmental survey	*EEZ drilling as required*

Seismic: (soft rock: sediment)
based on penetration depth

less than 100m	2D SC high resolution (including Boomer) or 3.5kHz if it images the objective or 3.5kHz/low resolution if images the objective **Cross lines**
101 – 1000m	2D grid MCS (passive and active margins), X-line SCS (away from margins penetration <400m), >400m with grid MCS
more than 1001m	2D grid MCS, Spacing and 3D (case by case), *3D (horizontal riser)*

Bold=black=both groups requirement
Italic=blue=iPPSP requirement
Plain=green=iSSP requirement
*=blanket requirement

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for
Ocean Research Drilling

Enclosure 11C

DRAFT MINUTES

Interim Scientific Measurements Panel (iSciMP)

December 12-14, 2002

Edmonton, Canada

<u>Attendees</u>

i-SciMP

Buecker, Christian	Germany, RWE Dea AG
Divins, David L.	USA, National Geophysical Data Center, NOAA
Escartin, Javier	France, CNRS Institut de Physique du Globe
Gulick, Sean	USA, Institute for Geophysics, Univ. of Texas
Ikehara, Minoru (alternate for Y. Aita)	Japan, Kochi University
Kikawa, Eiichi (co-chair)	Japan, JAMSTEC, Washington DC
Lovell, Mike	UK, University of Leicester
Murray, Rick (co-chair)	USA, Boston University
Neal, Clive	USA, University of Notre Dame
Sagnotti, Leonardo	Italy, Istituto Nazionale di Geofisica e Vulcanologia
Saito, Saneatsu	Japan, JAMSTEC
Schmitt, Douglas	Canada, University of Alberta
Smith, David	USA, Grad. School of Ocean., Univ. Rhode Island
Takai, Ken	Japan, JAMSTEC
Tsunogai, Urumu	Japan, Hokkaido University

Liaisons and Guests

Brewer, Tim	JEODI
Goldberg, Dave	BRG, LDEO
Ito, Hisao	iPC
Kingdon, Andrew	JEODI
Kuramoto, Shin'ichi	CDEX
Kuroki, Kazushi	OD21
Masuda, Yoshihiro	iTAP co-chair
Moore, Ted	iPC
Moran, Kate	iTAP co-chair
Röhl, Ursula	JEODI
Schuffert, Jeff	iSAS Office
Wada, Kazuyasu	CDEX

Regrets

Aita, Yoshiaki (iSciMP)	Japan, Utsunomiya University

Executive Summary

iSciMP Recommendations, Consensus Statements, and Action Items

The second meeting in 2002 of the i-SciMP occurred on December 12-14, 2002 at the Alumni House of the University of Alberta, Canada, with panelist Douglas Schmitt serving as host. The two and one-half day meeting resulted in the following six recommendations, three consensus statements, and five action items. These are forwarded to iPC for comment and/or approval. A very preliminary list of future agenda items is also presented.

Recommendations to iPC

Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

> Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

Vote: 15 yes, 0 no, 0 abstain

Recommendation 02-02-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

> Background: The opportunity to build and expand on the database efforts of the previous program is now. A comprehensive IODP database must be functioning and ready to receive data at the beginning of the first IODP drilling project. The working group will also identify areas where improvements in the previous database should be addressed, such as observations based on scientific interpretation, and identify additional data types (downhole logging, seismic profiles, digital visual core description,

etc.) to be integrated into the comprehensive database.

We anticipate the Working Group will comprise 8-10 individuals, with diverse background and international representation (US-Japan-JEODI), gathering for 1-2 day meeting. Dave Divins, iSciMP member, will Chair and organize it, along with strong input from other interested iSciMP members (e.g., S. Saito). We anticipate the constituency will include up to several iSciMP members--either as formal members or as observers--but will not be limited to persons with ODP or Janus experience. They will meet in April or March, and have a full report draft available in advance of iSciMP's July meeting, so iSciMP can sign off on the final report at that meeting itself.

Vote: 15 yes, 0 no, 0 abstain. The recommendation was sent by email to iSAS on December 18, 2002, with iPC approval being received on January 9, 2003.

Recommendation 02-02-3: iSCIMP recommends that Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.

A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

Background: The operations committee (OPCOM) has the mandate to identify the appropriate platform for drilling projects, schedule each of the platforms, and make recommendations on major expenditures (e.g., ACORKS) on IODP projects. As such, this committee must ensure that the operations/management entities deliver the science recommended by the scientific advisory structure. This can best be achieved by strong input from the science and technical panels within the framework of a clear demarcation between advice and contractual responsibilities. Once the advice from the SAS is provided to the CMO, the CMO is responsible for contractually implementing the scientific and technical recommendations that include, most importantly, operational decisions based on the best possible science plans.

A major difference between IODP and ODP is multiple platform operations as compared with a single operator in ODP. It is important for IODP to adopt management instruments within the SAS and in the CMO that ensures the IODP is managed as a single entity instead of three separate platform operators.

This recommendation is intended to address these important issues for IODP.

Vote: 11 yes, 3 no (Saito, Takai, Tsunogai), 1 abstain (Ikehara).

Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Vote: 15 yes, 0 no, 0 abstain.

Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining non-contaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Vote: 15 yes, 0 no, 0 abstain.

Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.

(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.

(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives

(e) ISAS policy regarding conflict of interest will be closely adhered to.

> Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future.
>
> It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
>
> The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Vote: 15 yes, 0 no, 0 abstain.

Consensus Statements

Consensus Statement 02-02-01: The iSciMP's next meeting (summer, 2003) will be held jointly with iTAP.

> Background: While iTAP and iSciMP are two clearly different entities, their mandates are broad and show apparent partial overlap that require effective communication between the two panels. A joint meeting of the two panels will allow establishment of joint working groups and plenary discussions if and when required by the items in the agenda. Joint meetings may be carried out in the future on a regular or an 'as needed' basis, depending on the results of this first joint meeting.

Consensus Statement 02-02-02: The next meeting of the iSciMP will be in Nagasaki, Japan, and hosted by panel member S. Saito. Scheduling will be coordinated if possible so our meeting will begin after the July 11th ending of the IUGG meeting in Sapporo, Japan. The location will allow the panel to inspect the *Chikyu* and be further updated on the logistical support of OD-21.

Consensus Statement 02-02-03: The co-chairs and panel members of iSciMP, as well as liaisons and guests, wish to express their warmest appreciation and thanks to Doug Schmitt and his assistant, Dean Rokosh, of the University of Alberta for organizing the successful 12-14 December, 2002, iSciMP meeting and social events, and making everyone feel most welcome in Canada.

Action Items

Action Item 02-02-1: European members of i-SciMP select a representative of the panel to attend the ECORD Science and Operations Committee (ESOC) meeting in Amsterdam on January 17, 2003.

> Status: Javier Escartin attended meeting and will report to i-SciMP by email and follow up at the next i-SciMP meeting.

Action Item 02-02-2 iSciMP will select 3 members from the panel to provide input to iSSEPs regarding the proposed MBARI test site proposal. These 3 members will work with 3 members from iTAP and all six will report back to iSSEPs and their own panels with advice and suggestions.

Status: i-SciMP panelists Escartin, Buecker, and Lovell, will serve in this capacity.

Action Item 02-02-3: Kazushi Kuroki of JAMSTEC will provide i-SciMP with the latest Chikyu equipment list.

Status: List was received by email in early January, 2003, and subsequently distributed for comment on January 13, 2003. It is included in these minutes as Attachment B.

Action Item 02-02-4: iSciMP solicit input from other iSAS panels (e.g., iPPSP and iILP) and other members of the community regarding issues on analyzing, archiving, and disposing of drill cuttings.

Status: On-going.

Action Item 02-02-5: In response to iPC Consensus 3-17, i-SciMP panelists David Smith and Ken Takai will develop a list of potential members of an ad hoc Microbiology WG. Membership should be diverse and prepared to meet in March-April 2003 and report to iSciMP at next meeting. By iPC meeting in March 2003 a list of attendees and plan for when the meeting will occur and a draft agenda will be available. David Smith and Ken Takai will be the co-chairs of this ad hoc WG.

Status: On-going.

Preliminary List of Future Agenda Items

In order to plan adequately for future iSciMP meetings, the following agenda items are being considered for the Summer, 2003, meeting. These potential items are in addition to a number of issues resulting from the December, 2002 meeting and on-going projects, but provide an example of future discussions.

- Publications.
- Technicians (rotations, skill level, shipboard, shorebased).
- WG spreadsheets, prioritization of measurements and instrumentation.
- Scientific staffing flexibility.

Thursday, December 12, 2002

A) Introduction

The meeting began at 9:00 AM on Thursday, December 12, 2002, at the Alumni House of the University of Alberta, Edmonton, Canada. After introductions of all members and guests, host and panel member Douglas Schmitt provided a description of the facilities and an overview of social and related events. The original meeting Agenda is included in Attachment A.

B) Liaison Reports

iPC Planning
iPC member Ito presented the liaison report of the iPC. He emphasized the need to address coordination between iSciMP and iTAP, particularly with respect to future technology development. Murray brought to iSciMP's attention that the iTAP and iSciMP co-chairs already met (November, 2002) and on the basis of those discussions, discussions at this current iSciMP meeting, and the upcoming iTAP meeting, that there is likely to be a consensus view on this matter by the March 2003 meeting of the iPC. It will also be further discussed at this meeting.

Ito then discussed the ranking of proposals, and noted that during the last iPC meeting MSPs were ranked with the top five being identified. He reviewed iPC Consensus and Motions to help iSciMP focus its meeting, and in particular noted the iPC request to iSciMP that they form a Microbiology working group. He further noted that iPC has formed a working group to discuss the future OPCOM (Becker, Ito, Pezard, Pisias, Skinner, Taira) and that no consensus has emerged yet but will report by March 2003.

iSAS Office
Jeff Schuffert reviewed the iSAS panel structure and the schedule of upcoming meetings. During discussion, the upcoming ESOC meeting in January was noted by J. Escartin and A. Kingdon (UK, JEODI), where JEODI requests representatives from each panel to attend. On that basis, the following Action Item was identified.

> Action Item 02-02-1: European members of i-SciMP select a representative of the panel to attend the ECORD Science and Operations Committee (ESOC) meeting in Amsterdam on January 17, 2003.
>
> Status (as of 01/03): Javier Escartin attended meeting and will report to iSciMP by email and follow up at the next i-SciMP meeting.

After reviewing the basic statistics of proposals currently in the IODP system, he noted that 22 of them are addressing issues in the broad theme of "Solid Earth and Geodynamics", 20 are addressing "Deep Biosphere and Sub-seafloor Ocean", and 53

"Environmental Change". There are many proposals that address multiples of these issues (that is, few only target one of them). There was discussion about how important it is for iSciMP to be aware of these relative ratios--it doesn't behoove us to discuss in great detail issues that are not likely to come up if they are not being proposed. Schuffert emphasized that the iSAS is a support office and re-iterated that they will gather what information we wish from the proposals so that iSciMP can best identify issues before they arise.

iSSEPs

iSciMP member Escartin reported from the Nov 2002 meeting in Montpellier, France. During review of the proposals that were discussed in France, it became clear that the one of them in particular (Pre-Proposal 621, Monterey Bay Observatory, McNutt [MBARI] Lead Proponent) would benefit from input from iSciMP and other panels. ITAP co-chair K. Moran, who was also at the iSSEP meeting, agreed with this observation. The following Action Item was identified.

<u>Action Item 02-02-2</u> iSciMP will select 3 members from the panel to provide input to iSSEPs regarding the proposed MBARI test site proposal. These 3 members will work with 3 members from iTAP and all six will report back to iSSEPs and their own panels with advice and suggestions.

<u>Status (as of 01/03)</u>: iSciMP panelists Escartin, Buecker, and Lovell, will serve in this capacity.

Escartin then led a discussion based on several unifying points of relevance to iSciMP that arose at the Montpellier meeting. These include the need for a minimum set of standard measurements and procedures, the interest in Calypso coring, the on-going saga(s) regarding drilling basaltic material and zero-age crust, an interest in better orientation of cores, and the increased interest in high temperature drilling, sampling and instrumentation.

He further noted that there appear to be only a few ocean crustal formation proposals, which may reflect that the community sees zero age drilling as impossible, even in the new program. Also, despite its high visibility, there are no sole- or primary-focus Deep Biosphere proposals currently being discussed, which may reflect the pervasiveness of interest (that is, it is a common component of other proposals) or that they are not yet mature enough to migrate up to the upper echelon of the review structure yet.

The iSciMP then had a lengthy discussion regarding the degree to which they should get involved in the proposal review and construction process. For example, Murray asked if more mature proposals would benefit from increased proactivity of iSciMP. Divins noted the general problem of PIs missing expertise in their proposal or not aware of site survey needs, and noted that while the issue was important to iSciMP, it was also an issue that was across the program. Moran commented that part of the problem was that the new program must provide the environment so that PIs know they can come to panels for advice. Schuffert provided the reminder that PIs were told to focus on science and not worry about limitations or details of individual platforms.

Overall, the consensus view was that part of the proposal review process should include information passed to iSciMP so that conversations can happen with PIs. It is important that iSciMP not get involved in discussions about the scientific content, and indeed no one in the discussion expressed any interest in doing so. Nonetheless, the “value added” by having the relevant discussions well ahead of time is likely to greatly increase the quality of science that eventually results. Escartin suggested that the watchdogs maybe should have an additional formal mandate to make sure they pass on iSciMP-types issues about individual proposals to iSciMP.

It was decided that this issue needed more discussion, and time on Day 3 (Saturday) was identified and reserved for this topic (see “P “).

iSSP

iSciMP member Divins summarized his observations as liaison to iSSP. He noted that 5 MSP and 7 non-riser proposals were reviewed, and another 9 proposals were not ready to be ranked or forwarded. Part of the discussion resulted in the consensus that a drill ship is not a seismic survey vessel and that routine SCS does not need to be performed. Drilling proponents should identify and have approved by both iSSP and iPPSP the final drilling locations ahead of time.

This led to discussion regarding what should be required, versus what capabilities should be maintained to be available if needed. Clear identification between proponent responsibilities (site surveys) and IODP responsibilities (safety/engineering) will need to be clearly spelled out. iSSP has recommended that a new WG should be formed for IODP data bank issues. Results of its first meeting at AGU touched on at least two issues: 1) The gap between the phase-out of ODP and establishment of an IODP data bank and the need for data bank services to continue, and 2) What products and services should the IODP Data Bank provide?. The iSSP WG will next meet in February, 2003.

It was agreed that this issue merits further iSciMP involvement and discussion, as it bears directly on both measurement and data handling issues. Time was reserved for further discussion on this matter.

After the lunch break, Kuramoto (CDEX) presented information regarding the newly developed JNOC Database as a potential model for IODP Data Bank issues. This information had also been presented at the iSSP meeting of February, 2002. They are interested in collecting all seismic as well as logging data in one place (NDR data center, located 50-100 km SE of Tokyo in SKK). Data will be kept confidential, with a relatively small staff located in a small facility. Hardware includes Sun Enterprise with 450 GB hard disk, 2 X 700 GB Tape library, all normal types of tapes usable, Access protected by 2 firewalls and passwords and provided by web/unix. They are planning to include in Geoframe database but served out by LiveQuest software.

C) Review of Results from Last iSciMP Meeting and iPC Discussions

Murray provided a brief overview of this current iSciMP meeting and highlighted several relevant issues with respect to progress from last meeting, and the input from iPC. (1) With regard to the ongoing discussions regarding any one of a number of issues regarding database, core description, and so on, it is important that we do not particularly finger individual software systems or providers but keep discussions in terms of model systems. (2) The Sample and Data Policy report needs to be signed off on by end of meeting. (3) Given the rapidly approaching 'deadline' of the start of the IODP, and the relatively infrequent meeting schedule, it is well within our purview to request to setup WG's if needed to address issues in a timely fashion. The Microbiology WG is but one example of this, but there are likely to be others. (4) In addition to planning for the broad program, we must keep focused as well on the types and requirements of proposals that are coming down the pipeline so we are discussing the most important technology and measurements issues.

D) Report from iTAP by K. Moran

Moran provided an overview to begin laying out a framework for interaction between iSciMP and iTAP. Time is reserved later in the meeting for more detailed discussion, but the goal here is to get the panel thinking of the overlap so on-going discussions can be considered in the proper context. She noted that the general iTAP mandate is all long range technological developments needed to meet objectives of IODP. iTAP is not TEDCOM, but iTAP is on the technology recommendation and R&D side of the coin, not on the working or operator side. iTAP will be trying to develop technological needs in 2-5 year time frame, develop broad specifications and assess where it sits in R&D spectrum, and decide how the need should be implemented on the R&D spectrum.

A potential type of "decision tree" for recommendations re Science and Technology might be 1) if item does not exist then institute an ad hoc WG to decide if and how to develop, 2) if item partly exists, then after appropriate panel input the SAS could recommend the CMO be involved in improvements, 3) if item is off the shelf ready then recommend to buy it or not. One fundamental challenge will be to assess how much these needs should be proposal driven or are cross platform such that the whole IODP would profit scientifically from the new technology. There are multiple issues here that are in parallel to those facing iSciMP as discussed previously at this meeting.

As identified by Moran, specific examples of overlap between the panels include:

1. Drillpipe standards
2. How can new developments that are proponent driven readily be brought into the program?
3. Level of effort associated with technical developments (lab, hole, ship, drill)
4. Downhole tools: (a) wireline logging tools; (b) drillstring-latched (TLC) tools; (c) LWD and MWD.

5. Core handling, storage, transportation
6. Core archive (slab/u-channel)
7. Flexibility to incorporate expedition-specific techniques/technology
8. How much time should be allocated to technology trials/verification per platform per year?
9. Microbiology issues – technology overlaps.
10. Review the safety procedures (with iPPSP) for all three platforms
11. Observatories: what does the program provide? Guidelines are needed to help the investigators
12. Drilling or sampling or operational data needed for decisions on future developments/improvements/monitoring
13. Communications
14. Guide to the IODP issues

The preliminary discussion on this highlighted some key issues. Kuramoto noted that technology recommendations need to get to the operator in a timely manner. Murray observed that the operators will need to get directions from panels, so that they do not make de facto decisions in a vacuum of advice. The SAS structure needs to work more rapidly than in the past in getting these technological needs addressed, and must have the flexibility to go outside if that is more efficient.

Potential next steps were preliminarily discussed, and include (1) iTAP & iSCIMP liaisons and/or joint meetings, (2) Formal links with OPCOM, (3) A process to identify technology needs and who takes the lead on each.

In this context, it was noted that iTAP currently consists of 11 persons, but may be growing to 15. These issues need to be addressed shortly and will be expanded upon later at this meeting (see “ J”), as Ito noted that the iPC will report to IWG in January.

E) OD21 Progress Report

Chikyu and VCD: Kuroki provided an update regarding the *Chikyu* and CDEX issues. Drilling equipment is to be put on at Nagisaki Shipyard (NSY). Kuroki presented the latest floor layout for core processing, measurements, etc. In response to a question, he noted that at least one hood will be safe for $HClO_4$ (perchloric acid). Loading tests have been completed for lab elevator and lab hatch (on each deck).

The construction schedule is currently as follows: 2002=outfitting, early 2003=Sea Trials, middle 2003 in Nagasaki, rest of 2003 drilling modules installed, 2004= Sea Trials and then prep for Shakedown, 2005=Shakedown cruise and prep for training cruise in 2006/7.

Discussion centered on status of instruments and database. iSciMP member Neal asked if a list of equipment in Lab Stack has been distributed. While one had been sent to SciMP

(JOIDES) it had not yet been distributed to iSciMP (iSAS), but one would be sent shortly. This lead to the following Action Item:

Action Item 02-02-3: Kazushi Kuroki of JAMSTEC will provide i-SciMP with the latest Chikyu equipment list. Status: List was received by email in early January, 2003, and subsequently distributed for comment on January 13, 2003. It is included in these minutes as Attachment B.

In response to a query regarding distributing the exciting information and photographs of the *Chikyu* progress, Kuramoto noted that a flyer has been created and soon a website for CDEX will be created.

Within the CDEX operational structure it became apparent that there is a separate Site Survey group, observation of which led the panel to wonder how this Site Survey group fit in with the anticipated iSAS panel of similar interest (e.g., iSSP). Kuramoto responded that the CDEX group is specific to the *Chikyu* and with further clarification pointed out that CDEX group is to augment, not replace or supplant.

Kuramoto then presented an update to the OD21 Data Base, with a particular emphasis on the OD21-VCD (visual core description) with graphical representation, and provided a walk-through of some of its features. Murray noted that iSciMP said before that there should be one uniform and standard database between all platforms but that it may not be this exact database (that is, it hasn't been decided yet). Neal questioned whether the VCD will be able to or will need to be modified from cruise to cruise. It became clear from Kuramoto that the system does not care and there is ample flexibility to hand insert comments in system so it should be flexible enough.

Murray questioned whether the specific recommendations from last meeting of iSciMP were getting implemented. Panelist Saito commented that not all have been achieved yet but many have and more will be in the future.

Buecker then started an important discussion regarding the potential conversion of depths in the database from measured depth to subsurface depth for slanted holes, and this expanded into a broader discussion of overall flexibility of the depth data. Moran noted that since the OD21 database is built on JANUS, it should be, and Kuramoto confirmed that once the depth types are enumerated then OD21 can implement it. Analogously, iSciMP member Gulick queried about how the database will handle types of lithology or sediments that will be encountered by MSPs that ODP currently has no lithologic symbols for and will OD21 be looking at standardizing for lithologies that are not usually encountered in ODP. As this issue will come up later during the MSP discussion, discussion on this point was curtailed temporarily.

Downhole Measurements: iSciMP member Saito led a discussion of the findings of the Downhole Measurement WG that has been organized as part of the Japanese support system for IODP proposals in order to study downhole measurements and monitoring in deep holes. The WG chose the Seismogenic Zone as an example to develop an extensive wish list based on proposed science. One of the key issues highlighted involved long term monitoring of progress and how to best categorize items from preliminary survey, science priorities, technical difficulties that are achievable soon, over 5 years, 10 years, etc. Currently, in ODP non-routine measurements are developed by PI. In IODP, however, iTAP or iSciMP may study feasibility but the situation gets tricky in terms of obligations. In short, technology for long term monitoring and how to handle this in terms of iSciMP and iTAP and PI versus IODP obligations remains unclear. One way to help focus this, as suggested by Saito would be to, for example, separate sensor development from hole developments. Moran noted that iSciMP needs to standardize what are “standard measurements” and Ito confirmed that additional input is needed from iSciMP and iTAP.

F) Kochi Core Repository

Alternate panelist Ikehara (serving for Aita) provided an exciting overview of the on-going progress towards the development of the Marine Core Research Center (MCRC) in Kochi, Shikoku Island, Japan (conveniently located within walking distance from Kochi Domestic Airport). The facility is large!…approximately 100 m by 50 m with large numbers of cores being stored at 2°±2, small number at –20° and –85°C, and including a large sampling room, and laboratories for paleomagnetics, organic and inorganic geochemistry, sedimentology, MST and CT, X-Ray and SE, clean room, microbiology, and geochronology, to name but a few.

The presentation stimulated much discussion and enthusiasm, with most questions addressing the relationship between shipboard and shorebased measurements. Ikehara noted that it is not formally decided yet whether this will be an IODP facility. Kikawa queried as to the philosophy in mind for scientific measurements to take place in MCRC. Ikehara and Kuramoto pointed out that the philosophy is not yet finalized but routine measurement can be shared on land at MCRC and at sea. CDEX will provide some money for this core facility with idea that same measurements can be done onland and at sea. Murray was curious about what happens if SciMP decides a certain measurement needs to happen in the future on all platforms…will this trickle down to the MCRC? Kuramoto offered that such situations will arise, and it will need to happen but not clear whether at Kochi or elsewhere. Additional high-end facilities could get installed at the MCRC, but would need to be funded by someone else. CDEX will provide the curators.

G) Preliminary Results of ODP Leg 204

David Goldberg (BRG-LDEO) presented a summary of the logistics and accomplishments of ODP Leg 204 (Hydrate Ridge). This report was solicited because this Leg included many aspects of drilling that are likely to be more common in IODP, including multiple staff changes (including 5 Staff Scientists), use of novel instrumentation, extensive surveying both pre- and on-cruise, and so on. The personnel transfers worked well in that the rendevous’ were successful. The personnel changes affected the science party due to different people and sometimes the direction of science changed with different people.

One line was shot for a crossing line on a hole drilled outside of the 3-D survey. Six (6) sites were planned to drill, yet they ended up drilling 16. LWD was done shortly into cruise after only one cored hole and at end one was done to limited depth due to PPSP requirements. Pressure release was facilitated by drilling into liners, but they still had around 6 exploding cores. The PCS was used to measure gas constituents. The HYACE Lab Transfer Chambers (LTC) allowed for collection of cores under in situ pressure which worked on at least 3 of the cores. Infrared Thermal Imaging of the cores worked successfully. The logging included Density, Neutron Porosity, Electrical Resistivity, Acoustic Velocity, Neutron Spectroscopy, and NMR (for the first time). Nuclear Magnetic Resonance (NMR) in LWD measures for porosity and can theoretically measure exact hydrate abundance. Money for the new technologies like NMR ended up sailing through external support from, for example, US DOE. Some items came early (e.g., VSP guns) and others came later through efforts of Rack (JOI) and co-chiefs. This was long-run beneficial as well, for example the GI Gun on board will stay there but was purchased by DOE.

H) JEODI Presentation

Invited guests Kingdon, Brewer, and Rohl led a several hour discussion on the many facets of the European drilling initiatives with respect to MSPs, and the often unique parameters they will contribute to and require of the IODP. Kingdon reviewed the structure of ECORD (European Consortium for Ocean Research Drilling) and JEODI (Joint European Ocean Drilling Initiative).

Kingdon reminded the panel that ECORD's overall goal is to fulfill all science that IODP intends to do but cannot without MSPs. MSPs are required to drill in ice covered, shallow water, etc., and which specific platform is selected must be chosen dependent on location. For example, cores have been successfully obtained from geotechnical drilling vessels, jack-up platforms, seabed drills, or even drilling trucks on scaffolds in very shallow (well <10 m) water depths.

<u>Minimum Vans and Location of Science</u>: In most scenarios, MSPs will only be able to target the minimum amount of science on any platform, such as, curation, core description, time critical ephemeral measurements, logging, and MST. All other science operations must occur remotely, either in the immediate vicinity or in a more distant (central?) laboratory. In some cases, only a very few people can be accommodated on the platform itself, including perhaps just the co-chief(s), staff scientist(s), logging scientist, and curator. Kingdon emphasized that the science does not necessarily occur simultaneously with the drilling.

Murray commented that iSciMP has already provided a list of the minimum number of vans, along with a rough model of what should go into those vans, from a previous meeting (see further discussion below). Kingdon noted that in some extreme cases (e.g., drill truck on a platform) some of those vans may indeed need to be located onshore in the immediate vicinity. Kingdon feels that the majority of science and science parties will not take place on the platform. JEODI thinks this should often be at Bremen.

Potential Unique Aspects of MSP Operations: Kingdon summarized how MSP operatios need a different understanding of the science objectives and associated risks. For example,

- MSPs will need to be project-based, not Leg-based, as will also be the case with *Chikyu.*

- Timelines: Drilling and curation will first occur, then perhaps move to shorebased laboratory (Bremen?). Real time sampling will occur only if required, core splitting only if needed for objectives. One potential model involves having a restricted number of people offshore, but have the science party receive reports with possible consultation via email if turnaround time quick enough, with the science party meeting at Bremen, which is planning housing, sampling, and storage capabilities. What are implications for sampling moratorium and then fulfillment of obligation timeline for publication if such a schedule is necessary?

- Science Technical Liaison: It will be important that project specific science and technical needs be communicated at very early stage, as it is essential to have science requirements nailed down to allow contracting of the most appropriate platform, solicit advice on on-site needs, and need named individual(s) to interact with liaison.

- The physical separation of science and drilling areas, that works to ensure safety, will not be possible and thus more advanced training will be needed for scientists.

- Core diameter will not necessarily be of a fixed size between the various MSPs, and one meter sections may also be preferred. This latter point was discussed briefly but without coming to any conclusion, other than that in all situations (core width and length of sections) uniformity between riser, non-riser, and MSPs is the goal, so as to facilitate ease in archiving, sampling, and track measurements.

- Database system: Whereas in the current ODP, and presumably IODP, shipboard data acquired is uploaded into JANUS (or some relational database) in as near real-time as possible, it may be that for some MSPs this will be impractical. Instead, dealing with getting the data into the database within a (short) period of time afterwards may prove more workable. This point was discussed at length, and it became apparent that there was some confusion because the term "JANUS" was being used interchangeably. All parties agree that the data needs to be acquired in a fundamental format that follows JANUS structure, but that it need not be accessible through the JANUS program interface (which is the real concern) in real-time. See further discussion below (" Data Base Issues", in this same section).

- Future MSP proposers: Because MSPs are a completely new opportunity to the community, Kingdon suggested preparation of a manual for would be proposers since PIs are not aware of new capabilities. Moore noted that a WG already exists that is going to create such a document, and that, regardless, it is the new OPCOM that will decide whether the *Chikyu*, non-riser, or MSP is the most appropriate platform for a given set of scientific objectives.

PETRO-CLICs: Brewer then provided an overview of how to potentially improve linkage between logging and core studies. A model being considered would involve PETRO-CLICs (Core-Log-Interpretation Centers). Industry might come in for even just a single MSP project. Concept is that petrophysical staff scientists which are doing both logging and petrophysics, with PETRO-CLICs being spread about in terms of centers for maximizing outreach. The Central Office at Leicester would select from list of possible operators that are recognized and would be advised by steering committee and a panel called EPAL (European Petrophysics Advisory Panel) which would meet with CDEX and non-riser operators. Proponents would go to Leicester for advice, much the way proponents go to LDEO in ODP. Much expertise would be coming from the geotechnical community and so their tools and experience would be able to be incorporated into IODP better. Moran asked about the goal being to integrate core logging and downhole logging, and Brewer confirmed that it is theorized that such a system will maximize the science and works with the space limitation issues.

Bremen Core Repository: Rohl spoke briefly about the new facility being planned in Bremen. It should be ready in 2004. The envisioned MSP core-flow involves: On Deck to Ephemeral Measurement Container to Curation Container to MST Container to Bremen Repository/Laboratory.

Use of Vans: The above led to discussion of measurements—where, why, and how many. Murray brought up again that iSciMP (and SciMP before it) has addressed this issue in the past, with the recommendation being to consider the three diagnostic criteria of:

- Safety,
- Ephemeral Properties,
- Drilling decisions that must occur at sea (or on-site).

Smith noted that it was on that basis that the following five vans had been previously recommended by iSciMP:

Van 1: Curation,
Van 2: MST and related tracks,
Van 3: Ephemeral properties and safety,
Van 4: Cold Storage,
Van 5: Logging.

with it being acknowledged that not all vans would need to be physically on the MSP and that "near vicinity" is likely to fulfill the science objectives in some cases. To this end, Kingdon and Brewer emphasized that they would like to define capabilities but not the number of vans or their location.

Minimum Measurements: Escartin raised the issue about whether there would be duplication of all the measurements or some at or near platform and some back at Bremen. Brewer noted that, as with the current program, some would get duplicated and others would not need to. Indeed, some vans could even be left at Bremen for a particular project. Neal raised the issue of standardizing calibrations and measurements between MSPs and the rest of IODP. Brewer noted that they are looking to achieve what is currently on the ODP ship at least at the start, with results comparable to the current Initial Reports. Moore acknowledged that flexibility is important but that the program will need a consistent set of data that is done everywhere, and a minimum set of equipment that is transportable, and additional equipment that is not transportable. He further noted that we don't want to constrain this program but need to learn what is the budget required. Smith queried about the likelihood of multiple platforms acting as MSPs at once and Kingdon offered that while it would be nice that it was not going to happen in the practical sense at this point.

Database Issues: The issue of ensuring that MSP data is able to integrated into the IODP data base was revisited. Divins noted that it is not necessary that the database has to be on the MSP, as long as all of it can be entered in the database once the science party completes the initial measurements. Moran suggested that iSciMP look at the JANUS tables to see if they need to be improved. Kingdon raised their serious concern that JANUS will not end up compatible with the various anticipated MSPs and requested the flexibility to look further into this issue and not be constricted today to JANUS. In this sense, he was referring to the JANUS interface. Kuroki observed that OD21 is trying to integrate with JANUS since that is the starting point and that it would be important that the interfaces look similar for the users and similar data quality, etc. He noted that the important thing is that the user can compare all the data from all the platforms (riser, non-riser, MSP) and that we can export and import from whatever databases are being used. Murray emphasized the importance of the data coming from the MSPs to be seamlessly integrated with whatever the IODP database is. Kingdon agreed and further commented on the need of ease of uploadability on the platform. Escartin observed that this can work provided, for example, that at Bremen the information is added into the IODP database. This discussion led to the following two recommendations (on the next page):

Recommendation 02-02-1: iSciMP recommends that there be a *database operator* who shall function as the distribution and collection point for all data collected as part of IODP. The database operator will coordinate and facilitate efforts with the science operators of the riser drilling program, the non-riser program, and the mission specific platforms to establish the common database and user interface and for the uploading of all IODP data. iSciMP encourages this database operator to build on the efforts of the previous drilling program and to seriously consider efforts currently underway in support of IODP.

> Background: iSciMP recognizes the significance of data management and the role it will play in the future success of IODP. In order to truly function as an integrated program, there should be one common user interface and one comprehensive database, maintained at a central location and mirrored at appropriate nodes, where the user community is able to access, visualize, and download IODP data and information.

Vote: 15 yes, 0 no, 0 abstain

Recommendation 02-02-2: iSciMP recommends that an *ad hoc* database working group be immediately established to provide oversight and assure database consistency across all IODP.

> Background: The opportunity to build and expand on the database efforts of the previous program is now. A comprehensive IODP database must be functioning and ready to receive data at the beginning of the first IODP drilling project. The working group will also identify areas where improvements in the previous database should be addressed, such as observations based on scientific interpretation, and identify additional data types (downhole logging, seismic profiles, digital visual core description, etc.) to be integrated into the comprehensive database.
>
> We anticipate the Working Group will comprise 8-10 individuals, with diverse background and international representation (US-Japan-JEODI), gathering for 1-2 day meeting. Dave Divins, iSciMP member, will Chair and organize it, along with strong input from other interested iSciMP members (e.g., S. Saito). We anticipate the constituency will include up to several iSciMP members--either as formal members or as observers--but will not be limited to persons with ODP or Janus experience. They will meet in April or March, and have a full report draft available in advance of iSciMP's July meeting, so iSciMP can sign off on the final report at that meeting itself.

Vote: 15 yes, 0 no, 0 abstain. The recommendation was sent by email to iSAS on December 18, 2002, with iPC approval being received on January 9, 2003.

Friday, December 13, 2002

Murray began the day with a review of the previous day's progress and an outline of the goals for the day.

I) Micropaleontological Reference Centers

Ikehara presented a report of the MRC (Micropaleontological Reference Center) meeting that occurred at the National History Museum (UK) in October, 2002. iSciMP member Aita attended the meeting, as he operates the Radiolarian Satellite MRC in Utsunomiya, Japan. In the report from October meeting (included in these minutes as Appendix 3), there were several issues raised regarding the capabilities and status of the MRCs as the IODP spins up. The MRC operators had several proposals and ideas to suggest to iSciMP, including:

1) That IODP need to consider drilling strategies to get more biosiliceous material in the high-latitude northern hemisphere. In particular, Paleogene, Cretaceous, and Jurassic samples as well as northern high latitude samples are underrepresented.

2) That the MRCs play a lead role towards constructing new shipboard and shorebased micropaleontological databases.

3) That ownership of the MRC collections potentially be legally linked to IODP and that selected MRC material be transferred to permanent status at Museums.

4) That guidance be provided regarding the handling of MRC-collection ownership within IODP after ODP has phased out.

After acknowledging general support for the excellent work that the MRCs have been providing to the community for many years, Murray responded that #1 is a science issue and needs to occur at the proponent level. If a sufficient number of persons are concerned, then they should propose drilling expeditions to IODP to rectify the situation. Moore commented that all issues of statements of permanent loan, etc., need to be handled by the CMO which is in the process of being formed. Murray noted that iSciMP has already supported the goals and needs of having MRCs, and can support the need of having improved reference libraries, but, as Moore confirmed, iSciMP can not deal with issues of ownership. Moore provided the history that originally when the MRCs were set up they did it to enhance their own collections for free and then it evolved to making reference sets for the ship. There will need to be a discussion with the MRCs at a CMO level, eventually, regarding #2-#4. Murray noted that at that point, iSciMP would be glad to help support the need for MRCs and the vital role they play, but at this point the proposals presented are not in iSciMP's purview.

J) iSciMP and iTAP Coordination

Time was granted to continue the conversation regarding coordination between iTAP and iSciMP. All options ranging from having liaisons or merging the panels were discussed. The four co-chairs of both panels proposed that the panels jointly meet.

iSciMP member Lovell requested a reading of both panel's mandates. After Murray did so, Moore noted that iPC's intent was that iSciMP seemed overburdened and so iTAP was created to take some of that burden and go from a retrospective TEDCOM approach to a forward looking iTAP. Techonology and measurements interact with each other but needs two panels because it is a huge job.

Much discussion about the potential roles of liaisons, and of joint meetings, and whether these meetings should be held at an operator resulted in distilling down the pros and cons of joint meetings as follows:

Pros
1) All reports are only given once,
2) One can identify issues that both panels need to discuss,
3) Having people who are experts in tech and measurements together ensures good coordination.

Cons
1) May be trying to cram too much into a two day meeting.
2) Agenda building will be more complicated but can be done.
3) Size and associated logistics.

Moore noted that iPC is considering having a joint meeting of all co-chairs to enhance communications. Murray further noted that is also very important to have joint working groups. Meeting at an operator was not viewed favorably as it may lead to inhibition of discussion from the panel as well as the operator. Many persons thought that a liaison system was not sufficient to provide the necessary communication. Gulick and others agreed that merging panels is not desirable at this time. Murray and Kikawa recommend trying joint panel meetings with time for getting together. This resulted in the following consensus statement:

Consensus Statement 02-02-01: The iSciMP's next meeting (summer, 2003) will be held jointly with iTAP.

> Background: While iTAP and iSciMP are two clearly different entities, their mandates are broad and show apparent partial overlap that require effective communication between the two panels. A joint meeting of the two panels will allow establishment of joint working groups and plenary discussions if and when required by the items in the agenda. Joint meetings may be carried out in the future on a regular or an 'as needed' basis, depending on the results of this first joint meeting.

K) Discussion of IODP "OPCOM"

The potential constitution of OPCOM was discussed. Key discussion points focused on how to (1) maximize the involvement by the scientific community, (2) ensure the operators work together as one group to best benefit the scientific product, and (3) ensure balanced voting on issues. It was questioned whether iSciMP should be involved in these discussions at this point. Murray commented that it is within our means to be proactive, and Moore confirmed that OPCOM is one of the most important committees in IODP and so input is appreciated from iSciMP and other panels as early as possible in the process. Kuramoto and Ito expressed concern that iSciMP not move too rapidly, as this is a complicated issue that is being discussed in detail by an iPC WG. Several panelists saw the value in being involved in the discussions. Acknowledging that iSciMP's recommendation, whatever it may be, will be only a recommendation for iPC to consider, after much discussion of the pros and cons of various structures and approaches the following recommendation eventually resulted:

Recommendation 02-02-3: iSCIMP recommends that Science Advisory Structure includes an Operations Committee (OPCOM). We recommend that each panel should have one panel chair as a voting member on OPCOM. The CMO and each implementing organization should have liaison representation on OPCOM and collectively would have a single vote.

A single vote for the IODP management and operator team would ensure that the operations groups work together as a unified IODP operations entity. Voting representation by panels will ensure that science priorities (PC) are retained; scientific objectives (SSEPs) are defended; readiness and issues related to scientific measurements (SCIMP), technical issues related to platform needs (TAP), the site survey requirements related to drilling operations (SSP), and special needs regarding safety and the environment (PPSP) are assured.

Background: The operations committee (OPCOM) has the mandate to identify the appropriate platform for drilling projects, schedule each of the platforms, and make recommendations on major expenditures (e.g., ACORKS) on IODP projects. As such, this committee must ensure that the operations/management entities deliver the science recommended by the scientific advisory structure. This can best be achieved by strong input from the science and technical panels within the framework of a clear demarcation between advice and contractual responsibilities. Once the advice from the SAS is provided to the CMO, the CMO is responsible for contractually implementing the scientific and technical recommendations that include, most importantly, operational decisions based on the best possible science plans.

A major difference between IODP and ODP is multiple platform operations as compared with a single operator in ODP. It is important for IODP to adopt management instruments within the SAS and in the CMO

Continued on next page…

that ensures the IODP is managed as a single entity instead of three separate platform operators.

This recommendation is intended to address these important issues for IODP.

Vote: 11 yes, 3 no (Saito, Takai, Tsunogai), 1 abstain (Ikehara).

L) Drill Pipe Standards

Moran initiated a discussion regarding the issues with increasing or not increasing drill pipe standards in terms of impacts on scientific measurements. She reports on meeting with DOSECC where it came clear that DOSECC uses same size as ODP and which CDEX is planning for *Chikyu*. Thus, minimal modification is required to get riser, non-riser, and deep MSPs into standard of 5-5.5 API. However, in shallow MSPs the drill string may be too heavy at times and instead mining drilling standard may need to be used. Also, 5 m and 10 m standards will both work with MSP (5 m fit in a standard size shipping container), riser, and non-riser.

Kingdon commented that for MSPs it would really help to maintain flexibility for the shallowest water legs where light weight drill strings are required for operation issues and penetration depth. Ito queried about slim tool logging on MSPs, to which Kingdon noted that they will not be able to always use slim line Schlumberger logging tools and need flexibility to use other companies for tools that fit with the lighter weight drill strings. Schmitt provided examples of appropriate slimhole tool companies, and Lovell suggested that for testing one could actually run slimline tool in same pipe on non-riser ship to compare with the larger tools.

Issues of size of recovered material were brought up. Although COMPLEX identified a need for larger samples, the CDC suggested that most needs could be accomodated by drilling multiple holes. Smith and Takai strongly noted that core diameter should not decrease to smaller than currently used in terms of getting large enough microbiological samples, but the width currently used has been demonstrated to be acceptable. Sagnotti confirmed that the diameter of current core is okay for paleomagnetics and that standardization between platforms is important.

The discussion resulted in the following recommendation (next page):

Recommendation 02-02-4: iSciMP notes that standardization of drillpipe diameter across platforms has the potential to bring benefits to IODP. iSciMP recommends continued investigation of standardization of drillpipe across all IODP platforms. iSciMP recognizes that platforms may on occasion need to use alternate drilling systems, but such choice must meet the scientific objectives.

> Background: This important issue was raised at a number of different junctures at the meeting. It impacts multiple features of the new program, all operators, and all platforms. String weight, borehole size, coring size, sample size for different needs (microbiology, sedimentology and structure), logging, downhole tools, and other parameters will be affected. More input from iTAP and continued input from i-SciMP in early 2003 is needed.

Vote: 15 yes, 0 no, 0 abstain.

M) Reports from Individual Measurement Working Groups

Murray introduced the subject by identifying several goals of the overall WG discussions, including: (1) What are the different measurements needed, (2) What degree of standardization?, and (3) What data needs to be gathered in the future? These issues will be discussed here, and help identify critical gaps in our knowledge for discussion by email and at the next meeting. Also, we have the ability to recommend to iPC that ad hoc WGs be formulated if we feel it necessary to move in a more timely fashion.

The below presentations represent a first pass at identifying the above issues, with a target goal of the July, 2003 meeting being for final sign-off of lab-by-lab requirements.

Core Description: Saito observed that core description by naked eye is indispensable and that it must be continued as a fundamental component of the core description process. An effective data management system is required to provide efficient environment for core description, as database and core description are intimately related. Core description should include visual, core images, or any other non-destructive measurements, including x-ray CT images, MSCL, image scanning for hard rock, XRF, color reflection, image scanning all cut surfaces. For core splitting, the roughness is ideally < 1 mm so perhaps need to develop precise splitting technique, especially for hard rock cores which may be in pieces and cut individually by hand. The data management system should be able to display data from discrete core samples and logging data. Rohl expressed concern that this much imaging may be too slow to maintain flow on shipboard. For example, scanning XRF gives high-resolution geochemistry and is highly advantageous, but its processing time may be too long.

Much discussion centered on whether archiving of cores should be fundamentally changed so that individual pieces are archived according to their anticipated future need(s). Perhaps hard-rocks and soft-seds need to be archived differently, for example.

Perhaps archiving should change on a leg-by-leg basis, reflecting the specific leg objectives. Multiple points were made about the value of consistency throughout riser, non-rise, and MSPs. Overall, panel did not feel ready yet to make such a large decision, yet wanted to keep at the issue for the next meeting. Important concerns were expressed about compromising future measurements, using techniques not invented yet, if cores were sliced up for specific fractional archiving. Additionally, it would cause an enormous increase in workload for the operators.

Paleomagnetics: Sagnotti presented a discussion of the relative merits of discrete samples in lithified rocks versus continuous samples (u-channels or split half cores). U-channels avoid shear deformation and ephemeral mag problems while providing high-res data. Basic needed measurements include: magnetic susceptibility, NRM, Mag/Paleomag: Stepwise Demag by Thermal or AF. Highly Recommended measurements include ARM, Hysteresis, Thermomag curves. Such measurements should be made whenever possible but especially when very important for science proposed. Additionally, all measurements should be made as soon as possible because in part they are ephemeral. Measurements can be made in the following order: Mag Sus, NRM, stepwise demag NRM, Stepwise Aq and demag of ARM, Stepwise Acq and demag of IRM.

Dedicated paleomag labs will need to be located on *Chikyu*, non-riser ship, and shorebased labs. For MSPs, where ephemeral issues are important then a paleomag van for doing the measurements at sea will be required. Kuroki commented that transportation of cores for paleomag work must sent in a van without steel and in a nitrogen atmosphere. Rohl noted that Bremen has done this with success.

After a lengthy presentation of the details of various instruments, it became clear that it will be very important to define the diameter (and therefore the resolution) of the pass-through cryogenic systems. A small diameter system will ensure the high-resolution needed for discrete samples or u-channels, whereas a large diameter system will allow the measure of archive half-cores. The relative merits of u-channel sampling was discussed, with respect to whether they could be used, after paleomagnetic measurements, as permanent archives or as undisturbed samples to be passed to other laboratories for further analyses. No decision was made on this subject, and it should be revisited in the future.

Physical Properties: Schmitt led the discussion by noting that important considerations for this group were making measurements in different types of rock and sediment, and to ensure links with other measurements, both shipboard and downhole. It will also be important to develop standards for core-log integration. Buecker noted that standards for seismic-core-log integration do exist from SciMP (JOIDES) and Kingdon pointed out that they are putting core and log together in their model for MSPs so that they integrate from the beginning.

With respect to the large number of track type instruments (e.g., MST), several panelists noted that sometimes resolution is compromised on legs due to speed through MST, so perhaps dual sensors or dual MST tracks for getting the high-resolution data should be considered. This was met with general support from the panel. For example, while natural gamma at its current resolution is not helpful for paleoceanographers, Buecker pointed out that with new sensors the resolution can be increased to be sufficient for such purposes.

Discussion addressed in various ways the issue of destructive measurements. For example, rock strength is a destructive measurement, but is of great interest. Moran noted that there are ephemeral properties relating to response of the core to differences in stress that are not destructive. This led to further points regarding location of measurements. For example, permeability can't be measured in the hole so it is important to measure it on the cores. However, Lovell noted that some of these measurements as well are destructive: Permeability requires dry cores. Moran commented that pore pressure is vital for some programs and needs to be included in some WG, and Ito further noted that for deep coring legs some measurements need to be done under pressure. Lovell observed that there is no point in measuring rock mechanics under pressure unless pore pressure is quantified since the goal is effective pressure.

Paleontology: Ikehara summarized three main proposals from the Paleontology WG.

1) Gather an additional sample per core for micropaleontology, in addition to the typical core-catcher sample. This would effectively double the initial shipboard stratigraphic resolution. The main purpose of this proposal is to provide higher resolution paleontological data in keeping with requirements of the Initial Science Plan (ISP). In addition, it would provide a more robust record of fossil assemblages that can be related precisely to core level and well-defined lithofacies.

2) For the riser ship, use the cuttings at certain sites at 10 m intervals. This would require special people and rooms for analyzing cuttings, special resin cases for storing cuttings, and new database system for logging cuttings.

As there was insufficient expertise present to discuss cuttings in detail, and the subject was broached with respect to other subjects as well (see "Geochemistry WG" below), the following Action Item was agreed upon:

Action Item 02-02-4: iSciMP solicit input from other iSAS panels (e.g., iPPSP and iLP) and other members of the community regarding issues on analyzing, archiving, and disposing of drill cuttings.

Status: On-going.

3) Develop a new prep routine for sediments and lithified rocks. It was proposed that strategies be developed to improve efficiency and routines to process sediment samples including extremely hard rocks:

a) Sodium tetraphenylborate method is available for very hard shale.

b) An integrated process of two or more microfossil groups (foraminifera, radiolarians, diatoms, palynomorphs) be conducted by specialist technicians. With the consultation of staff scientists and paleontologists, co-chief scientists could make a decision of using further samples for paleontological study when certain cases are identified, such as when the recovery of sediments is expected to be less than 50%. More than two technicians are ideally required for this procedure and they should be skilled in knowledge and experience of chemical experiments.

There was discussion as to which of these measurements needed to be routine for all platforms, under which conditions some of the sampling could be streamlined, etc. It was agreed that these issues shall be considered and revisited at our next meeting.

Microbiology: Takai and Smith led a discussion regarding the microbiology anticipated needs and issues. Murray reminded the panel that iPC has recommended iSciMP form an ad hoc WG to address the myriad challenges presented to us by microbiology. Takai noted that at present we cannot make certain standardization measurements because it is such a new field. However, certain commonalities can be identified for all three platforms:

1) Determination of contamination to ensure acquisition of indigenous samples. Thus, it will be critical to use routine contamination protocols (e.g., ODP Technical Note 28) and possibly use growth gels,

2) Will need to continue to improve core handling procedures, and include subsampling of whole round cores immediately after core arrives on deck and in absence of oxygen. In some (many?) cases, several holes will have to be acquired at each site,

3) Curation and archiving of whole round samples and subsamples. Procedures such as the long term preservation in liquid nitrogen and short-term preservation of core-slurry in refrigerator need to be codified.

During discussion, Moore questioned whether in the future that microbiology will ever become a routine sample requirement. Smith and Takai, and many panelists, expressed support for doing so. Smith added that in microbiological sampling speed is of the essence in some cases since it is a cold sample coming up through warm water. Also the cores should be kept relatively cold (approximately 10°C) for sampling/sectioning for purposes of culturing since the heat will kill the living biota. Moran expanded the discussion to include considering why not measure other ephemeral props (such as MST) at cold temeratures. It was noted that Mr. Wada from JAMSTEC will be giving an additional presentation on Saturday regarding gel coatings during coring to prevent microbial growth (see "O"). These and other comments resulted in the following Action Item (next page):

Action Item 02-02-5: In response to iPC Consensus 3-17, i-SciMP panelists David Smith and Ken Takai will develop a list of potential members of an ad hoc Microbiology WG. Membership should be diverse and prepared to meet in March-April 2003 and report to iSciMP at next meeting. By iPC meeting in March 2003 a list of attendees and plan for when the meeting will occur and a draft agenda will be available. David Smith and Ken Takai will be the co-chairs of this ad hoc WG.

Status: On-going.

Geochemistry: Murray gave a brief overview of the geochemical needs as they pertain to aqueous (ephemeral) measurements and solid phases measurements (bulk chemistry as well as highly spatially resolved geochemical data such as scanning XRF, laser ablation). He anticipates that future improvements in IODP's abilities to acquire spatially resolved data will be a major emphasis. In all cases, the issue of consistency among the platforms will be important, with respect to element menus (and the ability of the database to handle variability therein), calibration and QA/QC. These and other issues will be more specifically outlined at the next meeting.

During discussion, the potential for working on drill cuttings was raised, and Murray noted that particularly with the increasing abilities of geochemical instruments to deal with small samples that we will attempt to capitalize on the availability of the cuttings. Moore noted that we are going to have to deal with the mud and cuttings for both environmental issues as well as archiving. Buecker suggested archiving cuttings every 5 or 10 m. Kuro noted that the plan for *Chikyu* in terms of cuttings is to send cuttings to land to be disposed and to collect ~200 cc every 10 m for analysis and archiving. Refer to Action Item 02-02-4, above.

Borehole/Drilling Measurements: Buecker noted that each drilling platform in IODP will require a different standard for downhole measurements. Each logging program must be carefully prepared to assure the goals of each drillling project. The common logging needs for all platforms are:

1. *Required equipment* for acquisition system and borehole safety. Buecker provided examples of industry standards but since we are not looking for hydrocarbons then we will need to develop our own.

2. A list of *minimum required measurements*. The minimum required measurements for standard logging include borehole environment (caliper, temperature), lithological logs (natural gamma), nuclear logs (porosity, density), electrical resistivity (deep and

shallow), sonic (at least p-wave), magnetism (magnetometer and magnetic susceptibility), borehole imaging (electrical or acoustic), and seismic check shots (VSP recommended).

3. *Quality control for data acquisition*. A repeated run is recommended, so as to give confidence in the reliability of the data. Also, reasonable resolution and sampling interval (6 in) are recommended.

4. *Quality control for routine processing*. There needs to be a required minimum for on-site data processing and a required level of data correction for large storage. Whatever corrections are made, they must be stored with sufficient description to be able to get back the raw data.

5. *Data management and distribution* will require establishment of a log database for each drilling platform. There will need to be centralization of data distribution for all drilling platforms, accessible via the www and responsive to the 1-year moratorium. The log data analysis centers need to be integrated across all 3 parts of IODP.

Buecker further described anticipated needs for each platform:

Non-riser. Maintain current ODP logging standard…we have more than 20 years of good experience with it, and the program should fluorish. However, there is a real need to use new standard tools to capitilize on innovation potential.

Riser: Maximize advantages of large diameter logging tools (industrial standard combinations, imaging tools such as fullbore electrical imaging, dynamic formation tester, magnetic resonance, dipole shear sonic, hostile environment tools), along with frequent use of the LWD and MWD (LWD in uncored intervals, LWD/MWD in pilot holes). Develop Logging-While-Coring?

MSPs: Will need the required equipment for rig-floor acquisition system and borehole safety (depth control, heave compensation, cable tension, head tension, etc.). There will need to be a certain level of on-site initial processing, followed by shorebased processing. For slim hole logging, 2.5 in diameter tools will have to meet the required measurements in IODP at a minimum.

During discussion, Saito thought there may not be a very good off the shelf magnetic susceptibility tool, but Buecker pointed out that we need to look beyond Schlumberger's offerings and that there in fact are. There was much discussion among the panel about how industry standards and tool strings could add a lot to the IODP that ODP has not taken advantage of successfully. Specific points included large diameter tools that could be deployed through the riser, latch-in-to-bit tools, and that there is no standard for DSI (only for P and S wave velocities). Moran suggested we consider technology that can log through casing for the upper holes. Ito and Lovell both suggested to consider breaking long tool strings into shorter ones to get upper hole information. Alternatively, Moran pointed out that the holes could be logged on the return run with a latch-on module if we investigate some of the geotechnical tools.

Gulick emphasized that it is important that the Logging Data Analysis Centers be staffed by personnel who are capable of basic seismic processing and proper integration of logging with seismic data through use of checkshots on the particular system that is being used (e.g., Geoframe). In parallel to other discussions of technical support expertise level, there was wide affirmation of this point by the panel.

Underway Geophysics: Divins began by reminding the panel of the current capabilities in ODP (JOIDES), which include as routinely collected during all transits: Bathymetry, Magnetics, and GPS navigation. Also available are: High resolution seismics, Seismic reflection profiles (6 channel and single channel), and Acoustic Doppler Current Profiler.

With regard to the IODP, his group recommends that all three types of platforms should routinely collect bathymetry and GPS navigation, and that the riser and non-riser ships, along with MSPs when possible, should gather when possible magnetics and high resolution seismics. They should have the additional capability to perform seismic profiling.

During discussion, Gulick recommended that 3.5/12 kHz on IODP missions should be collected. Murray questioned whether we should be collecting data such as magnetics and seismic for purely altruistic reasons? Many panelists commented in response that it is extremely desirable to have the capability of seismic reflection for coming on site, and for doing additional drilling and need crossing lines.

Murray closed the lengthy discussions on WG's by reminding the panel that a major agenda item at the next meeting will be to develop a series of specific recommendations for each laboratory's needs. He will be communicating with the panel via email as to how best achieve this.

N) Review of Sample and Data Distribution Policy

Prior to Smith leading the discussion, Moore reminded iSciMP that iPC is particularly interested in this policy as it figures large into how we operate this program. He noted that it is a really good idea to have the vision on how to deal with data and samples upfront. Traditionally, the policy has been fairly liberal. We must speak how it needs to work for the science before it gets decided for us. He would like to present the revised policy to IWG as a working final draft. Murray noted that the main goal before us, as outlined in pre-meeting emails, was to separate out true policy from implementation. Implementation issues inherited from ODP had swamped the text, resulting in an overly large document that was not focused on policy.

Smith presented to iSciMP the results of his efforts to pare down the text (a version had been distributed before the meeting). There was wide agreement that the improvements were significant. Various changes in definition of science party, classifying sampling as routine or non-routine, incorporation of site-survey data, population of CAB, and other points were also clarified.

The moratorium period was changed from wording associated with the end of the cruise date (as is the case with ODP) to reflect instead “release of samples”, as shorebased sample parties often result in samples being released several months post-cruise, thus eroding the effective work time of scientists protected by the moratorium. The proposed wording also can accommodate, for example, a riser leg where multiply-timed sampling parties may eventually meet. The “Sample and Data Recipient Responsibilities” section was changed to publish 20 months post-moratorium and it was added that IODP must be acknowledged.

After a final review the next day, the document was immediately forwarded to Moore and iPC for discussion at IWG. It is included here as Appendix D.

Saturday, December 14, 2002

O) Presentation of Anti-contamination System

Wada (JAMSTEC) presented a coring methodology that uses an anti-contamination gel to prevent growth of microbes external to the core or escape of microbes from within core. It should also improve the ability to recover still cleaner geochemistry samples.

The apparatus has been tested on land, and evaluated in comparison to latex microspheres. Coring without the anti-contamination gel yielded 40,000 beads/g, while coring with the gel reduced this value to ninety (90) beads/g, which is a remarkable result. The panel responded very well to this presentation, and there was much discussion. In response to various questions, it became clear that:

1. There is enough volume of gel in the device to handle coating a severly factured sample.

2. The gel is made of a plastic like material with a cationic base on the outside that is only in the gel but will not dissolve in the water. It prevents physical activity, reduces microbial activity, and can even be further improved in the future.

3. The intent is not to use it routinely, but only on an as needed basis.

4. Future work needs to check whether this gel is acceptable environmentally and safe for humans. Particularly in Europe, this could be a major issue.

5. The gel currently is not usable for APC, only for rotary coring, but it works at temperatures such as those found in hydrothermal vent systems.

6. If the gel polymerizes between deployment and recovery the tools will have to be cleaned between runs, but apparently even if it polymerizes inside the barrel the tools are not gummed up.

7. It will also be important to assess whether use of the gel compromises other studies of the samples.

On the basis of the presentation and discussion, the following recommendation resulted:

Recommendation 02-02-5: iSciMP applauds JAMSTEC's effort to address anti-contamination drilling and sampling and encourages their continued development and communication with the iSAS on these matters.

> Background: As microbiological research in IODP will be prominent, much research is addressing improved methods of obtaining non-contaminated samples. This recommendation is based on an interesting presentation by Mr. Wada (JAMSTEC), which intrigued the iSciMP to the point where further information is likely to be of interest. This subject will also be discussed at iTAP, and JAMSTEC (and perhaps other interested parties) will provide additional feedback at iSciMP's next meeting. This is also going to be discussed at the Microbiology Working Group meeting.

Vote: 15 yes, 0 no, 0 abstain.

P) Identifying Technical Needs of Proposals

To follow up on the discussion initiated during the iSSSP liaison report (see "B"), Escartin led a discussion on how to identify and enhance the technical capabilities of proposals within the iSAS system. The panel feels there is a clear need for proposals to have a greater level of technical input. This will requires some access to proposals, perhaps via iSSEPS watch dog reports, with technical info and advice from iTAP and iSciMP. Moran noted that iSSEPs co-chair asked iTAP to interact with a particular proposal to give technical advice. After much discussion about conflict of interest, role of co-chairs, and iTAP-iSciMP relative contributions, the following recommendation resulted (on next page):

Recommendation 02-02-6: iSciMP recommends that the link with iSSEPs be formalized by the following:

(a) Two iSciMP liaisons with iSSEPs will interact closely with the iSSEPS proposal watchdogs, throughout the life of a proposal and/or project.

(b) That iSciMP liaisons together with the watchdogs should identify upcoming technical issues, transmit relevant information to the proponents, or identify technical panel members that proponents may contact for technical issues.

(c) That the iSSEPs watchdogs remain the interface between proponents and iSciMP.

(d) That the proposal *Cover Sheet* should be modified to include a section where proponents identify the critical and non-standard measurements and technical needs required to achieve the proposed scientific objectives

(e) ISAS policy regarding conflict of interest will be closely adhered to.

> Background: iSciMP notes that a formalization of the link with iSSEPs and the access to information of proposals in the system to provide technical advice when required and/or requested would be desirable in the future.
>
> It is recognized that the new IODP program will involve long-term projects with multiple platforms. Some level involvement of iSciMP in the proposal review process and duration of projects is required to deal with upcoming issues. These include consistency of measurements across platforms and through time, identification of required developments at early stages of proposals or projects, and dealing with unforeseen problems (e.g., microbiology patents, safety of new technologies, sample handling, and others).
>
> The iSciMP recommendation intends to establish appropriate mechanisms of interaction of iSciMP with iSSEPs and proponents, retaining the technical nature of iSciMP.

Vote: 15 yes, 0 no, 0 abstain.

Q) Future Agenda Items

In order to plan adequately for future iSciMP meetings, the following agenda items are being considered for the Summer, 2003, meeting. These potential items are in addition to a number of issues resulting from the December, 2002 meeting and on-going projects, but provide an example of future discussions.

- •Publications.
- •Technicians (rotations, skill level, shipboard, shorebased).
- •WG spreadsheets, prioritization of measurements and instrumentation.
- •Scientific staffing flexibility.

R) Next Meeting

Consensus Statement 02-02-02: The next meeting of the iSciMP will be in Nagasaki, Japan, and hosted by panel member S. Saito. Scheduling will be coordinated if possible so our meeting will begin after the July 11^{th} ending of the IUGG meeting in Sapporo, Japan. The location will allow the panel to inspect the *Chikyu* and be further updated on the logistical support of OD-21.

S) Appreciation of Host

Consensus Statement 02-02-03: The co-chairs and panel members of iSciMP, as well as liaisons and guests, wish to express their warmest appreciation and thanks to Doug Schmitt and his assistant, Dean Rokosh, of the University of Alberta for organizing the successful 12-14 December, 2002, iSciMP meeting and social events, and making everyone feel most welcome in Canada.

T) Formal Adjournment of Meeting

Appendices are located on the following pages….

A. Agenda.
B. *Chikyu* Equipment List.
C. MRC Letter.
D. Sample and Data Policy

AGENDA
Interim Scientific Measurements Panel (iSciMP)

December 12-14, 2002**,** Edmonton, Canada

Day #1, Thursday, December 12, 2002

8:30 - 9:00	Breakfast
9:00 - 9:10	Introductions and Welcome to New Members
9:10 - 10:15	Liaison Reports iPC Planning (**Ito**) iSAS Office (**Schuffert**) iSSEP (**Escartin**)
10:15 - 10:30	Break
10:30 - 11:30	Review of Results from Last iSciMP Meeting and iPC discussions of our recommendations. (**Murray**)
11:30 - 12:00	Report from iTAP (**Moran**), laying out of framework of interactions between iSciMP and iTAP. This is a broad discussion only, to provide overview and context (see Day 2, 9:00 - 11:30).
12:00 - 1:30	Lunch
1:30 - 3:15	OD21 Report Chikyu Construction (**Kuroki**) Kochi Core Repository (**Kuroki**) OD21 Data Base (**Saito**) Anti-Contamination Drilling and Sampling (**Wada**) Long-term Observatories (**Saito**)
3:15 - 3:30	Break
3:30 - 5:00	JEODI Discussion (**JEODI attendees)** European Structure of IODP (Science Operator and Management Agency). European drilling planning group activities and input. Example of MSP: Arctic Drilling. Operational Matters Relating to Science Ops and Safety.
5:00	End of Day

Day #2, Friday, December 13, 2002

8:30 – 9:00 Breakfast

9:00-11:30 (incl. break)

iSciMP/iTAP issues (**Moran** and **Masuda**). Discussions of issues common to iSciMP and iTAP and how to best proceed, examples include Drilling Standards, Pipe Diameter, Pipe Stand Length/Coring Tools, Joint Panel Meetings, Working in multiplatform environment, etc.

11:00 – 11:30 Micropalentological Reference Centers. (**Ikehara)**

12:00 – 1:30 Lunch

1:30 - 3:00 Reports from "Measurement Working Groups": Past Concerns and Future Issues

Core Description: **Saito**, Neal, Escartin
Paleomagnetics: **Sagnotti,** Kikawa, Buecker, Lovell
Physical Properties: **Schmitt**, Lovell, Saito
Paleontology: **Ikehara.**
Microbiology: **Takai,** Smith
Geochemistry: **Murray,** Tsunogai, Neal.
Borehole/Drilling Measurements: **Buecker**, Pirmez, Lovell, Schmidt, Saito
Underway Measurements: **Divins,** Gulick, Lovell

3:00 - 3:15 Break.

3:15 - 5:00 Review of Sample and Data Distribution Policy (**Smith** and **Saito)**

- Special emphasis on microbiology (as recommended by iPC),
- Re-visit definition of scientific and auxiliary parties, etc.,
- Moratorium length,
- Balance between implementation vs policy,
- Integration with publications.
- Finalization of draft policy

5:00 End of Day

Day #3, Saturday, December 14, 2002

8:30 -9:00	Breakfast
9:00 – 11:00	Future Issues Regarding Implementation of IODP. Review of potential MSP and non-riser expeditions for FY04 and FY05. Facilitate identification of technical needs and match with potential available resources. Discuss development of "Scientific Coordinated Measurement Plan" per expedition. Discuss desired flexibility of staffing of drilling expeditions. Discuss panel chair meetings and iSciMP/iTAP meetings for enhanced coordination and planning.
11:00 - 12:00	Review of i-SciMP Recommendations to iPC.
12:00	Adjourn.

OD21 SHIPBOARD LAB EQUIPMENT_DRAFT_

July 14, 2000

Item	No.	
STAFF SCIENTIST OFFICE		
PC(win)	1	
PC(mac)	1	
Compact Copy machine	1	
CATV monitor	1	
CO-CHIEF SCIENTIST OFFICE		
PC(win)	2	
PC(mac)	2	
LAB ROOF DECK		
Reefer Container (20ft)	10	
Gas monitor for above	1set	
Bug blower	1	
Jet heater	1	
Core catcher bench with sink	1	
Sink stand	1	
Core rack	1	
Utility for container lab	1set	
Utility for RI lab	1set	
CORE REGIST ROOM		
PC(win)	1	
BC printer	1	
Printer (mono)	1	
CATV monitor	1	

DOWNHOLE MEASURE LAB		
Monorail lift	1set	
WS	2	
Maxis	1set	
PC(win)	6	
PC(mac)	2	
Printer (color)	1	
Compact Copy machine	1	
Plotter(A0)	1	
CD-RW	1	
MO	1	
ZIP	1	
DAT	1	
EXBYTE	1	
CATV monitor	1	
CATV monitor	1	
X-RAY CT SCANNER LAB		
X-RAY CT SCANNER	1	
X-RAY shield structure	1	
QA/QC Laboratory		
Sampling device for microbiology	1	
Fluorescence microscope	1	
ECD gas chromatograph	1	
Liquid chromatograph	1	
Draft chamber (large)	1	
Safty cabinet	1	
Anaerobic glove box	1	
Autoclave	1	
4-Column 100-ton Press	3	

Freezer for Organic Geochemistry Samples		
Draft chamber	1	
LN2 bottle	2	
LN2 rack	1	
Pure water system	1	
PC(win)	2	
PC(mac)	2	
CATV monitor	1	
BC printer	1	
Microbiology Laboratory		
Safty cabinet	1	
Reefer showcase_+2~4 _C_	1	
Freezer_-85 _C_	1	
Freezer_-150 _C_	1	
Pressure pump	1	
Pressure chamber for sample preservation	5	
Freeze drier	1	
Incuvater (0-30_, 10-60_, 25-150_)	3	
Anaerobic glove box	1	
Autoclave (large)	1	
Autoclave (small)	1	
Fluorescent phase contrast microscope	1	
Fluorescent microscope	1	
Photomicrographic system	1	
Pure water system	1	
Electronic Balance	1	
Centrifuge with temp control	1	
Refrigirator (4_, -20_)	1	
Draft chamber (large)	1	
Clean bench	1	

PC(win)	2	
PC(mac)	2	
Mobile PC(win)	1	
Printer (color)	1	
CATV monitor	1	
CoreLabo/PP		
Whole Core MSCL _Gamma-Ray Attenuation Porocity Evaluator(GRAPE) _Magnet Susceptibility Meter _P-Wave Logger(PWL) _Electric resistibility _Natural Gammer-Ray Spectrometer	1	
Digital Image MSCL___________Color line scanner	1	
Whole/Split Core MSCL _P-Wave Logger(PWL) _Magnet Susceptibility Meter _Electric resistibility _Color spectrometer	1	
XRF core scanner	1	
Drill Press	2	
Laser Particle Analyzer	1	
Stereomicroscope	2	
Polarization Microscope	2	
Cut-off Saw/Tile Saw	2	
Parallel Saw	1	
Super Saw/Core Splitter	1	
X-Ray System (Soft X-ray camera)	1	
Thermal Conductivity System	1	
Penta-Pycnometer	1	

Electronic Balance(2)	2	
XRD	1	
PC(win)	4	
PC(mac)	2	
PC(win)	2	
PC(mac)	2	
WS	1	
WS	1	
Paleomagnetics Laboratory		
Cryogenic Magnetometer System (Alternating Field Demagnetizer) (ARM Magnetizer) (IRM Coil)	1	
Spinner Magnetometer (2)	1	
Thermal Demagnetizer	1	
3-Axis Fluxgate Magnetometer	1	
AF Demagnetizer	1	
Impulse Magnetizer	1	
Partial Anhysteric Remanence Magnetizer(PARM)	1	
Bartington MS2 Susceptibility Device	1	
Kappabridge	1	
Hall-Effect Magnetometer	1	
Fluxgate Digital Magnetometer	1	
Magnetic shield room	1	
Demagnetizer for above	1	
PC(win)	3	
PC(mac)	3	

Printer (color)	1	
CATV monitor	1	
CORE VIEWING ROOM		
OFF-TIME SPACE		
WS	1	
PC(win)	1	
PC(mac)	1	
Printer (color)	1	
CATV monitor	1	
CURATOR OFFICE		
PC(win)	1	
CATV monitor	1	
SAMPLE PREP ROOM		
Freeze Drier	1	
Water de-ionizing System	1	
Electrobalance	2	
Draft chamber	1	
Draft chamber	1	
Ultra-high temperature electric furnace	1	
Tabletop clean bench	1	
Tabletop cooling centrifuge	1	
Forced convection constant temperature oven	2	
Steam Glassware Washer	1	
Variable Temperature Ultrasonic Bath	2	
Ultraviolet Lamp	2	

Draft chamber	1	
B & W Video Image Printer	1	
High speed solvent extractor	1	
Tabletop Centrifuge(2)	1	
Bead Sampler	1	
Isotemp Programmable Ashing Furnace	1	
Mixer Mill	1	
Scientific Balance System(2)	2	
X-Press Motorized Hydralic Press	1	
Desiccator Specimen Cabinet for XRF Standards	1	
Refrigirator (4_, -20_)	1	
Ice maker (flake ice)	0	
PC (win)	1	
BC printer	1	
CATV monitor	1	
PALEON/ PETRO LAB		
Automatic Point Counter	1	
Polarizaion Microscope	6	
TV Camera for microscope	1	
Camera for microscope	1	
Video copy processor	1	
Stereomicroscope ______	3	
Digita camera for microscope	3	
Color Video Image Printer	3	
Microscope camera	1	
Anti-vibration pad	5	
Image analysis system _main unit, color processing soft, printor, video printer_	1	
3CCD color video camara DXC-9000	1	

PC(win)		
PC(mac)		
printer (color)		
CATV monitor		
GEO_CHEMISTRY LAB		
ICP-MAS	1	
ICP-AES	1	
CHNS/O analyzer	1	
Alkalinity Titrator System	1	
Other Titrator Systems	2	
Refrigerated Circulator for Waterbath(2)	2	
Coulometer	1	
Ion Chromatograph	1	
Spectrophotometer	1	
Gas Chromatograph #1(NGA)	1	
Gas Chromatograph #2	1	
Gas Chromatograph #3	1	
Hydrogen Generator (2)	2	
Rock Eval II	1	
Water de-ionizing System	1	
Liquid chromatograph	1	
Ultra-high temperature furnace	1	
Tabletop clean bench		
Reefer showcase	1	
Clean air equipment	1set	
Trash box	1	
Compact Isotope ratio MS analyzer	1	
Micro balance	1	
Micro balance	1	

PC(win)	3	
PC(mac)	3	
printer (color)	1	
CATV monitor	1	
THIN SECTION LAB		
Lap Wheel	1	
Polarization Microscope	1	
Low speed rotary small cutter	1	
Automatic thin section macine__one for _600 and one for _2000_	2	
Manual thin section macine_______________one for _600 and one for _2000_	1	
Compact precise lapping machine	1	
Rotary cutter	1	
PC(win)	1	
CATV monitor	1	
ET SHOP		
Anti electrostatic desk	1	
PC(win)	1	
OFF-TIME SPACE		
WS	1	
PC(win)	1	
PC(mac)	1	
printer (color)	1	
CATV monitor	1	

STORAGE/ GAS BOTTLE RM		
N2 generater	1	
Liquid Nitrogen generater	1	
CHEMICAL STORAGE (1),(2)		
COOL/ DRY STORAGE		
COMPUTER/ USER/ LIBRARY		
Servers	1set	
WS	1	
PC(win)	1	
PC(mac)	1	
Printer (color)	1	
PC(win)	4	
PC(mac)	4	
Printer (mono)	1	
Printer (color)	1	
Plotter	1	
Scanner	1	
CD-RW	1	
MO	1	
ZIP	1	
DAT	1	
EXBYTE	1	
WS(only for data integration software)	1	
WS	3	
Plotter (A0)	1	

LOUNGE		
CATV monitor	1	
CONFERENCE ROOM		
Copy machine	1	
Ceiling projecter	1	
VTR	1	
Audio system	1	
White board	1	
CATV monitor	1	
LAB OFFICER OFFICE		
PC(win)	1	
PC(mac)	1	
CATV monitor	1	
YEOP/CURATOR OFFICE		
PC(win)	2	
PC(mac)	2	
CATV monitor	1	

Report of the MRC Sampling Meeting 2002

8 - 10 October 2002

The Natural History Museum

Paleontology Department,
Cromwell Road, London, SW7
5BD, U.K.

Attendees: Yoshiaki Aita (Radiolarian Satellite MRC in Utsunomiya), Michael Knappertsbusch (MRC in Basel), Dave Lazarus (Radiolarian Satellite MRC in Berlin), Yoshihiro Tanimura (MRC in Tokyo), Jeremy Young (Nannofossil Satellite MRC in London)

Organizers: Michael Knappertsbusch and Jeremy Young.

Purpose:

The main goal of this meeting was the selection of samples from new ODP Legs in order to complete the collections of the Micropaleontological Reference Centers (MRCs) of the DSDP and ODP with materials from hitherto unrecovered oceanic areas and geological times (sampling party).
We also discussed MRC related topics including progress on MRC database work, overviews of geographic and stratigraphic MRC sample coverage, information on IODP's database plans, and how MRCs can be linked up to the IODP.

1. Sampling party:

1.1. Sample selection
We were able to select a total of 955 MRC samples including materials for diatom-, radiolarian-, calcareous nannofossil- and planktonic foraminifer preparations (see Table 1). They were taken from 573 stratigraphic levels from ODP Legs 182 (Great Australian Bight), 183 (Kerguelen Plateau), 184 (South China Sea), 185 (Izu Mariana Margin), 188 (Prydz Bay, Antarctica) and 189 (Tasman Gateway). Additional samples were selected from 172 stratigraphic levels especially for diatom preparations from early DSDP legs 21 (East Australia), 24 (Indian Ocean), 28 (Southern Indian and Pacific Oceans), 29 (South-East Australia), and 38 (High Latitude North Atlantic), that have been reported by John Barron to be important material that should be available in the MRCs as a reference to standard stratigraphic and taxonomic diatom literature. The request has been forwarded to and accepted by ODP on 18 October 2002.
The ODP request number is #15925D.

Table 1:

Leg	Diatoms	Rads	Nannos	Forams	Totals
182	44	44	43	43	174
183	35	20	37	39	133
184	63	0	57	60	181
185	0	38	0	0	38
188	0	22	1	9	40
189	29	33	82	88	232
21	11	0	0	0	11
24	37	0	0	0	37
28	57	0	0	0	57
29	27	0	0	0	27
38	23	0	0	0	23
Grand Total	**326**	**157**	**220**	**239**	**955**

1.2. Who processes what?
We agreed on the following processing scheme (see Table 2).

Table 2:

MRC	Aita (Utsunomiya)	Tanimura (Tokyo)	Young (London)	Lazarus (Berlin)	Knappertsbusch (Basel)	Wise (FSU)
Leg/Group	Radiolaria	Diatoms	Nannofossils	Radiolaria	Forams	Nannofossils
182	X	X	-	-	X	X
183	-	X	-	X	X	X
184	-	X	X	-	X	-
185	X*	X	-	X**	-	-
188	-	X	-	X	X	X
189	X	X	-	-	X	X
21	-	X	-	-	-	-
24	-	X	-	-	-	-
28	-	X	-	-	-	-
29	-	X	-	-	-	-
38	-	X	-	-	-	-

(*) Samples from 1149B-4R through 26R go to the Utsunomiya MRC (Yoshiaki Aita).
(**) Samples from 1149A-1H through 17H go to the Berlin MRC (Dave Lazarus)

1.3. Final distribution of processed sample splits to the MRCs:

Table 3:

MRC	Diatoms (8 sets)	Radiolaria (9 sets)	Nannofossils (9 sets)	Foraminifera (8 sets)
San Francisco	X	-	-	-
Utsunomiya	-	X	-	-
Tokyo	XX (1 Moscow set)	X	X	X
London	-	-	X	-
Berlin	-	X	-	-
Basel	X	X	X	XX (1 Moscow set)
Bremen	-	X	-	X
Parma	-	-	X	-
Tallahassee	X	-	X	-
Nebraska	-	-	X	-
Moscow	in Tokyo	-	-	in Basel
Texas	X	X	X	X
Washington	X	X	X	X
Rio de Janeiro	-	-	-	X
New Zealand	X	X	X	X
Scripps	-	X	-	-

2. Discussion on MRCs:

2.1. MRC sample database related work.
Dave Lazarus reported progress on the completion of the MRC sample database in 4th Dimension (a cross-platform database system which is available free for academic users), which was initiated during our the 2001 MRC curatorial meeting in Berlin. The database contains now a complete dataset, including consensus geologic ages, for MRC radiolarian samples; for the other microfossil groups data entry is still pending. Thanks to the effort of Yoshihiro Tanimura, a large portion of data has been prepared for import for the other microfossil groups (diatoms, nannofossils and forams). Still, we need for these records geological ages, and also in general numerical ages for the database. Dave Lazarus (MRC Berlin) will put the database on an ftp server for download, so that individual MRCs can contribute to data entry.

During the discussion the question of consensus ages for the MRC sample database came up (Problem: age estimates from different fossil groups are sometimes not the same for the same sample). Should we use "barrel sheet" consensus geologic ages, Neptune-type age models to arrive at consensus numerical ages or should we use microfossil specific zonal assignments? The MRC database has fields to hold all three types of information. **[Problem not solved yet]**.

2.2. MRC sample overview.
Dave Lazarus presented impressive charts and maps showing the geographic distribution of radiolarian samples available in the MRC at several geological time-slices (see figures 1 and 2). At this moment about 2/3 of radiolarian samples have been processed to samples, indicating a backlog of about 1/3 for the radiolarians. About 1/6 of the processed samples were barren or rare in radiolarians, giving an idea about the success of radiolarian sample selection.
Dave surprised us with a stratigraphic overview of available radiolarian MRC samples from the Jurassic to Quaternary showing the very uneven distribution of preparations: Most samples were selected from the Neogene, while Paleogene, Cretaceous and Jurassic samples are underrepresented in the collections, particularly in the northern hemisphere. According to Yoshihiro Tanimura/Yoshiaki Aita a similar underrepresentation of Paleogene samples is also true for the diatom MRC preparations.

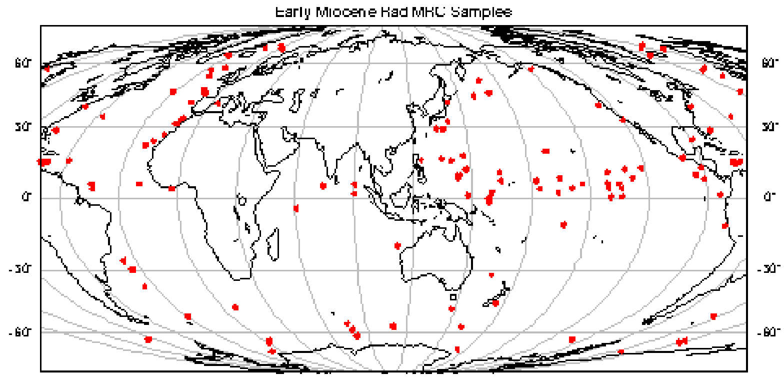


Fig. 1: Distribution of Radiolarian preparations in the MRC's available from the Early Miocene.

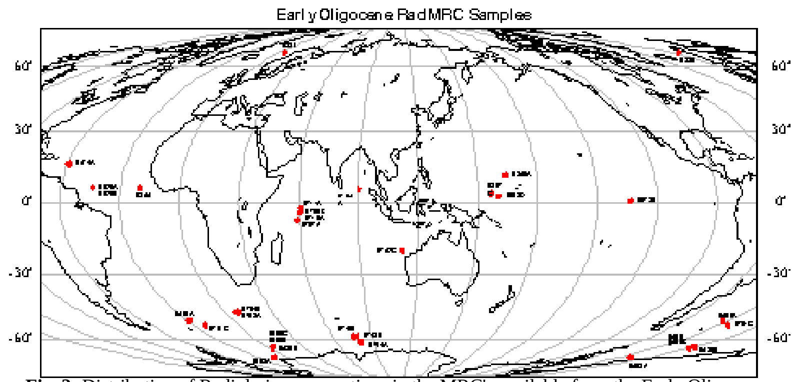


Fig. 2: Distribution of Radiolarian preparations in the MRC's available from the Early Oligocene.
The full set of radiolarian figures will be made available on-line from the Berlin MRC homepage.

In order to arrive at a more even distribution of biosiliceous materials we discussed the possibility of including into MRC collections of classical landsections, where the Paleogene and Cretaceous is more exposed.

MRC potential item to iSciMP:

MRCs have the potential to oversee long-term drilling success, and one conclusion was, that IODP would need to consider its drilling strategy to recover more biosiliceous materials, especially pre-Neogene materials from the northern hemisphere.

2.3. MRC ownership question.
Again, the question of MRC collection ownership was raised, which is particularly important to the radiolarian satellite MRC in Berlin, but also to the other MRCs:

1) The decline of ODP and the transition of ODP into IODP causes a situation of vanishing legal relationship for responsibility and ownership- and permanent loan status of MRC collections.

2) The use of radiolarian MRC materials in taxonomic work would be enhanced if MRC slides can be used to designate types ? type bearing slides are normally expected to be part of the permanent collections of institutions. (Radiolarians are particularly affected by this as type specimens cannot be picked out of slides, as for forams, nor can additional duplicate slides be quickly made from unused sample materials, as for diatoms and nannos).

Action item to iSciMP:

The status of ownership of MRC collections should clearly be clarified by IODP, and we suggest that MRCs should become legally linked to the IODP program.

Ownership of the MRC radiolarian collection at the Museum fuer Naturkunde in Berlin should be considered as a separate case, together with the responsible curator (Dave Lazarus).

2.4. Other database work in the MRCs:
Yoshiaki Aita informed us about database plans within IODP, and the difficulties of integrating so different systems like ODSN, Janus, etc. The basic guideline was that Jamstec prefers to preferentially orient themselves on Janus based systems. The availability of Neptune-online was acknowledged, but the tools and data structure must be more explained.

2.5. The role of MRCs in various existing and future database efforts within IODP.
Yoshiaki Aita presented the new **iSciMP recommendation 02-14**, which reads:

> "iSCIMP Recommendation 02-1-4
> To improve the stratigraphic quality and consistency of shipboard biostratigraphy of IODP, iSCIMP recommends that shipboard reference collections of Mesozoic and Cenozoic microfossils as well as digital image atlases and stratigraphic databases are needed and should be available for all IODP platforms and laboratories."

This recommendation states a strong demand for what the MRCs are in part already doing, and points the way in which MRCs should move. Examples are the MRC collections, various database efforts (MRC sample database, Neptune), involvement of various MRCs in the development of digital image atlases (e.g. Nigrini and Sanfilippo's Cenozoic radiolarian stratigraphy for low and middle latitudes [ODP Technical Note 27 (2000) in electronic format; and Olsson, Hemleben, Berggren & Huber's (1999) Atlas of Paleocene Planktonic Foraminifera, which is available in printed form and on CD-Rom).

The next iSciMP meeting will be on December 12-14, 2002 at Edmonton. We felt it necessary that the MRCs react promptly to recommendation 02-14 by proposing a target item to iSciMP:

Proposal item to iSciMP

Shipboard IODP micropaleontology databases and reference collections (in response to iScimp recommendation 2-14)

Proposal for consideration and response

iScimp recommendation 2-14 calls for the creation of shipboard paleo/strat databases and microfossil reference collections to support IODP's on-ship stratigraphic work. The MRC curators wish to offer their joint expertise to the IODP program to coordinate and manage this effort. This will include locating, selecting and integrating existing biostratigraphic community databases/atlases, promoting new work by the community to fill gaps in database/atlas coverage, and preparation of selected reference samples suitable for shipboard use, based on the extensive libraries of material now available in the existing MRC collections.

We envision this effort to primarily be one of coordinating and promoting the efforts of diverse individuals within the community, and acting as central liason between these people and IODP members responsible for shipboard facilities.

Funding support for this coordination work by the MRCs would also presumably be primarily provided by national agencies, but for this, some sort of official mandate or imprinteur from IODP for an MRC led effort would normally be a prerequisite for MRC members seeking local funding. We therefore ask IODP to consider this offer, and if an interest exists, to respond appropriately. We would be glad to develop a more detailed concept for IODP's consideration if this is desired.

2.6. Suggestions for a next MRC (strategic & sampling) meeting.
The next meeting will be a strategic one, but in the absence of many MRC curators we did not decide yet when and where it will be organized. The decision will be made after email discussion.

We realized, that a limited numer of DSDP & ODP sites have been drilled which in the past were not sampled by the MRCs for unknown reasons. We suggest to hold a special workshop (perhaps within the next MRC curatorial meeting ?) to discuss this question.
In this context the topics of the next MRC curatorial meeting may be related to the question: ***"Where are the gaps of sampling in the MRC collections ?"*** , which will make use of the ? by then ? completed MRC database, with ages and geographic locations for all samples.

In addition, we discussed the idea that, on a longer term, MRCs may include and actively select type materials from non-DSDP/ODP materials, as for example from Challenger expeditions.

Important legs for a next sampling round were mentioned, e.g. Leg 198 (Shatsky Rise) and 191 (Ontong Java Plateau).

Basel, 28 October 2002

On behalf of the MRC curators:

Michael Knappertsbusch, MRC Basel

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Back to MRC Activities and Reports
Back to MRC main page

IODP Sample and Data Policy

1. Overview of the Policy

This document outlines the policy for distributing IODP samples and data to research scientists, curators, and educators. This document also defines the obligations that sample and data recipients incur.

The specific objectives of the IODP policy are to:

- ensure availability of samples and data to scientific party members so they can fulfill the objectives of the drilling project and their responsibilities to IODP;

- encourage scientific analyses over a wide range of research disciplines by providing samples to the scientific community;

- preserve core material as an archive for future description and observations, for nondestructive analyses, and for sampling; and

- disseminate scientific results from post-drilling project research.

2. Sample and Data Distribution

IODP samples are generally distributed for research projects that can be completed within two to three years. During the moratorium period, samples are available exclusively to the drilling project's "scientific party" that has been formally approved by IODP, and whose requests have been approved by the Sample Allocation Committee (SAC, sec. 4).

The science party is defined as all scientists selected by IODP to produce initial, openly shared data associated with a particular drilling project within the moratorium period.

After a moratorium period, samples are given or loaned to persons in the following three categories whose requests have been approved by the IODP Curator:

- scientists who wish to conduct research on IODP materials and to publish the results, but who are not necessarily associated with a specific drilling project and;

- curators of museums and collections; and

- educators.

Archived data produced from samples taken for analyses, data acquired from boreholes by downhole measurements, and site survey data collected by IODP are available during the moratorium to the entire scientific party. After the moratorium expires, all project data are made available to everyone.

3. Moratorium Period

The purpose of the moratorium is to ensure adequate time is allotted for scientific party members to conduct drilling project-related research before the cores and data are made available to the general scientific community. To accommodate the variability in duration of specific drilling projects, the period one year after the release of samples or data to the scientific party is designated as the "moratorium period". The release date, relative to the drilling project, may be delayed post-drilling or staggered during drilling as appropriate to the scientific objectives as defined by IODP. Only members of the scientific party are permitted to receive core samples and associated data during the moratorium period. Other requests for samples will be considered after the moratorium has expired.

4. Drilling Project Sampling Strategy

For each drilling project, a SAC is constituted, comprised of the Co-Chief Scientists, the IODP Staff Scientist, and the project Curator. During the drilling project, the Curator’s authority and responsibilities to the SAC may be ceded to the drilling project Curatorial Representative.

The SAC establishes a project-specific sampling strategy and makes decisions on project-specific sample requests received before the drilling project, during the drilling project, and within (but not after) the moratorium. Approval of such sample requests requires endorsement by a majority of the SAC. In the event of an evenly divided vote, a decision will be made by the IODP Curator. Appeals to this decision can be made to the Curatorial Advisory Board (CAB).

5. IODP Review and Approval of Sample Requests

The CAB is a standing body that consists of two IODP senior managers and three members of the scientific community (selected by the IODP Scientific Measurements Panel) who will serve overlapping four-year terms. Every effort will be made to ensure that CAB membership represents a variety of scientific disciplines.

The CAB has two main functions:

- It acts as an appeals board vested with the authority to make final decisions regarding sample distribution, if and when conflicts or differences of opinion arise among any combination of the sample requester, IODP Curator, and the SAC.

- It reviews and approves requests to sample the permanent archive and requests for loans of core material for outreach and education.

6. Scientific Results Dissemination (Publications)

The responsibility and authority for making decisions regarding the publication of post-drilling project research to fulfill the IODP obligations, lies with an Editorial Review Board (ERB) and the IODP manager responsible for publications.

An ERB is established for every drilling project and remains active for 30 months post-moratorium. The primary purpose of the ERB is to maintain an independent and effective peer-review system for the publication of drilling project results. The ERB is comprised of the Co-Chief Scientist(s) for the drilling project and the IODP Staff Scientist. These individuals may select external scientists/specialists to serve with them on the board. The need for external ERB members will be determined based on the Co-Chiefs' and Staff Scientist's workloads and expertise.

7. Sample- and Data-Recipient Responsibilities

All scientific party members incur obligations to IODP that they must fulfill by using samples or data from the drilling project to conduct post-project research and by publishing associated results in agreement with the other terms of this policy. Manuscripts for publication must be submitted within 20 months post moratorium.

All scientists who receive samples or conduct nondestructive analyses from cores after the moratorium are obligated to publish a paper in a peer-reviewed scientific journal or book that publishes in English, or submit a progress report to the IODP Curator outlining the status of the samples and/or the data no later than 36 months after receiving them.

All publications incorporating IODP data or samples must explicitly acknowledge IODP and be submitted to the IODP Curator along with any applicable data.

Those not meeting the above obligations will be restricted from obtaining future samples and data and may not be allowed to participate in future drilling projects. Obligations incurred during the Ocean Drilling Program (ODP) will be carried forward into the IODP.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 11D

Interim Site Survey Panel Meeting
22-24 July 2002
Lamont Doherty Earth Observatory
Columbia University NY

Minutes

Day 1 - 22 July 2002 – Monday

0830: Reports

1. iSSP Chair's welcome (Shin'ichi)

2. LDEO Director welcome (Mike Purdy)

3. Meeting Host Welcome (Dan Quoidbach)

4. Summary from iSAS office Nobuhisa, Eguchi (iSAS office)

5. Report to iSSP on iPC/other iSAS activities (Jamie Austin)
iPC will decide in August if a proposal is either ready or not ready – iPC will not yet rank proposal forwarded to them.
No certainty on Riser schedule – late 2007 or early 2008
Chikyu not ready for proposals
MSP proposals may be ready to start drilling as early as 2004.
It is important to keep proponents interested from 2002 until 2004.
IPC wants the interim program to be positive and nurturing – rather than turning people away. At this time proposals should not be turned away. 85 proposals in, but how many are in a ready stage? 2 out of 5 ready for ranking perhaps.
iTAP: Kate Moran chair – deal with Industry in new ways. iTAP stands for interim Technology Advice Panel (like TEDcom – Technology Development Committee)
ILWG – Interdisciplinary Liaison working Group
A guide is being set up to help proponents submit proposals to IODP
Ranking of 5 forwarded MSP proposals – 2004-2005 drilling starting in summer
One is the Arctic – iPC will rank them in August.
Question - does iSSP get early input?
Question - reviewing proposals over 2 years may scare away proponents. This will generate more work from the panels to keep an eye on the evolution of the proposals.
Keep consistent with messages – may need to do more work for site survey every year.
Keeping people interested – keep same message… from year to year
Improve quality of data submitted – e.g. digital – versus analog – we want to help them make their proposal competitive.
Discussion on Complex Drilling Program (CDP)

6. iSSEPs Liaison Report (Andre Droxler)
ESSEP – creates a 3 level Priority Grouping
I – highest priority to iSSEP's objectives
II – important priority to iSSEP's objectives
In addition to be relevant to iSSEP's
The concerns about communication have been reduced by sending the same two liaisons to several iSSEP meetings in a row when possible.
Everyone is happy that iSSP has decided to develop early review of proposals etc., and pre-proposals

7. iPPSP – Joel Watkins substituting for Barry Katz
Major philosophy change: PPSP needs to be involved early on in the process.
Because drilling will be done in different (and new) environments PPSP will require higher standards in terms of data quality.
4- Tiered review process
Watchdogs: Early identification of problems. Steer and advise proponents/co-chiefs
A) Non Riser Drilling:
1) Low-risk: mail reviews
2) Moderate-risk:
3) High-risk:
B) Riser Drilling
Required Potential hazards summary
Panel Makeup: Fewer generalists and more specialists
Closer coordination with iSSP: liaisons already exist
iSSP could comment on quality of data that are requested by PPSP
No necessity to meet in same location and timing as iSSP
Long term proposals deep objectives high risk will need several years to be ready for drilling.
It is okay to ask Proponents to be active (in a positive manner) because they will be getting large amount of support for their science over several years.
If you have a riser program – you need 4 years lead time before it could be drilled.

Morning – Coffee break –

8. iSciMP - David Divins –
OD21 data base core description and visualization system (potential successor of the ODP Janus system).
Scientific Party: all scientists selected by IODP to produce initial openly shared data associated with the project.
Auxiliary Party: All other scientists selected by IODP that receive samples and data within the moratorium period.
Science Party members have priority over Auxiliary Party members regarding sampling and data.

Moratorium: probably 12 months IODP like ODP will need to be phasing for CDP's.
Issues related to coring with a riser, long term observatories, ownership of the drilled Hole itself, ownership of downhole logging data, will need to be addressed.
Issues related to microbiology, handling, storages issues, and Issues related to standardization have been discussed.
Recommendation on new technologies (iSSP input)
Minimum set of requirements, physical properties, geochemistry data,
Minimum requirement in terms of lab for MSP Legs
A proposal has been developed to conceive five different vans in which description of the cores, core storage, basic logging, and basic analyses will be conducted.
Overlaps with iTAP data issues with people dealing with technical development
Maintaining color film until digital CCD dynamic range and size of color surpass color film
Scientific Party versus Auxiliary Party (former has priority over latter). The former is selected whereas the latter requests data. Former need to be on ship or on beach measuring the cores retrieved from MSP or riser drilling.
What types of geophysical tools need to be included on the new IODP platforms in particular the new non-riser IODP ship?

09. Now OD21: Tsukuru, Hashimoto

Shakedown cruise for Chikyuu by using riser system in 2006 is going to be conducted with one hole in Tokai-Oki and two holes in Sanriku. Oki. A series of site survey in both areas is planned from 2002 to 2004. JAMSTEC have completed 2D seismic data acquisition. Those data sets are currently being processed. General parameters for the data acquisition work were reported:

Tokai Oki
Bathymetry: 800-4000 m
Cable Length: 4000 m
Line Spacing: 1-4 km
Target: thrust fault and Tertiary

Sanriku Oki
Bathymetry 800-3000 m
Cable Length 5000 m
Line Spacing 2-4 km
Target; Upper Cretaceous

Once the data processing and interpretation have been completed, a high resolution seismic survey, maybe 2D survey, will be conducted in late of 2002 or early 2003 for the three potential hole locations. Following the high resolution survey, surveys, including current profiling, sea bottom topography, and coring, will be conducted. Weather information will be acquired from 2003 to 2004.

The following question was asked: Could the operator of the shake down cruise share data with iSSP? Mike suggests we are kept in loop of data acquisition (NE Japan and S Japan).
The overall survey for the shakedown cruise could be used as a benchmark for future drilling for the large community. Need to establish a dialogue between operator and panels. Majority of the panel members agreed that iSSP would benefit by reviewing the site survey data (site characterization data) that is deemed acceptable by the operators in defining the riser drilling site. Furthermore, there is the possibility that feedback from the iSSP might provide the operators with a better (scientifically speaking) site location to drill.

10. Dan Quoidbach – Database update
It is relatively quiet at the iODP Data Bank– a few issues regarding ongoing legs had to be worked on. Leg 204 sent in 3d seismic grid.
New documents have been added on the web site of the data bank.
Form to be filled regarding the digital seismic data to be submitted.
Comparison of Survey Data requirements: Table comparing the three different types of drilling Non-riser, Riser, MSP, PPSP (safety requirements).
Need a central data bases: Need to create a Web System (HTML based) to link Proposal Management, Site Survey Management, Review Management
Add the drilling Riser, Non Riser, MSP, which kind of drilling platforms for MSP Mike suggestion
Web services: can be checked from any local offices
Discussion on Matrices:
Need to make documents available to proponents, with some explanations that the requirements for each specific proposal are discussed by the iSSP members. AT this point, iSSP will not be looking at any Leg reviews by the JOIDES safety panel. Review packages of legs 202-204 –have been prepared. The SEG-Y variability used in the different seismic data sets can be quite a challenge for IESX. It will be necessary to narrow it. Guidelines for data submission – on overhead (appendix) …data needs more documentation without having to go through headers etc to find it. The forms will be online

LUNCH

1300 DATA REVIEW OF INDIVIDUAL PROPOSALS

1530 Presentations of Reviews

Review of last scheduled ODP legs for year 2002 and 2003 no necessary, since no site survey issues have been brought up regarding these future ODP legs.

MSP-1: 519-Full2 (MSP) South Pacific Sea Level:
Watchdogs: Roger Scrutton/Mike Enachescu
Little site survey data in Data Bank

Site Survey Cruises are scheduled for Sept. 2002 in Great Barrier Reef and Oct. 2002 in Tahiti:
Readiness: 2C Drillable in 2004

MSP-2: 533-Full3 (MSP) Arctic-Lomonosov Ridge
Watchdog: Soenke Neben
New seismic data, higher quality
No velocities supplied to data bank***
*** Since the July 2002 iSSP at LDEO, Dr. Sönke Neben met with Dr. Wilfried Jokat in early August to look at the Sonobouy data. The data set is of very good quality and W Dr. Wilfried Jokat promised to mail the data set to the iSSP data bank. Dr. Sönke Neben, main watchdog of the proposal, thinks that velocity information is now sufficient.
Readiness:
Sites 13A and 14 A: 2A, Drillable in 2004
Sites 04 and 05: 2B, Drillable in 2004
Sites 06, 10, 12, and 08 (old 5): 3B Not drillable in 2004
Notes & iSSP Consensus: Overall no velocities (see note above ***)**.** Lack of crossing lines for some of the sites. Deep Penetration (400 m plus) expected at one site (LORI-13A) through an unconformity, might generate some safety issues. The unconformity might act as a seal, trapping sedimentary package old enough to have developed thermo-maturation for hydrocarbons**.**
Proposal of a scaled back program might be more feasible at this time, panel feels that the proposed drilling program somewhat too ambitious with the data at hand. Panel suggests the creation of a subgroup between proponents, and some members of iPPSP, and iSSP**.**

MSP-3: 548-Full2 (MSP) Chixculub K-T Impact Crater
Watchdog: David Naar
Readiness: 3B, not feasible for drilling in 2004
Notes & iSSP Consensus: No new data at the data bank. 2001-2002 CSDP Onshore drilling penetrated 1.5 km between the two proposed drill sites (Chicx-01A and Chicx-02A). The K/T boundary was reached at 800 m, the impact ejecta is deposited between 800-900 m, deeper occurrence of limestone and anhydrite. Proponents need to submit and/or coordinate with iSSP data bank to verify that the full navigation information exists for all seismic data submitted. Proponents are actively pursuing data collection, e.g., USA funded 2-D MCS seismic survey to be conducted during a funded GB 3-D OBS survey.

MSP-4: 564-Full (MSP) New Jersey Shallow Shelf
Watchdogs: Mike Enachescu/Tetsuro Tsuru
Austin (proponent) left the room for the discussion
Readiness:
Sites MAT-1, MAT-2, MAT-3: 1B, feasible for drilling in 2004
Notes & iSSP Consensus: Data need to be better organized at DB, hopefully before February 2003

1700 Closing for the day– Wine and Cheese reception at LDEO Library.

1800 Dinner organized by Dan Quoidbach (iSSP meeting host) at Harbor House.

DAY 2 – July 23, 2002 – Tuesday –

0830 – NOON – Review of proposals.

543-Full2 (Forwarded to iPC-1) CORK in Hole 642E
Watchdog Kirk McIntosh
Readiness: 1A
Notes & iSSP Consensus: Passive margin of Norway and Vicinity of Site 642. iSSP panel believes that all necessary site survey data exist and are in the data bank.

553-Full (Forwarded to iPC-2) Cascadian Margin Hydrates
Delayed for afternoon

557-Full2 (Forwarded to iPC-3) Storrega Slide
Watchdogs: Roger Scrutton/ Noriko Tsumura
Readiness:
Sites 1 to 5: 2C
Sites 6 and 7: 3B
Notes & iSSP Consensus: Major slump 8 ky old. Gas hydrates dissociation as a trigger mechanism for the slump. More substantial grids of seismic lines are needed around sites ST 01-05, and cross-line data are needed through sites ST-06 and ST-07. These and other data should be forthcoming from site survey cruises. Potential problems with hydrocarbons.
This is the first time iSSP has looked at proposal 597/Full. At this time no data sets have been deposited at the data bank. At their June 2002 meeting, iSSEP's have strongly endorsed the plans to conduct seismic and coring surveys in support of the proposal. The addition of these data sets would greatly benefit the review of the proposal by the iSSEP's. These new data will need to be included in future versions of the proposal before the proposal will be submitted for external reviews. The drilling program developed in 597/Full is very complex. Different types of platforms will be needed to drill the series of tentatively proposed sites located within a wide range of water and drilling target depths (from neritic to abyssal depths and with shallow to deep penetration). The proponents are encouraged to contact the iSSP watchdogs during the preparation of the site survey proposals if questions arise regarding the sets of data required by iSSP for drilling the proposed sites in 597/Full.

572-Full3 (Forwarded to iPC-4) N. Atlantic Late Neogene

Watchdog: André Droxler
Readiness:
Sites LAB1A, IRM1A, IRM2A, IRD1A, and IRD2A: 1A
Site LAB1B: 1B (no 3.5 kHz available)
Site ORPH1A: 2A (high resolution seismic and “?” 3.5 kHz was acquired by David Piper during a cruise on the RV Hudson in August 2001; data sets have not been deposited at the iSSP data bank)
Sites GAR1A and GAR2A: 2A (high resolution seismic, Hydrosweep, 3.5 kHz, and “?” piston cores will be acquired by Greg Mountain during a cruise on the RV ***Knorr*** in July 2002)
Notes & iSSP Consensus: Based upon previous SSP reviews and the latest review by the iSSP in the July 2002, the nine proposed primary drill sites have received the overall readiness status ranging from 1A/1B to 2A in the “iSSP Site Survey Readiness Classification”. 1A. All required data are in the Data Bank. 1B. A few required items are missing from the Data Bank, but are believed to exist and to be readily available. 2A. Substantial items of required data are not in the Data Bank, but are believed to exist.

573-FUll3 (Forwarded to iPC-5) Porcupine Basin Carbonate Mounds
Watchdog: André Droxler
Readiness: 1A
Notes & iSSP Consensus: Unchanged from previous SSP determinations. 1A for the thirteen dill sites proposed in 573-Full2. 1A = All required data are in the Data Bank.
Based upon the studies of the seismic lines available at the data bank, the SSP members had already concluded, at their 2001 February meeting, that the proposed drilling targets, including the deepest ones, were sufficiently imaged in the available seismic lines. Since the SSP February 2001 meeting, the proponents have submitted in late June 2001 some excellent quality seismic lines that were acquired in May 2001. The deepest proposed drilling targets are even better imaged in this latest vintage of seismic lines. In July 2001, SSP had concluded that all required data sets were currently at the ODP Data Bank for the thirteen dill sites proposed in 573-Full2. SSP had classified ODP proposal 573-Full2 as 1A = all required data are in the Data Bank. At the July 2002 iSSP meeting, members of the panel acknowledged that additional data have been, are currently, and will be collected in the near future. These new sets of data will add on the overall quality of the data already deposited at the data bank. iSSP members encourage the proponents to continue to send newly acquired and data sets to the data bank. For instance, results of the ongoing analyses of the Marion Dufresne giant piston cores collected in 2001 and future imaging and diving cruises will be important to strengthen the overall scientific rationale but also to justify the necessity to drill as many as thirteen sites as it is proposed in 573-Full2. The new data sets, therefore, will be particularly important in future iSSEP reviews.

581-Full2 (MSP-5) Late Pleistocene Coralgal Banks

Watchdogs: Rob Sohn/Kirk McIntosh
Droxler (proponent) left the room for the discussion
Readiness:
Sites SB-1, 2, 3, 4, 5: 1A, feasible for drilling in 2004: **Sites BB-1, 2 and Sites MS-1, 2: 3B,** not feasible for drilling in 2004 unless a site survey is organized for those sites in the next year or so.
Notes & iSSP Consensus: There has been no change in the status of this proposal since the last review in the sense that no new data have been submitted. The previous panel felt as though the seismic data submitted to the data bank are sufficient for drilling on Southern Bank. The present panel concurs with this assessment, but noted that there may be environmental concerns associated with drilling a reef in the Gulf of Mexico, and we suggest the drilling plan be forwarded to PPSP. We note that an optical (photographic) survey of the drilling target would be inexpensive, and might alleviate environmental concerns.
Sufficient data to support drilling at the Baker Bank and MS sites has not been submitted to the data bank, and basically does not exist. Some sparker data exists for the Baker Bank, but this would generally not be considered sufficient for drilling.
The panel does note, however, that the drilling plan is modest and inexpensive, and thus does not require dense seismic coverage.
The change in readiness classification from last July primarily reflects the new rating system being used by iSSP.

584-Full2 (Forwarded to iPC-6):TAG II Hydrothermal
Watchdogs Shin'ichi Kuramoto/Robert Sohn
Readiness: **1A**
Note: The proponents have already submitted the required data packets for each of the five proposed sites in the iSSP Data Bank.
Notes & iSSP Consensus: The proponents have already submitted required data packets for each of the five proposed sites in the Data Bank. This submission was responsive to all of the site survey needs identified by the iSSP. All sites are considered 1A.

589-Full3 (Forwarded to iPC-7): Gulf of Mexico Overpressures
Watchdog Michael Enachescu
Readiness: **1B**
Note: The iSSP acknowledges that most of the required data for this type of site is in DB, but must be properly organized (text and illustrations).
Notes & iSSP Consensus: A riser-less platform is needed to achieve this proposal. The iSSP acknowledges that most of the required data for this type of site is in DB, but must be properly organized (text and illustrations). Final sites, both primary and alternate, must be properly displayed and labeled on all maps (including regional location maps) and seismic sections. Whenever color is needed to support the concepts, color displays of maps and seismic section should be sent to the DB. We still need velocity curves that were used for depth

conversion. All required missing data, final site locations and attached stratigraphic study should arrive at DB prior to February 2003 meeting.

515-Full (Not forwarded to iPC-1) Black and Marmara Seas Sediments
Watchdogs: Shin'ichi Kuramoto/Soenke Neben
no data at data bank
need to send a strong message that data need to be sent
Readiness: 3A
Notes & iSSP Consensus: iSSP requests to the proponents submit site survey data to the Data Bank as soon as possible. High resolution seismic data sets are required to the shallow target sites, and deep penetrate seismic data are required to the DAN04A site. Another geological and geophysical data are required (3.5 kHz, swath bathymetry, navigation, core sample descriptions, etc) too. All sites are considered 3A.

552-Full3 (Not forwarded to iPC-2) **Bengal Fan**

Watchdogs: Kyoko Okino/David Naar
no data at the data bank
Readiness: 3B
Notes & iSSP Consensus: Required site survey data sets are still not exist in the databank. iSSP recommends to submit the available data to the databank and improve the figure in the proposal. iSSP also encourages proponents to collect more background data including the cross seismic lines and piston cores.

595-Full3 (Not forwarded to iPC-3) **Indus Fan Riser & Non-Riser**

Watchdog: Kyoko Okino
NSF proposal to survey the Indus Fan
Another proposal 521 some data in DB for this proposal
Approach different reason why the proposal number has been changed
Readiness: 2C
Notes & iSSP Consensus: Substantial items of required site survey data are still not exist in the databank. iSSP recommends to submit the available data to the databank with navigation information. iSSP strongly encourages proponents to continue the effort to put their grid seismic survey plan into practice.

Noon – 1300 Lunch

Afternoon July 23 2002

553-Full (Forwarded to iPC-2) Cascadian Margin Hydrates
Watchdog: Soenke Neben
Readiness: 2A
Notes & iSSP Consensus: Data from 146 and data (3D) have not yet been submitted. The consensus remains that the Leg 146 site survey data does not

fulfill all site-survey requirements for this new proposal; a new site survey data package should be submitted to achieve 1A status.

567-Full (Not forwarded to iPC-4) South Pacific Paleogene

Watchdogs: Tetsuro Tsuru/David Naar
Readiness: 3B
Notes & iSSP Consensus: The Panel acknowledges that numerous SCS profiles of the DB were used and some copies of them are provided in the DB, but they are old and are not easy to be used for geological interpretation. The Panel strongly has expectation of submission of the new site survey data, which can be used for judging whether carbonate is distributed at all sites as well as whether no hiatus exists in the target time interval.

591-Full (Not forwarded to iPC-5) Conical/Desmos Hyd., PNG

Watchdog: Shin'ichi Kuramoto
survey is scheduled
Readiness: 3B
Notes & iSSP Consensus: iSSP requests to the proponents submit site survey data to the Data Bank as soon as possible. High resolution seismic data are required for the shallow target sites, and deep penetrating seismic data sets are required to the HOST-01A site. Another geological and geophysical data are required (3.5 kHz, swath bathymetry, navigation, core sample descriptions, etc).

593-Full (Not forwarded to iPC-6) Gulf of Mex. Neogene Climate
Watchdogs: Noriko Tsumura/Kirk McIntosh
Holes are 250 to 400 m in terms of penetration
Good quality data sets already exist with the industry.
The proponent should link himself with colleagues in the oil and gas industry.
let Ben Flower know that there is (Shell) industry surveys at
part or all of Rio Grande site and all other US sites have
Mexican Ridge might have UT data, Joel Watkins says that the data should be available – check with contractors to release data sets that have to exist in the area of proposed sites. iSSEP's has asked for site surveys. There may be commercial site surveys etc., find out who owns the acreage, etc.
See Will Sager – at Texas A and M at College Station.
Also contact André Droxler who has contacts.
Readiness: 3A
Notes & iSSP Consensus: Data have been submitted to the databank, and so it is not possible to determine the site survey readiness of the proposed sites. Since substantial industry seismic data exist in the Gulf of Mexico, required data could be collected.

597-Full (Not forwarded to iPC-7) S. Alaska High-Resolution Sediments
Watchdog: André Droxler

A site survey will be acquired to support the scientific rationale and the drilling
Readiness: 3B
Notes & iSSP Consensus: This is the first time iSSP has looked at proposal 597/Full. At this time no data sets have been deposited at the data bank. At their June 2002 meeting, the iSSEP's have strongly endorsed the plans to conduct seismic and coring surveys in support of the proposal. The addition of these data sets would greatly benefit the review of the proposal by the iSSEP's. These new data will need to be included in future versions of the proposal before the proposal will be submitted for external reviews. The drilling program developed in 597/Full is very complex. Different types of platforms will be needed to drill the series of tentatively proposed sites located within a wide range of water and drilling target depths (from neritic to abyssal depths and with shallow to deep penetration). The proponents are encouraged to contact the iSSP watchdogs during the preparation of the site survey proposals if questions arise regarding the sets of data required by iSSP for drilling the proposed sites in 597/Full.

607-Full (Not forwarded to iPC-8) New Jersey Slope
Watchdogs: Kirk McIntosh/Michael Enachescu
Readiness: 3A
Notes & iSSP Consensus: The panel believes that most of the necessary site survey data probably exist and many of these data are in the data bank. However, these data are associated with previous drilling programs and need to be linked to this proposal under the direction of the proposal 607 proponents.
Because the proposed sites are on a well-sedimented passive margin, they will require extensive supporting data: crossing seismic lines with penetration to at least the target depth (the target must be imaged) will be necessary but a grid of seismic profiles is preferred. In addition seismic velocity data, detailed bathymetry, seafloor sampling, sub-bottom profiler data, and navigation for all these data sets will be required. We also want to point out that for the eventual safety evaluation, additional products such as true amplitude seismic sections, structural contour maps, and isopach maps may well be required. We advise the proponents to select numerous alternate sites (approximately one for each primary site), which also have sufficient supporting data to prepare for any future contingencies. We suggest that the proponents submit data to the databank as soon as possible, so the proposal can continue its journey through the system without unnecessary delay. Other data are recommended for submission to the data bank but not necessarily required. These data include heat flow, gravity, magnetics, and sidescan sonar.

610-Full2 (Not forwarded to iPC-9) W. Florida Margin
Watchdog: Noriko Tsumura
22 sites in three transects most of them 100 m penetration
seismic does not always imagine the target
single channel Uniboom is not adequate to imagine well
no adequate seismic in the proposal. The data should image the target.

Add drill sites right onto multi-beam bathymetry and plot out on large color format plotter and put into proposal as jpeg or tiff and submit a geotiff to data bank in addition to the large color plots for Pulley Ridge, FMG, and Riley's hump
Single channel boomer data inadequate for a 100 m recovery drill because of two factors – scientifically iSSP wants seismics to image target before drilling and safety panel wants to make sure it is safe. Now near the Tortugas you may have exploratory wells by industry, because if you have had saltwater flushing as seen on east coast of Florida and the Bahamas it will be safe, but it will still not be scientifically satisfying for iSSP. Submit existing data to data bank however, so the iSSP can evaluate.
And if there has been saltwater flushing, Jamie Austin suggests diagenetic problems may arise etc.
Readiness: 3B
Notes & iSSP Consensus: No data have been submitted to the databank, and so it is not possible to determine the site survey readiness of the proposed sites. The data presented in the proposal are not sufficient for site survey of these sites. The proponents are urged to collect and submit relevant existing data before February 2003.

PRE-PROPOSALS
No category within the Readiness Classification has been selected yet for Pre-Proposals.

600- Pre (Not forwarded to iPC-1) Canterbury Basin
Watchdogs: Kyoko Okino/Soenke Neben
Notes: Because of water depth about 100 m and penetration, MSP will be necessary.

601- Pre (Not forwarded to iPC-2) Iheya Ridge
Watchdog: Rob Sohn
This proposal is representative of a new "breed" of proposals that we expect to see more and more of in the new program, wherein active hydrothermal circulation systems will be drilled in young crust to investigate the nature of a deep biosphere. The traditional types of site survey data will not be particularly useful, as the drilling targets are transparent to seismic reflection methods to first order. The proponents will need to have a good understanding of the hydrothermal circulation pattern at their drill site, and the position of the high-temperature water-rock reaction zone, in particular. The reaction zone generates swarms of very small microearthquakes as it cools, contracts, and is penetrated by fluids, and thus passively recording 4-component ocean bottom seismometers (OBS) deployed over periods of a few months can effectively delineate the base of the circulation system.
Thus the panel recommends that passive OBS microearthquake data be obtained at the drill sites to allow the proponents to determine how deep the holes must be to achieve their stated objectives. MCS data could be obtained, but it is likely that refraction data will actually be more useful for determining the

permeability of the host rock, and thus for inferring the circulation patterns. Riser drilling might be needed to recover material especially for drilling deeper than 50 to 100 m especially in penetration as much as hundreds' of meters (water depth 1000 to 1500 m). Perhaps might be developed as a Complex Drilling Program.
Notes: The panel exhorts the proponents to ally themselves with seismologists capable of performing the experiments and performing analyses described above, and feels as though a drilling program constructed on models developed in this way will have a high probability of successfully achieving the desired scientific objectives.

603- Pre (Not forwarded to iPC-3) Nankai Trough
Watchdog: Michael Enachescu
Notes: Both a riser-less platform and the riser ship are needed to achieve this proposal. A great variety of geophysical and geological data exists in the area. However no data has been deposited in the DB and the final sites have not been selected. We recognize that this is a long-term proposal that will require major pre-drill resources. As soon as the existing data is compiled or new data becomes available, it should be send to the DB for iSSP use and improving its iSSP ranking.

605- Pre (Not forwarded to iPC-4) Asian Monsoon
Watchdogs: Soenke Neben/ Kyoko Okino
Notes: Water depths: 700-3683m, Penetration: 300-1000m (intermediate target depths). Drilling platform: non-riser (JOIDES Resolution type). Required site survey data: Navigation (GPS/DGPS), Bathymetry: high resolution multi-beam, Sub bottom profiling Seismics: intersecting multi-channel seismic reflection lines, cross lines over proposed sites, seismic velocities (refraction/wide-angle seismics and/or data from DSDP leg 31 and ODP legs 127/8), Sampling: sediment cores and/or information from cores recovered from DSDP/ODP, Physical oceanography: currents, tides, Heat flow. All data submitted to the data bank should be in digital form.

608-Pre (Not forwarded to iPC-5) NW Pacific Cretaceous Greenhouse

Watchdog: Tetsuro Tsuru
Jamie Austin and David Naar felt that the form that used Tetsuro was very appropriate. This type of form might be developed in the future for reviewing pre proposal
Notes: We believe that almost data required for the sites exist, but they have not received at the DB yet. The Panel encourages the proponents to submit site survey data including seafloor topography, girded magnetics and gravity, and seismic velocity data in near future.

602-Pre2 (Not forwarded to iPC-6) Tropical Epeiric Seas
Watchdog: David Naar

Notes: This pre-proposal addresses a new class of target for IODP and represents exciting scientific opportunities. iSSP looks forward to the development of the full proposal including a fuller description of where site survey exists and discussion of plans to collect site survey where needed for Mission Specific Platform drilling. Presently, no data exists in the data bank.

611-Pre (Not forwarded to iPC-7) Pacific Warm Pool
Watchdogs: Noriko Tsumura/Rob Sohn
Need to add more details on the type of high resolution seismic
Notes: No data have been submitted to the databank, and so it is not possible to determine the site survey readiness of the proposed sites. The proponents are urged to collect and submit relevant existing data before February 2003.

612-Pre (Not forwarded to iPC-8) Geodynamo
Watchdog: Kirk McIntosh
Notes: The panel concludes that the following data types will likely be necessary to support the proposed drilling: High-resolution (preferably with frequencies to over 100 Hz) single or multi-channel seismic data, sub-bottom profiler data such as chirp sonar profiles or 3.5 kHz data, sediment core information, and navigation for all these data types. Additional supporting data are also recommended for submission to the data bank, such as swath bathymetry, intersecting seismic profiles, and sidescan sonar. Water current data may be necessary for some locations, and gravity and magnetic data should be submitted if available. We suggest that the proponents submit any available data to the data bank when convenient and make plans to acquire necessary survey data in the other areas.

613- Pre (Not forwarded to iPC-9) NW Pacific Margin Transect
Watchdogs: Shin'ichi Kuramoto/Roger Scrutton
Notes: This proposal requests to drill at 3 sites of the offshore Joban area where the appropriate sites to investigate Cenozoic sea-level changes and land-ocean linkages, because the high sedimentation rate and the successive deposition are expected. Our panel understands that this proposal requesting a semi-sub-type platform and/or riser drilling vessel to drill. Also the target depth, about 2000 m, may require a riser drilling capability.

615-Pre (Not forwarded to iPC-10) NW Pacific Coral Reefs

Watchdogs: David Naar/ André Droxler
Notes: This pre-proposal addresses a new class of target for IODP and represents exciting scientific opportunities. iSSP looks forward to the development of the full proposal and requests submission of all available site characterization data.

617-Pre (Not forwarded to iPC-11) Hudson Bay and Strait
Watchdog: Roger Scrutton

Notes: The proponents are encouraged to make a rigorous review of potential site survey data and to note that this should in the first instance assume the drilling environment is of Passive Margin type. The data types pursued should include those that will make the most of the scientific discoveries, such as data for regional mapping, as well as site specific information. The proponents may also be called upon in due course to help the PPSP and the platform operator to assemble data relevant to safety and drilling conditions.

End afternoon:

Discussion on equipment onboard the non-riser ship with David Devins

Drilling in geophysical context, seismic integrated with coring
No need to survey with the drilling ship, we need therefore alternate sites:
Current JOIDES Resolution geophysical acquisition capabilities: Seismic, Magnetic, Gravity, 3.5 kHz, data base management.

Consensus: minimum requirement. Routine SCS acquisition does not need to be included in the minimum geophysical system on the new riser ship.

End of Day 2

DAY 3 –

0800

Location and Dates for iSSP February 2003 Meeting:
Sylvie Leroy (U. Paris, France) will be at sea in February 2003 and will not be able to host the iSSP meeting as earlier planned. Luca Gasperini (alternate member for Annakaisa Korja (U Helsinki, Finland) has agreed to host the February 2003 in Bologna, Italy. The dates have been selected as February 24-26 2003.

Location and Dates for iSSP July 2003 Meeting:
Dan Quoidback (iODP Data Bank) has agreed to host the July 2003 at LDEO. The dates have been selected as July 16-18, 2003

Discussion of iPC Consensus 2-4 & iPC Consensus 2-5:

A. iPC Consensus 2-4:
The iPC has received and discussed iSSP Recommendation 02-1-1 on the need for a two-tiered approach to site surveys in support of riser-based drilling. We note that the IWG has agreed that appropriate science operations costs include “engineering or geophysical surveys required for the hole design or evaluation of drilling safety during final site selection.” We also note, however, that the need for complex, high-resolution, 3-D imaging in support of IODP activities may

extend beyond riser-based drilling. Therefore, the iPC urges the iSSP to continue examining this issue.

Discussion:
JR is currently scheduled 18 months in advance. Riser expedition will be scheduled about 3 years in advance. High resolution will be provided by program only for the Whole site characterization. More regional 3-D seismic for science will be funded by national agencies to bring proposal to maturity. 3-D has led to riser less drilling, especially shallow site surveys.

iSSP Reply:
Regional characterization of an area to develop the scientific rational of a proposal is the responsibility of the proponents.
Site specific survey for safety, engineering is the responsibility of the drilling program. Engineering or geophysical survey required for the whole design or evaluation of drilling safety during the final site selection.

B. iPC Consensus 2-5:
The iPC recognizes the need identified in iSSP Recommendation 02-1-2 for a thorough evaluation of the requirements and procedures of an IODP data bank. We request that the iSSP complete such an evaluation and report the results at our next meeting in August 2002. The iSSP report should include recommendations concerning (1) the requirements for digital versus analog data, (2) allowable data formats, specified by type (i.e., seismic, bathymetric, hydrographic, etc.) and form (both analog and digital), (3) the mechanisms and timing of communications with IODP panels and proponents, and (4) facilities, hardware, software, and personnel required for creating and operating an IODP data bank that meets the needs of a diverse, international community.

Discussion:
It is proposed that the DB in IODP will become a facilitator to help proponents find data they need, and furthermore, check data coming in and make sure it is usable and can go to the iSSP for review etc. This will help move proponents along and keep data sets integrated and prevent the iSSP getting clogged with unready packages to review.

iSSP Reply:
iSSP proposes to establish a working sub group to develop requirements and procedures of an IODP data bank. Work will be starting through e-mail communications, continue during a meeting at Fall 2002 AGU meeting, if necessary a meeting a day prior to Feb. 2003 iSSP meeting Report to iPC in March 2003. Member: Scrutton (Chairman), Tsuru, McIntosh, Divins (iSciMP), Watkins (iPPSP), Eguchi (iSAS), Quoidbach (ODP DB Manager)

Thanks to Dan Quoidbach for hosting the meeting.

Meeting ends 11:00 AM

Members:

Kuramoto, Shin'ichi (AIST, Japan; co-chair)
Droxler, Andre (Rice U., USA; co-chair)
Enachescu, Michael (Husky Oil, Canada)
Leroy, Sylvie (U. Paris, France)
Neben, Soenke (BGR, Germany)
McIntosh, Kirk (U. Texas, USA)
Naar, David (U. South Florida, USA)
Sohn, Rob (WHOI, USA)
Okino, Kyoko (ORI, Japan)
Tsuru, Tetsuro (JAMSTEC, Japan)
Tsumura, Noriko (Chiba U., Japan)
Scrutton, Roger (Edinburgh U., UK)

Apologies: Caress, David (MBARI, USA)
Korja, Annakaisa (U. Helsinki, Finland)
Nogi, Yoshihumi (NIPR, Japan)
Qiu, Xuelin (CAS, PRC)

Liaison: Austin, Jamie (iPC)
Watkins, Joel (iPPSP)
Divins, David (iSciMP)
Eguchi, Nobuhisa (iSAS Office)
Quoidbach, Daniel (ODP Data Bank)

Guest: Hashimoto, Tsukuru (JAMSTEC)

Meeting Host: Quoidbach, Daniel (ODP Data Bank)

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 11E

Interim Technology Advice Panel (iTAP)
Meeting Minutes, February 21-22, 2003
Vrije Universiteit, Amsterdam

Introduction & Reports

Following a welcome and introductions, modifications were made to the agenda to accommodate participants' schedules. Reports on the Chikyu (by Takagawa), non-riser platform plans (by Allan), and MSP platform operations (by Skinner) were presented.
Highlights from these reports included the following:

- the Chikyu drilling units will be installed in July, the sea trial for the ship part is scheduled for March 2003, a training cruise is scheduled to start in Q4 of 2005, and operations will begin in Q4 of 2006
- the US National Science Board approved FY2003-2007 ODP program plan, including phase-out, and the RFP for a US System Integration Contractor for the non-riser vessel will be released soon.
- MSP operations will be conducted by BGS in IODP. BGS are currently planning the highest ranked MSP programs (Arctic Drilling).

Cross-platform Technical Issues

Four cross-platform technology issues were proposed for discussion:

1. standardization of drill pipe diameter
2. standardization of coring tools
3. logging tools
4. logging while drilling (LWD) for detection of hydrocarbons

Of these, the drill pipe diameters and logging tools were discussed. The coring tool discussion was deferred until iTAP's joint meeting with iSCIMP and LWD was tabled until the next meeting because of time constraints.

Drill pipe diameter

Dave Huey introduced the topic by presenting the history of the selection of 5" drill pipe in ODP for standardizing on non-riser ships drill pipe at 6-5/8" in IODP (refer to Appendix A). Following a thorough discussion, iTAP prepared a list of the pros and cons for recommending standard pipe diameter.

The pros identified are:

- Potential for larger tools - new & existing
- Stronger/better fishing tools (internal)
- Faster wireline trips and less swabbing
- Higher torque
- Choose now & spend a lot less later
- Easier to apply internal metallic coatings
- Tapered drill string
- Higher annular velocity
- Lower pressure drop

The cons identified are:

- Higher initial cost (pipe, tools, racker)
- Higher storage volume needed
- Pipe may have to be engineered because of corrosion and tensile strength
- Higher pipe weight limitation to larger rigs
- Lower pipe trip speed
- Vortex-induced vibrations (VIV) may be an issue and should be assessed

The panel decided that more information is required for making an informed recommendation. Therefore, the panel made an interim recommendation, as follows:

2003-01. iTAP recommends [that iPC recommends] that the Ocean Drilling Program, through its prime contractor [JOI], subcontract a technical evaluation of the technical, operational, and scientific benefits (e.g. core quality, core volume, tool deployment) and costs of outfitting the JR- replacement to be able to handle up to 6 - 5/8" drillpipe. iTAP will provide the technical workstatement to ODP.

Following the meeting, iTAP members Frank Schuh and Dave Huey prepared a proposed work statement and recommended source.

Logging tools
iTAP discussed the issue of the use of standardized logging tools across all platforms. New technology (e.g. smart drill pipe with data transmission rates of about 2 million bits/sec is available and large advances in memory tools) available from the oil industry is an important aspect to consider in this discussion. Logging is also part of the iSCIMP mandate and members of that panel have begun similar discussions. Because of the strong interest by iTAP in adapting as much of the new technology as possible into IODP operations, the panel agreed that the most prudent approach was to ask a subcommittee of the both panels to discuss and make a recommendation on this topic for discussion at the next meetings of both full panels. iTAP agreed on the following consensus:

Considering the rapidly changing technology and the re-structuring of the logging industry that includes many more supply companies and technologies such as "smart pipe" and memory tools, a review of these technologies and their applications to IODP is essential. A subcommittee of iTAP and iSCIMP will review these technologies and develop a series of options for the acquisition of these data in IODP. These options will be reviewed jointly by iSCIMP and iTAP. Members: Buecker (+ two other iSCIMP members), Kamata, Arai, Gearhart (guest), Becker (guest).

Borehole Stability and Temperature
Vincent Maury summarized temperature and stress-related change from "passive" drilling to "active" drilling. Boreholes fail in shear under a number of rupture modes, including another along existing fractures. Temperature effects (heating and cooling) change the state of stress around boreholes as they are drilled; the bottom of the hole is cooled (more stable) while the upper part is heated (less stable) which can affect borehole stability. Some failure modes observed in ODP cannot be easily explained, and therefore remedies are difficult to prescribe. A borehole simulator (model) is needed to predict temperature and stress during drilling. For planning boreholes in IODP, it is important to back analyze past drilling incidents. Following this informative presentation, iTAP discussed the issue of stability and agreed that analysis of the ODP history is important for reducing borehole stability problems in IODP.

2003-02. iTAP recommends that a hole problem risk mitigation plan be developed for every scheduled program. The plan should include near-real time analyses during the drilling program that uses real-time drilling parameters. These parameters should also be captured into the IODP data base to be used to improve future drilling plans.

2003-03. iTAP recommends that [iPC recommends] that the Ocean Drilling Program incorporate an evaluation of the termination of each borehole as part of the ongoing legacy documentation of the ODP. iTAP will define the scope of this evaluation so that the information can be used to prepare for the technical challenges in IODP.

Complex Drilling Programs (CDPs)

Ted Moore introduced the topic of CDPs to iTAP. He explained that riser drilling projects may be many months long, therefore multiple legs more than one platform may be needed. Therefore there is a need for assistance in the detailed planning of these projects. This introduction was followed by presentations from the two lead proponents of the existing CDPs that are in review in IODP, Harold Tobin [Nantroseize] and Roland von Huene [CRISP]. These proponents attended iTAP to get advice from the panel on technical issues that they could subsequently use for planning purposes. Their presentations to iTAP were valuable because they provided real examples for iTAP to discuss the approaches and needs for planning these types of expeditions in IODP.

The technical issues of Nantroseize are as follows:

- The ultimate drilling target is the seismogenic zone of eastern Japan to ca. 6 km below seafloor in 3 km of water.
- Work has already been done in riserless drilling mode in DSDP and ODP.
- The program will also need to install observatories that will measure parameters within deep and intermediate depth zones.
- The proponents are currently planning the program in three phases:
    1. Drilling to sample the accretionary prism to study the sediment input into the subduction zone.
    2. Drilling to and through splay faults.
    3. Drilling to and through the seismogenic zone.
- LWD/MWD at elevated temperature will be needed [[temperature estimates are > 100^{o}C].
- Downhole testing includes stress, pore pressure, velocity, fluid sampling, and long term monitoring of some of these parameters.
- Overpressures are likely present.
- Fractured sedimentary rocks will be encountered.
- The Kuroshio Current is a concern because of VIV.

The technical issues of CRISP [Costa Rica] are as follows:

- Similar conditions and science targets as Nankai, with the exception that the target seismogenic zone is at 5 km below seafloor in 500 m of water.
- There are no known current problems in the area.
- The anticipated rock-types that would be encountered are not well known.

iTAP discussed the CDPs in terms of two separate aspects: (1) the best approach for IODP to plan and implement these types of programs; and (2) advice to the proponent groups.

IODP approach for undertaking CDPs

John Thorogood led the discussion by first presenting industry's approach for planning and implementing deep water exploration programs. Others attending the meeting from the oil industry (e.g., Harry Doust~~,~~Yoshi Kawamura) agreed that this approach is broadly used and accepted among major companies in the oil patch. John led the discussion and iTAP agreed that the integration of a structured project management approach into IODP is essential. The approach that industry follows is one that incorporates several formal, distinct steps that flow from one to another after formal review (gates) at each step. These steps are: appraise > select > define > execute > operate. In the ODP system, because of the simplicity with a single-purpose platform, the middle 3 steps were skipped.

Therefore, the panel recommended the following:

2003-04. iTAP recommends the formation of an IODP Working Group that will develop a project based management planning system. The system will be similar to those used by the petroleum exploration industry. It will conform to the management structure of IODP

and considers the need for efficient passage of proposals from proposed project scientific review to execution and completion of the drilling project. This Project Management Working Group would be charged with developing the project management system by June 2003.

Membership of this group would include: iTAP, iILP, industry project manager(s), iSSEPs, iPC and/or Science Planning Committee, and an OPCOM working group representative.

Advice to proponents
The panel discussed the technical issues for both Nantroseize and CRISP. The general view form iTAP is that the proponents should focus on the science objectives, rather than work on the technical needs. Although challenging, the technology for tackling these programs is available and the most crucial issue is the need to begin project planning to meet these challenges. With this in mind, the panel discussed and agreed on the following recommendation:

2003-05. iTAP recommends the formation of a Detailed Planning Group (aka Project Scoping Group) to begin the scoping process for Complex Drilling Programs that are currently planned to address seismogenic zone objectives, as an interim measure. The scoping process includes project description (based on the existing proposals in the system), risk analyses, preliminary cost estimates, and project planning.

This group would have the following membership:

- proponent representative(s)
- CDEX representative
- project management advisor
- risk identification specialist
- well engineer

The panel also provided the following **advice to proponent groups** who are planning challenging programs:

- Begin developing list of specifications (e.g., measurements and coring/sample requirements that need to be made (depth, location, resolution, temperature and dynamic range, measurement life)) and collaborate on development of this list - also complete iSCIMP's new cover sheet measurement list
- Select sites based on science objectives
- Please do not identify the type of drilling vessel or drilling methods
- Provide proposals early to the DPG
- Where appropriate, develop technical/operational options based on the science objectives

<u>Joint Panel Meeting</u>
The iTAP and iILP co-chairs presented each of their mandates and their approaches for meeting these mandates to the joint panels. Following this introduction, the panels were presented with a quick overview of Nantroseize to open a discussion on CDPs. The joint panels agreed with the project planning approach presented by John Thorogood (recommendation 2003-04).

Christian Bueker presented a report on iSCIMP/iTAP liaison and joint meetings. His report included the following:

- 2nd meeting of iSCIMP was in Calgary Dec 2002
- recommended there be a database operator – comprehensive database
- recommended there be an ad hoc database working group established immediately
- recommended that SAS include an OPCOM to identify the appropriate platform for the drilling projects and to schedule the 3 platforms

- recommended continued investigation of standardization of drillpipe size since there are potential benefits from doing so
- recommended continued development of anti-contamination drilling (anti-contamination of sample)
- recommended that the link with the iSSEPs be formalized
- joint meeting with iTAP to be in July 2003

An open discussion followed and the panels agreed that it will be important to define how best to extract technical needs from proposals for both iSCIMP and iTAP. Two approaches were suggested: passive, where technology needs are identified in submitted proposals, and active, where we look down the road and develop new technology based on what we see independent of submitted proposals. It may be important to engage both approaches and that the passive approach needs to be carefully done to ensure that there is no influence on the evaluation of proposals, while at the same time, there needs to be an open dialog with proponents to make them aware of the available technology. It was also agreed that continued discussions on standardization are important.

iILP and iTAP liaison needs were discussed and it was agreed that each panel meeting will have 1-2 representatives from the other panel. The representatives will be determined on a meeting by meeting basis depending on logistics and who is most appropriate and available to attend.

A question arose regarding how new technological developments from industry can be brought back to IODP: iTAP or iILP function? It was agreed that this could happen through both panels to ensure continued exchange of ideas between science and industry

Discussion of Technical Challenges

iTAP began the discussions of the technical challenges within IODP that are based on the proposed research set out in the Initial Science Plan. This discussion is the beginning of the process whereby the panel will identify and make recommendations on the highest priority technology development needs and the best approach to achieve these.

Climate history

- improved sampling tools are needed
- methods for reducing the number of holes required to achieve a continuous stratigraphic section are needed
- improved sampling for hard/soft sequences is essential

Gas hydrates

- IODP challenges include sampling at in situ conditions of pressure and temperature
- Tools for sampling at in situ conditions for pressure have seen successful in ODP and JAPEX
- Maintaining temperature conditions remains a challenge, but was found not to be an important requirement for the Nankai drilling by JAPEX – more work is required to maintain sample temperature

Hydrogeology

In ODP, a PPG was formed on this topic. The PPG identified technologies needed for successfully addressing hydrogeological science goals that include:

- expanded/improved packer
- shipboard low flow pumps
- better downhole water sampling
- enhance fluid recovery from pressure core samplers
- improved temperature tools
- new apparatus for measuring electrical conductivity on board

Zero-age crust
A lack of sediment cover at spreading centers creates a situation that seriously restricts our ability to initiate a borehole. In ODP, a special guidebase was designed to pilot the bit – so initiating a hole is no longer a challenge. However, below the surface, the basalt is brittle and highly unstable, and porous. The drilling situation is analogous to trying to drill into a pile of broken glass. The hammer drill system has some the potential for shallow penetration, but deeper penetration remains a challenge.

iTAP plans to continue discussion of these challenges at the next meeting.

Next meeting [confirmed after the meeting closed]: July 14-16 2003, Graduate School of Oceanography, University of Rhode Island.

<u>iTAP Members</u>
Yusei Arai (Japan)
Dave Huey (US)
Masahiro Kamata (Japan)
Yoshihiro Masuda (Japan; Co-chair)
Vincent Maury (France)
Kate Moran (US; Co-chair)
Frank Schuh (US)
Alister Skinner (UK)
Axel Sperber (Germany)
Sigmund Stokka (Norway)
Brian Taylor (Canada)

<u>iTAP Liaisons</u>
Christian Buecker (iSCIMP)
Shinichi Takagawa (JAMSTEC)
Yoshiro Kawamura (CDEX)
Ted Moore (iPC)
Jimmy Kinoshita (iPC)
Jeff Schuffert (iSAS Office)

<u>ITAP Guests</u>
iILP Members
Keir Becker (ODP SCICOM Chair)
Robert Bruce (iPPSP)
Steve Bohlen (JOI)
Luke Matthews (JOI)
Harold Tobin (IODP proponent)
Roland von Huene (IODP proponent)
John Thorogood (BP/IADC/SPE)
Jeroen Kenter (Meeting Host)
Jamie Allan (NSF)
Marvin Gearhart (IADC/SPE)
Jack Germaine (MIT)
Brett Chandler (Grant Prideco)

APPENDIX A

Commentary: The Argument for 6-5/8-inch Drillpipe as the Standard for IODP

----- DRAFT ----- Submitted to iTAP Panel **----- DRAFT -----**

Amsterdam Meeting, Feb. 21, 2003

D. P. Huey, iTAP Member

INTRODUCTION

During the Deep Sea Drilling Project and the Ocean Drilling Program the drillstrings used for all drilling and coring operations were based on 5-inch (and 5-1/2-inch) S-135/140 drillpipe with a nominal 4-inch diameter thru-bore. This selection was based on state-of-the-art drillpipe and metallurgical development conducted for Project Mohole in the early 1960's. In the intervening 40-50 years oilfield tubular development has progressed, drillpipe metallurgy has been advanced, commercial drillpipe production capabilities have been expanded, and improved drillpipe rotary shouldered connections have been designed and proven.

In many deepwater and deep hole drilling applications worldwide 6-5/8-inch drillpipe has been selected and proved to be superior to 5-inch/5-1/2-inch strings when large inside bores or high tensile capacities are important. The larger 6-5/8-inch pipe has been selected by Japex for use with deepwater pressure coring operations, and by Russian designers for their revolutionary aluminum drillstring, through which the novel coring tools from *Aquatic* can be deployed.

Now is the time for IODP to consider selection of 6-5/8-inch drillpipe as the "standard" drillstring for future deepwater scientific drilling as well as for the American riserless drillship (yet to be selected). Whether or not the European Multi-Platform program could benefit from 6-5/8-inch drillpipe is not clear. It would likely depend on the specific platform selected for any given operation. In some cases, when using smaller drilling platforms, even 5-inch pipe may be too large to handle.

6-5/8-inch DRILLPIPE TECHNOLOGY

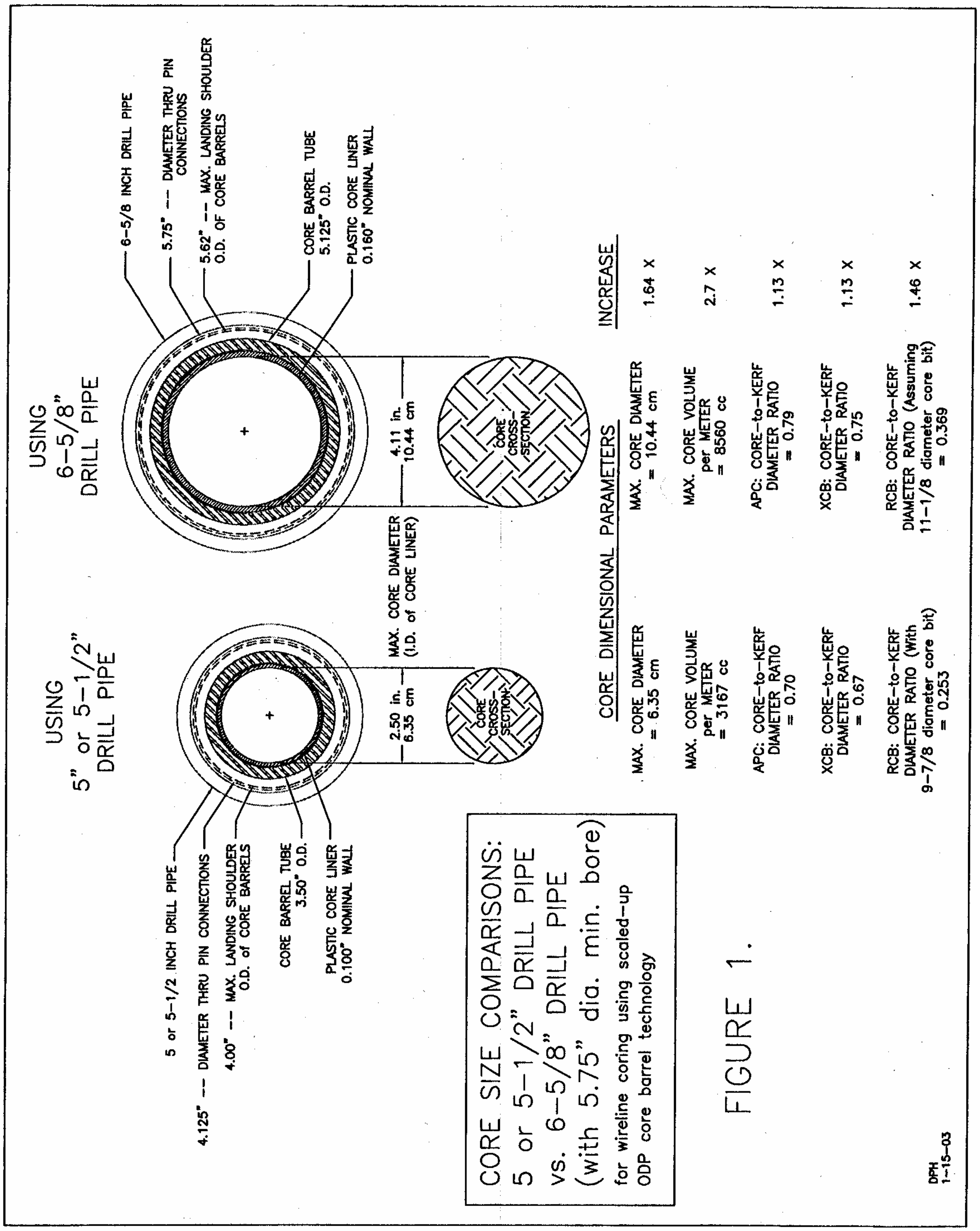
For scientific drilling, coring, sampling, and logging operations the largest pass-thru diameter that is practical is preferred to enable the use of larger diameter coring tools (and, therefore, larger diameter cores), more types of coring tools (custom and commercially available), and larger diameter logging tools. The following facts support the selection of 6-5/8-inch drillpipe to best accomplish those objectives:

- 6-5/8-inch drillpipe is used in today's large-scale drillpipe as 5 or 5-1/2-inch pipe.
- With conventional API rotary-shouldered connections (e.g., API 6-5/8 IF) 6-5/8-inch pipe can have pass-thru diameters (in the pin connection) of 5.75-inches, or more.
- Newer-design, double shouldered, high-torque connections have been designed for 6-5/8-inch drill pipe that offer potentially larger I.D. bores, greater fatigue life, and less O.D. upset.
- Commercially available 6-5/8-inch drill pipe can be purchased made with 150 and 160 ksi yield strength material. (As compared to S-135 and S-140 in DSDP and ODP drillstrings)
- The oil industry equipment suppliers already fully support 6-5/8-inch drillpipe as a standard with ancillary equipment (elevators, tong jaws, handling tools, etc).
- There is no fundamental difference in maximum practical drillstring length for 5-inch, 5-1/2-inch, or 6-5/8-inch drillpipe. Maximum length strings can be designed by "tapering", i.e. for 6-5/8-inch pipe the upper 10-15% of the string might have a thicker wall than the lower section of the string.
- 6-5/8-inch drill pipe would be easier to coat internally with spray-on, anti-corrosion coating (Zn-based, or other metallic anti-corrosion systems).
- A proposed 6-5/8-inch drillstring has already been designed for the *Chikyu*, although not initially selected as the initial drillstring for OD21.
- The Japex 6-5/8-inch drillstring will (very likely) be adapted for use aboard the *JOIDES Resolution* for coring operations conducted by JNOC offshore Japan early in 2004 as part of the Japanese MH21program. The necessary conversions to the *JOIDES Resolution* pipe racker system have already been preliminarily designed.

SCIENTIFIC BENEFITS TO IODP with 6-5/8-inch DRILLPIPE

- <u>Larger cores possible using wireline-retrievable coring tools</u>.

  Figure 1 illustrates one possible set of dimensions for standard wireline cores if a 6-5/8-inch drillstring is used with a 5.75-inch minimum pass-thru diameter at the pin connections. The core diameter shown is based on reasonable up-scaling of the standard ODP coring tools. These numbers are conservative estimates – even larger cores may be possible.


USING
5" or 5–1/2"
DRILL PIPE
5 or 5–1/2 INCH DRILL PIPE
4.125" -- DIAMETER THRU PIN CONNECTIONS
4.00" -- MAX. LANDING SHOULDER O.D. of CORE BARRELS
CORE BARREL TUBE 3.50" O.D.
PLASTIC CORE LINER 0.100" NOMINAL WALL
2.50 in. 6.35 cm
CORE CROSS-SECTION
MAX. CORE DIAMETER (I.D. of CORE LINER)
USING
6–5/8"
DRILL PIPE
6–5/8 INCH DRILL PIPE
5.75" -- DIAMETER THRU PIN CONNECTIONS
5.62" -- MAX. LANDING SHOULDER O.D. OF CORE BARRELS
CORE BARREL TUBE 5.125" O.D.
PLASTIC CORE LINER 0.160" NOMINAL WALL
4.11 in. 10.44 cm
CORE CROSS-SECTION
CORE DIMENSIONAL PARAMETERS
INCREASE
MAX. CORE DIAMETER = 6.35 cm
MAX. CORE DIAMETER = 10.44 cm
1.64 X
MAX. CORE VOLUME per METER = 3167 cc
MAX. CORE VOLUME per METER = 8560 cc
2.7 X
APC: CORE–to–KERF DIAMETER RATIO = 0.70
APC: CORE–to–KERF DIAMETER RATIO = 0.79
1.13 X
XCB: CORE–to–KERF DIAMETER RATIO = 0.67
XCB: CORE–to–KERF DIAMETER RATIO = 0.75
1.13 X
RCB: CORE–to–KERF DIAMETER RATIO (With 9–7/8 diameter core bit) = 0.253
RCB: CORE–to–KERF DIAMETER RATIO (Assuming 11–1/8 diameter core bit) = 0.369
1.46 X
CORE SIZE COMPARISONS:
5 or 5–1/2" DRILL PIPE
vs. 6–5/8" DRILL PIPE
(with 5.75" dia. min. bore)
for wireline coring using scaled–up ODP core barrel technology
FIGURE 1.
DPH 1–15–03

- <u>More types of wireline-retrievable coring tools already in existence could be used.</u>

  Both the Japex/Aumann pressure-temperature controlled coring tool and the Russian *Aquatic* suite of novel coring tools were designed to be used with 6-5/8-inch drillpipe.

- <u>Wireline coring tools of the future will have a larger diameter design envelope</u>

Important coring tool features are virtually always controlled by the annular space available between the desired core O.D. and the minimum pass-thru I.D. of the drillstring. Increased annular space inherent to 6-5/8-inch pipe would mean more room for: larger ball valves, more reliable and stronger core catchers, electronics and motor-operators for downhole core barrel functions, stronger core barrel threaded connections (leading to less broken core barrels, higher overpull allowances, less core barrel wear and tear).

- <u>Larger diameter logging tools can be used (both commercially available and custom-designed)</u>
- <u>Larger diameter downhole instruments can be deployed</u>

Larger instruments can be set in boreholes by thru-the-pipe deployment methods without requiring seafloor structures and re-entry operations. This is both significantly faster and more foolproof than operations requiring re-entry into a borehole in deep water.

- <u>Larger and stronger wireline-deployed fishing tools can be used</u>

High-investment boreholes or jammed BHAs can often be saved when junked with lost core barrel or logging tool parts by thru-the-pipe fishing techniques, saving significant ship operations time. Larger diameter fishing tools are stronger and more versatile.

- <u>Existing coring and logging tools from ODP could still be used with a 6-5/8-inch drillstring</u>

Not only would the existing ODP coring tools and commonly used logging tools be compatible with a 6-5/8-inch drillstring, but they would be easier to deploy and retrieve at high speeds with less swabbing problems.

- <u>Borehole diameters during coring operations would not necessarily have to be any larger than current ODP standards.</u>

ODP coring with APC, XCB, PCS and MDCB coring tools already use an 11-7/16-inch diameter core bit when roller cones bits are used. A 6-5/8-inch drillstring would have connections with an O.D. of only about 8.5 to 8.75 inches. Use of PDC cutting structures in ODP or IODP coring operations allow for smaller core bits with diameters determined by BHA (drill collar) diameters, not core barrel diameters.

- <u>Downhole motors with thru-bores for wireline coring might be feasible</u>

Positive displacement mud motors with holes through the rotor section large enough for the passage of ODP standard wireline coring tools was never achieved during ODP despite engineering development efforts to design one. With 6-5/8-inch drillpipe this concept might prove practical opening up the possibilities of high-speed diamond drilling/coring, directional drilling, etc.

TECHNOLOGICAL, SCIENTIFIC, ECONOMIC and “POLITICAL” CHALLENGES

- DRILLING SYSTEM UPGRADE REQUIREMENTS
  Both the *Chikyu* and the soon-to-be-designated American riserless drillship would require certain drilling system upgrades to accommodate 9000-10,000m drillstrings of 6-5/8-inch drillpipe. For *Chikyu* these upgrades would be either redesigns, or retrofits, depending on the current progress of outfitting on the Japanese ship. For the new American ship the upgrades would simply be enhanced specifications for the ship conversion to riserless scientific drilling duties. The following upgrade requirements would be necessary:
  - → Drillstring design specifications. The specifications of the 6-5/8-inch drillstring itself would have to be design-optimized for IODP standard operations, including connections (type, bending strength, fatigue resistance, and maximum pass-thru diameter at the pin), tubular wall thicknesses, pipe material, string tapering (if necessary), total drillstring strength, overpull capacity optimization, maximum depth determination, etc. Drillpipe bending through the upper flex joint on the *Chikyu* would have to be examined and a flex joint chosen to minimize bending stresses during riser operations.
  - → Rig hoisting system. The hoisting system of the rig would have to be upgraded to handle the increased weight of the larger diameter drillstring. 6-5/8-inch drillpipe is about 25-35% heavier per foot than 5-inch or 5-1/2-inch pipe. More total load capacity would be required for derrick, drawworks, top drive, drillstring heave compensator, traveling block line, etc.
  - → Top drive redesign. The top drive for the 6-5/8-inch drillstring would need to be enlarged (most likely in custom design) to provide a nominal 6-inch pass-thru diameter from the oil saver to the drill stem and saver sub.
  - → Drill pipe racker system. The pipe racker would have to be enlarged to have capacity for the required length of 6-5/8-inch drillpipe.
  - → Drill pipe handling tools. Larger elevators, lift subs, slips, tongs, and other pipe handling tools would have to be acquired to operate with the 6-5/8-inch pipe.
  - → New “Knobby” drilling joints for fatigue resistance would have to be designed and fabricated
  - → Guidehorn radius. The bending radius of the guidehorn under the dill floor on the *Chikyu* and American drillship would have to be optimized for 6-5/8-inch drillpipe and its connections. It is possible that the guidehorn already designed for the *Chikyu* (larger radius than the *JOIDES Resolution* guidehorn) would prove to be suitable for 6-5/8-inch drillpipe deployed to 9000-10,000m, but the bending strength question would have to be re-examined.
  - → Ancillary drillstring elements. A full set of drillstring secondary components mated to the 6-5/8-inch drillstring would have to be designed and supplied to both drillships, including: pup joints, crossover subs, bumper subs, drilling jars, drill collars, etc.

- SCIENCE SYSTEM UPGRADE REQUIREMENTS
  - → Core Liners. Larger diameter cores require larger diameter core liners, larger D-tubes or other core storage devices, and larger core handling and cutting systems. More core storage space onboard the ships might be necessary. It might not be feasible to man-handle full length cores from rig floor to core

receiving stations, so core liner hoisting and transport systems on the ship might have to be added or upgraded.

→ Core lab upgrades. Core liner diameter is inherent in the design of many core lab instruments and tools including: cryogenic magnetometer, gamma ray porosity evaluator, and other instruments that measure core properties while still in a whole or split liner. Less significant modifications would be required to photo tables, core sampling devices, core splitters, etc.

- ECONOMIC INCREASE REQUIREMENTS
  → A drillstring design optimization engineering effort will be required to set specifications of 6-5/8-inch drillstrings for the American drillship.
  → The cost of 6-5/8-inch drillpipe is greater than 5-inch or 5-1/2-inch drillpipe approximately in proportion to its increased weight per foot (about 30-40% more expensive).
  → Larger capacity hoisting equipment (derrick, drawworks, top drive, heave compensator, etc) will be more expensive than similar components designed for 5-inch drillstring service.
  → Retrofit requirements to *Chikyu* (if any) to accommodate 6-5/8-inch drillpipe will have a cost impact.

- CHALLENGES
  This is essentially the only time in the foreseeable future of international scientific ocean drilling when it will be possible to incorporate these improvements to the drillstring specifications and achieve the benefits of larger cores, larger tools, etc.

  If the *Chikyu* remains designed for 5-inch and 5-1/2-inch drillpipe and the new American drillship is specified for the same drillstring, and both ships begin scientific operations with that standard, the chances of a future retrofit to larger diameter drillpipe are extremely slim for reasons of cost, program disruption, and plain old organizational inertia. It is probably now or never in our lifetimes.

  iTAP may be the only entity extant within the IODP hierarchy that can orchestrate the change of drillstring standard size.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
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Enclosure 12A

Report of Arctic Scoping Group (ASG)
29-30 October 2003, British Geological Survey, Edinburgh, Scotland

As requested at the September 2003 OPCOM and SPC meetings, the ASG met 29-30 October at the BGS offices of the ECORD Science Operator (ESO), to assess the status of operational planning for IODP drilling on Lomonosov Ridge during summer of 2004. The ASG mandate, agenda, and list of members and attendees are attached to this report. Also attached are selected slides from the presentation of ESO operational plans.

Overall Recommendation:
The ASG has examined the planning history and procedure, current operational and project plans, risk assessment (including financial risks), and associated costs, in association with delivery of Lomonosov Ridge drilling (533-Full3) as planned for implementation in summer 2004 by ESO. Some aspects under development and requiring continuing discussion have been identified (see details below), and the ASG have every expectation that progress will be achieved in a timely manner. Scoping should continue and the ASG recommends going forward with implementation of this expedition.

Discussion of Specific Mandate Items:
The ASG came to the following consensus assessments regarding the six specific items in its mandate:

1) **To demonstrate that a proper planning procedure for IODP implementation of Proposal 533-Full3 at Lomonosov Ridge has taken place.** A thorough and detailed planning procedure has taken place. ESO has built on and moved forward from efforts begun by the Arctic DPG in 2000-2001 and the JOI/JEODI planning effort in 2001-2003. ESO has developed operational plans that cover essential aspects of the shipboard and shore-based operations necessary to implement the science proposed in 533-Full3 through the point of an Initial Reports volume.

2) **To assess how well the operational plan can be expected to deliver the proposed science objectives of proposal 533-Full3.** As with all ODP/IODP operations, achievement of science priorities must be considered in a hierarchy of expedition objectives that include, in priority order: safety, proper drilling and operational decisions, essential scientific activities (e.g. ephemeral properties), and follow-on scientific measurements.

    a) An appropriate mix of three vessels, given available fiscal resources, has been identified for an Arctic IODP expedition in August-September 2004, and the groundwork has been laid for contracting. The operational plan clearly addresses requirements for safety and drilling/operational decisions, but still under discussion are: balance and composition of scientific and operational staffing between the vessels, and techniques for hydrocarbon monitoring (currently under discussion with PPSP).
    b) Proposal 533-Full3 sets out 4 main scientific objectives, in the following priority order: (1) (clearly top priority) continuous core recovery of the ~450 m

Cenozoic sedimentary section on Lomonosov Ridge between 87 and 88°N; (2) coring the higher-resolution Neogene sequence at sites near the Siberian margin; (3) sampling the transition across the regional unconformity on Lomonosov Ridge between the Cenozoic and pre-Cenozoic sections; and (4) logging of any cored sites as allowed by ice conditions. The operational plan is clearly constructed to address the top scientific priority, but it requires piston-coring tool development and at-sea testing that has not been completed as of the ASG meeting. The development plan is credible and based on modifying proven BGS coring technology, and testing is scheduled for February of 2004. The ASG confirms that piston-coring technology must be available for the science of 533-Full3 to be achieved.

3) **To show that there is a clear project plan, including a viable fleet-management plan and ice-management plan.** Currently, ESO and SPRS have developed good generic fleet-management and ice-management plans, including identifying appropriate individuals as potential fleet, ice, and operations managers. Once contracts for specific vessels are let, these managers should be named and more detailed specific planning should begin, including: completing bridging documents that define lines of responsibility, authority and accountability, and beginning strategic ice assessment and long-term weather forecasting as of March 2004.

4) **To demonstrate that an adequate risk assessment, including financial risks, has been undertaken.** Risk-aversion thinking pervades all aspects of the ESO planning for implementation of 533-Full3. ESO adheres to PRINCE2 (PRojects IN Controlled Environments) project management principles, and formalized risk assessment is being undertaken as specified in those principles. Any shipboard operations will meet all IMO (International Maritime Organization) ISM (International Safety Management) specifications. ESO will also follow IMO's new Arctic ship operation guidelines (Annex 10 of ISM specifications).

5) **To present project costs.** Project costs were presented to the ASG, including ship costs based on tenders and refined estimates for all other costs. Project costs were broken down into POC's and SOC's to conform with IODP program planning, and covered both the at-sea expedition as well as the follow-on shore work at the Bremen core repository necessary to produce the equivalent of an Initial Reports volume. The ASG was impressed with the provision for contingency funds, which is particularly appropriate for MSP programs.

6) **To show that the operation will be fully integrated into IODP.** ESO is guided by IODP principles, is embracing all aspects of IODP procedures, and in some cases is leading in efforts to develop new IODP capabilities. Good examples of the last include: databases, core repositories, coordinated outreach, tool development, a fully integrated petrophysics capability, and all aspects related to MSP operations (e.g., offshore and onshore science parties).

Arctic Scoping Group (ASG) Annex I

I. Mandate:

1) To demonstrate that a proper planning procedure for IODP implementation of Proposal 533-Full3 at Lomonosov Ridge has taken place.
2) To assess how well the operational plan can be expected to deliver the proposed science objectives of proposal 533-Full3.
3) To show that there is a clear project plan, including a viable fleet and ice-management plan.
4) To demonstrate that an adequate risk assessment, including financial risks, has been undertaken.
5) To present project costs.
6) To show that the operation will be fully integrated into IODP.

II. Attendees:

ASG members

Keir Becker, University of Miami (chairman)
Mike Coffin, University of Tokyo (OPCOM representative)
Martin Hovland, Statoil
Dave Huey, Stress Engineering Services, Inc.
Tom Janecek, Florida State University
Uwe Pahl, Master, Polarstern
Uko Suzuki, JAMSTEC

Observers

Jamie Austin, Interim IODP Director, IMI
John Farrell, JOI

Proponent representatives

Jan Backman, Stockholm University
Kate Moran, University of Rhode Island

ESO and affiliates

Alister Skinner, ESO Operations Manager
Dan Evans, ESO Science Manager
Anders Backman, SPRS
Colin Brett, ESO
Tim Brewer, ESO/European Petrophysics Consortium
Robert Gatliff, BGS (welcoming remarks)
Eileen Gillespie, ESO
Colin Graham, ESO
Ulf Hedman, SPRS
Anders Karlquist, SPRS
Arno Keinonen, AKAC Inc
Andy Kingdon, ESO
Brice Rea, ESO/European Petrophysics Consortium
Ursula Roehl, ESO/University of Bremen

IODP Arctic Scoping Group (ASG)
Meeting at BGS, Murchison House, Edinburgh
29-30 October 2003

Agenda

29th October – start at 1300

A. Introductions, logistics, review mandate and ground-rules (KB, DE)

B. Establish context

Review scientific objectives of 533Full3 (JB, KM)
Review planning efforts within JOIDES/ODP (KB, KM, JF)
Review status of ECORD membership and MSP operations in FY04 (JA)

C. Review of current ESO planning for 533Full3

Introduction (DE)
Coring operations (ACS, CB)
1. The Arctic fleet
2. Ice management plan (AK, AB)
3. Tools
4. Logging (TB/BR)
5. Clearances (see also Outreach)
6. Health, safety and environment
7. Data management (CG)

Science operations (DE)
1. Offshore science party
2. Onshore science party (UR)

Outreach (AK)
Costs (DE)

30th October – 0900-1700

C. Continue ESO presentation as required

D. Point-by-point discussion of mandate items and summary ASG assessment (KB)

Composition of ESO

- British Geological Survey
- University of Bremen
- European Petrophysics Consortium

Composition of ESO

- British Geological Survey (BGS)
  - ESO Co-ordination
  - Operational management
  - Scientific management
  - Data management

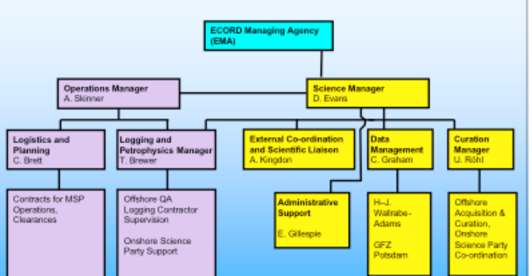
Composition of ESO

- University of Bremen
  - Management of curation and laboratory facilities
  - Onshore science parties
  - Provision of core repository
  - Data management services

Composition of ESO

- European Petrophysics Consortium (EPC)
  - Management and provision of logging and petrophysical services
  - EPC comprises:
    - University of Leicester – Co-ordinator
    - Université de Montpellier
    - RWTH Aachen University
    - Vreije University of Amsterdam

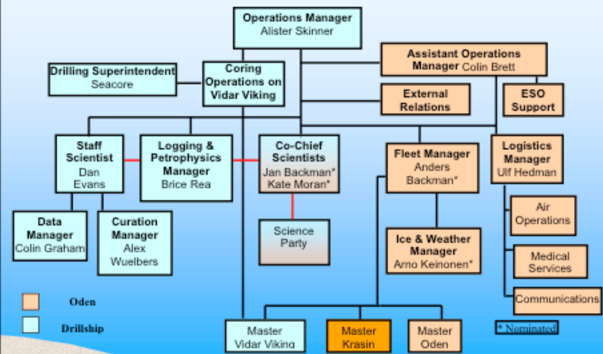
ESO Management Structure



ESO will sub-contract other services as necessary

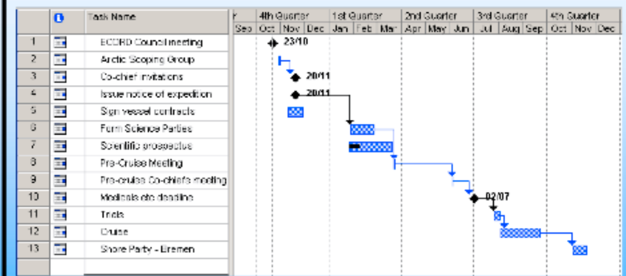
- Drilling contractors
  - Normally as part of the platform contract
- GFZ Potsdam for use of the operational data management system (DIS) employed by ICDP
- Logging services
  - Competitive tender
- Planning and implementation advice, eg for the Arctic drilling
  - Swedish Polar Research Secretariat
  - An experienced icebreaker captain
  - Ice-management consultant

Arctic Drilling Operations Management Structure



E|S|O ECORD Science Operator

Provisional science schedule



E|S|O ECORD Science Operator

Science Party

- Offshore Science Party
  - Only a portion of the Science Party
  - August-September 2004
- Onshore Science Party
  - Is the true 'Science Party' with associated privileges and obligations under IODP Principles
  - Offshore Party will also participate
  - November 2004 in Bremen
  - This is the main locus of scientific task; end is the start of the moratorium period

E|S|O ECORD Science Operator

ECORD European Consortium for Ocean Research Drilling

Onshore Science Party

- Will be held in Bremen about 5 weeks after the end of the cruise
- Total Party estimated to number 24 (?)
  - Includes those on Offshore Party
  - 33% each from ECORD, US and Japan
- Accommodation, subsistence and local travel paid by ESO
- Duration of Party uncertain until after offshore work

E|S|O ECORD Science Operator

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 12B

X-Sender: isas@mailgate.jamstec.go.jp
X-Mailer: Macintosh Eudora Pro Version 4.2.1-J
Reply-To: isasoffice@jamstec.go.jp
Date: Wed, 12 Nov 2003 13:37:03 +0900
To: byrne@sp.uconn.edu, kbecker@rsmas.miami.edu, mcoffin@ori.u-tokyo.ac.jp,
rduncan@coas.oregonstate.edu, afisher@emerald.ucsc.edu,
hisao.itou@aist.go.jp, skkato@ipc.shizuoka.ac.jp, h.kawahata@aist.go.jp,
kgm@rci.rutgers.edu, tedmoore@umich.edu, mori@rcep.dpri.kyoto-u.ac.jp,
tquinn@seas.marine.usf.edu, soh@jamstec.go.jp, tatsumi@jamstec.go.jp
From: iSAS Office <isasoffice@jamstec.go.jp>
Subject: URGENT: Vote on inclusion of Arctic Lomonosov Ridge (533-Full3)in
the FY2004 IODP Program
Cc: jamie@utig.ig.utexas.edu, Benoit.Ildefonse@dstu.univ-montp2.fr,
macleod@cf.ac.uk, jeroen.kenter@falw.vu.nl, herzig@mineral.tu-freiberg.de,
isasoffice@jamstec.go.jp
X-Security: MIME headers sanitized on sheba
See http://www.wolfenet.com/~jhardin/procmail-security.html
for details. $Revision: 1.104 $Date: 2000-05-10 08:51:15-07

Dear SPC members,

The Arctic Scoping Group (ASG) met on 29-30 October in Edinburgh, Scotland, to review the operational plan for the Arctic Lomonosov Ridge drilling expedition (proposal 533-Full3), as recommended by the SPC at its September 2003 meeting. Keir Becker, chair of the ASG and SPC member, has prepared the attached report. The OPCOM considered an expanded version of this report, and approved its "Overall Recommendation" by consensus. Now, the SPC needs to vote to determine if Arctic Lomonosov Ridge drilling will be included in the FY2004 IODP Program Plan.

We therefore request that you reply to this message by Friday, 21 November indicating whether you agree, disagree, or abstain from voting on the "Overall Recommendation" given on the first page of the ASG report. If we do not hear from you by that date, we will count you as absent.

If the SPC agrees with the overall recommendation of the ASG, then Arctic Lomonosov Ridge will be included in the FY2004 IODP Program Plan that will be considered by the SPPOC at its 5-6 December meeting in San Francisco, California USA.

We look forward to hearing from you by 21 November.

Sincerely,

Nobu and Jeff
Attachment Converted: "F:\eudora\attach\ASGReportNS.pdf"
====================================
iSAS Office
2-15 Natsushima-cho
Yokosuka 237-0061 JAPAN
Voice: 81-46-867-9301
Fax: 81-46-867-9305
e-mail: isasoffice@jamstec.go.jp
Website: http://www.isas-office.jp
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DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

Enclosure 13A

Mandate: Science Planning and Policy Oversight Committee (SPPOC) for the Integrated Ocean Drilling Program

1. SPPOC is a committee created by the IMI in accordance with the terms and conditions of IMI's by-laws. This committee is the highest-level committee of Scientific Advisory Structure (SAS), and shall formulate scientific and policy recommendations with respect to the Integrated Ocean Drilling Program (IODP). It shall conduct IODP planning, as well as evaluation and assessment of the Program as to its accomplishments as compared to the goals and objectives which have been established. It may be assigned managerial and operational responsibilities for appropriate tasks, and will provide for scientific liaison to other scientific programs. The IMI Sapporo Office (IMI-J) will support the SPPOC's activity.

2. The SPPOC may establish subcommittees for cognizance of certain components of the Integrated Ocean Drilling Program. Areas of cognizance and the Terms of Reference for each subcommittee shall be defined by the SPPOC. In particular, a Science Planning Committee (SPC) shall be established. The SPPOC will determine the chair and vice-chair of SPC based on IODP member nominations. IMI BOG shall approve the SPC Chair nomination.

3. The SPPOC will review and approve the annual IODP program plan and budget prior to forwarding it to the IMI Board of Governors for corporate approval and contractual submission to the Lead Agencies.

4. The members of the SPPOC shall be representatives from oceanographic and marine research institutions or other organizations, which have a major interest in the study of the sea floor. Members will be selected based on recommendations from national committees from member nations. In addition, the IMI BOG will appoint two of its members to the SPPOC, one from Japan and another from the US. In the event another Lead Agency joins IODP, the IMI BOG will appoint three members to SPPOC. The IMI Board of Governors will approve the membership of the SPPOC. The Board of Governors on the recommendation of the SPPOC or in the event of a country or consortium ceasing to have a valid Memorandum in existence may cancel membership of any member.

5. The SPPOC shall reach all its decisions by the affirmative vote of at least two-thirds of all members. A quorum shall constitute two-thirds of the Committee. If a member of the Committee is absent from a duly called meeting of the Committee, an alternate may be designated with full authority to act for them in their absence.

6. The Chair of SPPOC will rotate initially between Japan and the United States with a term of office of two years. The IMI Board of Governors based on IODP member nominations will determine the Chair of SPPOC.

7. The Committee, and all subcommittees thereto, shall keep written records of their

proceedings.

8. Members of this Committee, and members of subcommittees duly appointed thereby, while acting within the Terms of Reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses, costs and expenses arising from acts or omission related to performance as committee members.

9. These Terms of Reference, upon ratification by the Board of Governors of IMI, will supersede all previous Terms of Reference.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

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Enclosure 13B

IODP Science Planning and Policy Oversight Committee
1st Meeting, 5-6 December 2003
San Francisco, California, U.S.A.
Draft Meeting Agenda (v.1.1)

FRIDAY	**5 DECEMBER**	**08:30-17:00**

1. Introduction		08:30
1.1 Opening remarks and introduction of participants	(Tamaki)	
1.2 Welcome and meeting logistics	(Austin)	
1.3 Approval of meeting agenda	(Tamaki)	
1.3 Review of committee mandate	(Tamaki)	
2. Agency reports		08:50
2.1 NSF	(Malfait/Allan)	
2.2 MEXT	(Tanaka)	
2.3 EMA	(Mevel)	
3. Management and operations reports		09:20
3.1 IMI, Inc.	(Stoffa/Austin)	
3.2 JOI Alliance	(Bohlen)	
3.3 CDEX	(Taira)	
3.4 ECORD	(Schorno)	
3.5 iSAS Office	(Eguchi)	
Coffee break		***10:30-11:00***
4. Presentation of FY2004 and FY2005 Program Plans		11:00
4.1 FY2004-2005 Science Plan	(Coffin)	
4.2 FY2004-2005 Budget and Operational Plan	(Austin)	
Lunch		***12:30-14:00***
5. Performance Evaluation Committee (PEC-VI) report	(Humphris)	14:00
6. Response to IMI requests on evaluating IODP SAS	(Tamaki/Suyehiro)	15:00

SATURDAY	**6 DECEMBER**	**8:30-17:00**

7. Approve FY2004 and FY2005 Program Plans	(Tamaki)	08:30
8. Science Planning Committee (SPC) report	(Coffin)	09:30
8.1 IODP policies and principles		
8.1.1 Ancillary programs policy		
8.1.2 IODP sample and data policy		
8.1.3 Obligations of IODP scientists		
8.1.4 Approve mandate for Science Planning Committee (SPC)		
8.1.5 SAS conflict of interest statement		
8.1.6 Proposal evaluation procedures and principles		
Coffee break		***10:30-11:00***
8.2 iSAS panel recommendations		11:00
8.2.1 iSciMP		
8.2.1.1 Shipboard microfossil reference collections		
8.2.1.2 Paleontology laboratory working group report		

8.2.1.3 Paleomagnetics laboratory working group report
8.2.1.4 Underway geophysics laboratory working group report
8.2.2 iTAP
8.2.2.1 Hole-problem risk mitigation plan
8.2.2.2 Equip drilling vessels with ROVs
8.3 iSAS working group reports 11:45
8.3.1 Database
8.3.2 Microbiology
8.3.3 Data bank

Lunch		***12:30-14:00***
9. Appointment of Operations Committee (OPCOM) chair	(Tamaki)	14:00
10. Identify program liaisons to SAS 10.1 Funding agencies 10.2 Management 10.3 Implementing organizations	(Tamaki)	14:30
11. IODP logo selection process	(Tamaki)	15:00
12. Undergraduate student trainee program	(Farrell)	15:30
13. Summary of policy development	(Tamaki)	16:00
14. Any other business	(Tamaki)	16:30
15. Future meetings 14.1 June 2004, Japan 14.2 December 2004	(Tamaki)	16:50

IODP Science Planning and Policy Oversight Committee

1st Meeting, 5-6 December 2003

Embarcadero Conference Center
San Francisco, California, U.S.A.

Draft Meeting Agenda (v.2.0)

FRIDAY	**5 DECEMBER**		**08:30-18:00**
1. Introduction			08:30
1.1 Opening remarks and introduction of participants		(Tamaki)	
1.2 Welcome and meeting logistics		(Austin)	
1.3 Approval of meeting agenda		(Tamaki)	
1.4 Review of committee mandate		(Tamaki)	
2. Agency reports			08:50
2.1 NSF		(Malfait/Allan)	
2.2 MEXT		(Tanaka)	
2.3 EMA		(Mevel)	
2.4 MST - China		(Shen)	
3. Management and operations reports			09:30
3.1 IMI, Inc. (incl. iSAS Office)		(Stoffa/Austin/Eguchi)	
3.2 JOI Alliance		(Bohlen)	
3.3 CDEX		(Taira)	
3.4 ESO		(Falvey/Evans)	
Coffee break			***10:30-11:00***
4. Presentation of FY2004 and FY2005 Program Plans		(Coffin/Austin)	11:00
4.1 Juan de Fuca Flank Hydrogeology (545-Full3)			
4.2 Arctic–Lomonosov Ridge (533-Full3)			
4.3 North Atlantic Neogene–Quaternary (572-Full3)			
4.4 Oceanic Core Complex (512-Full3)			
4.5 CORK in Hole 642E (543-Full2)			
Lunch			***12:30-14:00***
5. Discussion of FY2004 and FY2005 Program Plans		(Coffin/Austin)	14:00
6. Performance Evaluation Committee (PEC-VI) report		(Humphris)	15:00
7. Response to IMI requests on evaluating IODP SAS		(Tamaki/Suyehiro)	16:00

SATURDAY	6 DECEMBER		8:30-17:30
8. Approve FY2004 and FY2005 Program Plans		(Tamaki)	08:30
9. Science Planning Committee report and recommendations		(Coffin)	09:30

9.1 IODP policies and principles
- 9.1.1 Ancillary programs policy
- 9.1.2 IODP sample and data policy
- 9.1.3 Obligations of IODP scientists
- 9.1.4 Approve mandate for Science Planning Committee (SPC)
- 9.1.5 SAS conflict of interest statement
- 9.1.6 Proposal evaluation procedures
- 9.1.7 Handling of international proposals

Coffee break — ***10:30-11:00***

9.2 iSAS panel reports — 11:00
- 9.2.1 iSciMP
  - 9.2.1.1 Shipboard microfossil reference collections
  - 9.2.1.2 Paleontology laboratory working group report
  - 9.2.1.3 Paleomagnetics laboratory working group report
  - 9.2.1.4 Underway geophysics laboratory working group report
- 9.2.2 iTAP
  - 9.2.2.1 Hole-problem risk mitigation plan
  - 9.2.2.2 Equip drilling vessels with ROVs

9.3 iSAS working group reports — 11:45
- 9.3.1 Database
- 9.3.2 Microbiology
- 9.3.3 Data bank

Lunch — ***12:30-14:00***

10. Appointment of Operations Committee (OPCOM) chair	(Tamaki)	14:00
11. Handling of non-drilling proposals in IODP	(Tamaki)	14:30
12. Identify program liaisons to SAS	(Tamaki)	15:00

- 12.1 Funding agencies
- 12.2 Management
- 12.3 Implementing organizations

13. IODP logo selection process	(Tamaki)	15:30
14. Undergraduate student trainee program	(Farrell)	16:00
15. Review of motions and consensus items	(Tamaki)	16:30
16. Any other business	(Tamaki)	16:50
17. Future meetings	(Tamaki)	17:20

- 17.1 June 2004, Japan
- 17.2 December 2004, Europe or U.S.A.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for
Ocean Research Drilling

Enclosure 13D

Summary of the Meeting of the JOI Board of Governors
Hamilton, Bermuda
July 9th and 11th, 2003

The JOI Board meeting held during the Bermuda Port Call was a busy one that covered a wide range of programmatic and Corporate issues.

In December 2003, the JOI offices will relocate with CORE and the Southeastern Universities Research Association (SURA) to 1201 New York Avenue, N.W. This building is across the street from IRIS and AAAS. Metro Center and McPherson Square are the nearest Metro stations. Costs to the Corporation over the term of the negotiated lease are comparable to the current lease with Brookings because of the partnering with CORE and SURA. The new space is currently being designed.

Among the Corporate issues, were revisions to the Corporate Bylaws. The two most important changes were an elaborated Article on indemnification for the Board and JOI member institutions and the adoption of a Conflict of Interest Policy that formalizes what has commonly been Board practice. This Policy is effective immediately. A President's Evaluation Committee was created as a standing committee of the Board, which also formalizes common practice. New Bylaws, the Conflict of Interest Policy and the Terms of Reference for the President's Review Committee are all available on the BOG website. Finally, JOI has received applications for membership from Monterey Bay Aquarium Research Institute (MBARI) and the University of Nebraska – Lincoln (UNL). Both organizations have been actively involved in ODP. The Board will vote on membership at its next Board meeting, which is being scheduled for March 2004 in Washington, DC.

The Board authorized JOI to aggressively pursue the cooperative agreements for the USSSP Follow-on program and the Ocean Observing Initiative Project Office. The proposal for the OOI Project Office is due to NSF by October 27, 2003. The USSSP Follow-on Program proposal is due to NSF on November 3, 2003.

The following USSAC nominations to IMI were presented for Board approval by Warren Prell, USSAC Chair. The Board approved all nominations as presented for the Science Planning and Policy Oversight Committee (SPPOC), the Science Planning Committee (SPC) and the SPC Vice-Chair, and USSAC replacement members. The IMI Board will ratify the U.S. nominations.

Nominations to JOI BOG and IMI for the Science Planning and Policy Oversight Committee (SPPOC)

1.	Nick Pisias (IMI Board member)	Oregon State University
2.	Margaret Delaney	University of California, Santa Cruz
3.	Susan Humphris	Woods Hole Oceanographic Institution
4.	Larry Mayer	University of New Hampshire
5.	Roger Larson	University of Rhode Island
6.	Eric Barron	Pennsylvania State University
7.	David Rea	University of Michigan
8.	Alternate: David Scholl	U.S. Geological Survey (Retired)
9.	Alternate: Neil Opdyke	University of Florida

USSAC Nominations to JOI BOG and IMI for the Science Planning Committee (SPC) and the SPC Vice-Chair

1.	James Austin, Vice-Chair	University of Texas, Austin	Seismic Geophysics
2.	Andy Fisher	University of California, Santa Cruz	Hydrogeology
3.	Ted Moore	University of Michigan	Paleo/Marine Geo
4.	Keir Becker	University of Miami	Observatories
5.	Bob Duncan	Oregon State University	Petrology
6.	Terry Quinn	University of South Florida	Shallow MSP
7.	Ken Miller	Rutgers University	Sea Level/Stratig

USSAC Nominations to JOI BOG for new USSAC Members

1.	Davis Smith	University of Rhode Island	Microbiology
2.	Larry Peterson	University of Miami	Paleoclimate
3.	Harold Tobin	New Mexico Institute of Mining & Technology	Geophysics / Fluids
4.	Ellen Martin	University of Florida	Paleoceanography

EXCOM offered a number of motions and consensuses to be ratified by the Board. These appear below:

EXCOM Motion 03-1-1: EXCOM approves the meeting agenda.

Orcutt moved, Detrick seconded. 12 in favor, 2 absent (Kudrass, Stoffa).

EXCOM Motion 03-1-2: EXCOM approves the minutes of its June 2002 meeting in Granada, Spain.

Silver moved, Opdyke seconded, 12 in favor, 2 absent (Kudrass, Stoffa).

EXCOM Motion 03-1-3: EXCOM approves the revised ODP Policy Manual in principle and authorizes Harrison and Silver to make minor amendments as necessary. The revision is to be posted on the web site.

von Knorring moved, Prior seconded, 12 in favor, 2 absent (Stoffa, Kudrass).

EXCOM Consensus 03-1-4: EXCOM approves the transferal of Proposal #522 (Leg 206) from the *JOIDES* Office to the iSAS Office to facilitate the review of a second part of this complex proposal.

EXCOM Motion 03-1-5: EXCOM considers that it would be a great advantage, both in real and in symbolic terms, to ensure that Europe is a full member of IODP by the start of the Program on October 1, 2003. EXCOM therefore urges the participants involved in this difficult process to do all possible to ensure that an MOU between the IODP lead agencies and ECORD is signed as close as possible to this date.

Purdy moved, Orcutt seconded, 10 in favor, 3 abstentions – conflicted (Falvey, Kudrass, von Knorring), 1 absent (Stoffa).

EXCOM Motion 03-1-6: EXCOM approves the FY 2004 Program Plan as developed by JOI.

Detrick moved, Opdyke seconded, 11 in favor, 2 abstentions (Purdy, Prior), 1 absent (Stoffa).

EXCOM Consensus 03-1-7: The ODP Executive Committee congratulates the Planning and Science Committees of *JOIDES*. The Chairs of the Committees reach far back into the history of ocean drilling and include: José Honnorez, Roger Larson, Nicklas Pisias, Ralph Moberly, Jamie Austin, Brian Lewis, Robert Kidd, (with Jim Natland, and Julian Pearce substituting once each), Susan Humphris, Bill Hay, Keir Becker.

These Chairs, and the manifold, hard working, imaginative, and determined members of the Planning and Science Committees have served ODP and *JOIDES* exceptionally well. We offer our deepest thanks

Presented by Orcutt.

EXCOM Consensus 03-1-8: EXCOM thanks JOI Inc. for the wonderful location at which its last meeting took place. The arrangements were excellent and the evening event close to the *JOIDES Resolution* allowed us to meet many old friends. Thank you Steve Bohlen, Bridget Chisholm, Maureen Sang, Kasey White, Jennifer Anziano, and Amy Castner.

Presented by Harrison

EXCOM Consensus 03-1-9: At this last meeting EXCOM wishes to recognize that sustained international collaboration has been the fundamental strength of the Ocean Drilling Program. A common vision of scientific, technical and organizational cooperation has been shared by scientists, technicians, students and administrators from many different countries, institutions and agencies. International participation has been led by, but not limited to, the 22 formal ODP members. All aspects and phases of the program-governance, administration, planning, ship-board operations, workshops, symposia and publications have benefited from continuous, multi-national commitment and participation. Myriad scientific and organizational challenges have been successfully addressed, not least because of the richness and diversity of perspectives brought by all program participants. In this respect the present members of EXCOM wish to pay special tribute to all international colleagues who have served as former EXCOM members during 90 meetings over more than 20 years. Looking ahead to IODP, EXCOM considers that the spirit and reality of international synergy are the true, compelling legacies of ODP.

Presented by Prior

EXCOM Consensus 03-1-10: EXCOM wishes to thank our present Chair, Chris Harrison, and all previous EXCOM Chairs: Alan Berman, John Knauss, Douglas Caldwell, Charles Helsley, Arthur Maxwell, Arthur Nowell, Jim Briden, Bob Detrick, Helmut Beiersdorf, for excellent leadership of the Executive Committee in the best interest of the global ocean drilling community.

Presented by von Knorring

EXCOM Consensus 03-1-11: Recognizing the Accomplishments of ODP
Since its beginning in 1985, the Ocean Drilling Program (ODP) has produced unparalleled advances in our understanding of fundamental Earth processes. Knowledge of the changing Earth's climate and the active tectonics of the solid Earth is substantially advanced today because of ODP research activities.

Recognition for the intellectual quality and vitality of ODP is owed to the proponents of individual drilling legs who have, throughout the program, maintained a highly competitive spirit, producing high quality innovative proposals for drilling targets tackling topical scientific problems.

Program priorities and directions have been guided by hundreds of volunteer panel members serving on the many tens of advisory panels, working groups and committees.

The successful implementation of these plans has been achieved effectively, safely and economically because of the quality of the many contractors responsible for carrying out all the programs complex operations (see Footnote 1).

Over its lifetime substantially more than half a billion dollars have been invested in ODP operations. That a fiscal commitment of this magnitude could be sustained for 18 years is a testament to the skill and dedication of the many representatives serving on the ODP Council from all the supporting nations (see Footnote 2).

The Ocean Drilling Program, since the first hole was drilled in 1985, has stood as a magnificent example of the power and effectiveness of international cooperation in science. Throughout its life funding sources from over 20 nations have provided support, and when the program ends in September 2003 more than 1,700 holes will have been drilled, 215 km of core will have been recovered and over 2,700 scientists from over 40 nations will have sailed.

EXCOM recognizes and applauds the great contributions to the natural sciences made by the above mentioned research proponents, members of the advisory structure, the leaders and staff of all the implementing organizations, and the representatives of the funding sources. EXCOM urges that all these groups now focus upon the future, and work cooperatively and selflessly with all interested international parties to bring to the new Integrated Ocean Drilling Program the same record of quality and accomplishment that has so fully characterized ODP throughout its magnificent 18
year life.

Footnote 1: The Ocean Drilling Program at Texas A&M University; The Borehole Research Group at Lamont Doherty Earth Observatory (LDEO) of Columbia University; and in Leicester, Montpellier, Aachen and Tokyo; the Site Survey Data Bank at LDEO; the core repositories at Scripps, Lamont Doherty and Bremen; the ship's crew and the drilling crew onboard the *JOIDES Resolution*.

Footnote 2. United States National Science Foundation; Natural Sciences and Engineering Research Council and Natural Resources Canada; the Australian Department of Primary Industries and Energy; National Taiwan University; the Korean Institute for Geology, Mining, and Materials; the European Science Foundation; Fonds National de la Recherche Scientifique Belgium; Fonds voor Wetenschappelijk Onderzoek – Vlaanderen Belgium; Statens Naturvidenskabelige Forskningsrad Denmark; Suomen Akatemia/Finlands Akademi Finland; National Hellenic Research Foundation Greece; Institute of Geology and Marine Exploration Greece; Rannsoknarrao Islands Iceland; Enterprise Ireland; Geological Survey of Ireland; Marine Institute Ireland; Consiglio Nazionale delle Ricerche Italy; Nederlandse Organisatie voor Wetenschappelijk Onderzoek Netherlands; Norges Forskningsråd Norway; Consejo Superior de Investigacions Cientificas Spain; Oficina de Ciencia y Tecnologia Spain; Instituto de Cooperaçao Ciêntifica e Tecnológica Internacional Portugal; Vetenskapsrådet *(funding formerly came from NFR)Sweden;* Schweizerischer Nationalfonds zur Förderung der Wissenschaftlichen Forschung Switzerland; Scientific and Technical Research Council of Turkey; the Federal Republic of Germany's Deutsche Forschungsgemeinschaft; German Federal Ministry for Research, Education, and Technology; Institut Francais de Recherche pour l'Exploitation de la Mer and Institute National des Sciences de l'Univers-Centre National de la Recherche Scientifique; Japan's Ocean Research Institute, the University of Tokyo and Ministry of Education, Culture, Sports, Science and Technology; the Marine High- Technology Bureau of the State Science and Technology Commission of the People's Republic of China; the Natural Environment Research Council of the United Kingdom; and, in 1991-1992, the Institute of Lithosphere of the Soviet Union.

Finally, two motions were offered for Board approval by Governors Orcutt and Silver. Orcutt offered the following in tribute to C. Barry Raleigh, University of Hawaii, for his dedication and service to ODP and to the Corporation.

Motion 03-2-28: That the JOI Board thank C. Barry Raleigh for his many years of service to the JOI Board of Governors. His service began at the start of the Ocean Drilling Program and he was Chair during the challenging time of transition to independence for both JOI and CORE. We wish him well in his future endeavors.

Silver prepared a motion to recognize the accomplishments of ODP and the many people involved in its success.

Motion 03-2-29: That the JOI Board of Governors thank EXCOM and the JOIDES advisory panels and committees, the JOI Office, and the prime contractors – Texas A&M University and Lamont-Doherty Earth Observatory – for 20 years of outstanding service to the ocean science community. The scientific discoveries by the Ocean Drilling Program in the last two decades have led the Earth and ocean sciences to new heights of understanding of paleoclimates and paleoenvironments; sea floor hydrogeology and the role of fluids in tectonics; the generation of ocean floors; the architecture and dynamic evolution of both rifted and convergent margins; the Earth's deep biosphere; and the nature of gas hydrates.

The framework of fostering excellence in all these endeavors has been skillfully guided by the JOIDES advisory panels and committees, the prime contractors, the JOI Office, including both scientific planning and creativity in developing new tools for drilling, logging, analysis, and widespread access to results. The Ocean Drilling Program is arguably the most successful scientific program ever undertaken by the international Earth and ocean sciences communities. Its success reflects directly on the skill of JOIDES panel members, the contractors, and the JOI Office, each working closely with the shipboard scientists. We are very proud to have worked with each of you in this brilliant and exciting endeavor.

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for Ocean Research Drilling

Enclosure 14A

From: "Dimitris Sakellariou" <sakell@ncmr.gr>
To: <jeroen.kenter@falw.vu.nl>
Subject: Re: Workshop in Greece
Date: Fri, 12 Sep 2003 10:13:25 +0300
X-MSMail-Priority: Normal
X-Mailer: Microsoft Outlook Express 5.00.2615.200
X-MimeOLE: Produced By Microsoft MimeOLE V5.00.2615.200
X-Spam-Status: No, hits=-0.1 required=5.0
tests=AWL,ORIGINAL_MESSAGE,QUOTED_EMAIL_TEXT,REFERENCES
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear Jeroen

Thank you for your fast responce.
I need a support letter from ECORD and/or IODP which will state that ECORD and/or IODP would support any initiative towards the participation of new country members in the scientific ocean drilling program. Especially Greece, a maritime country in the Mediterranean Sea, would contribute significantly to the scope of IODP and would strengthen the role of Europe in IODP. For that reason we welcome the forthcoming Conference in Greece aiming to promote the participation of Greece in ECORD and thus in IODP and we will provide any support in a scientific and organizational maner.

Regarding the proposal, the main aspects to be described are the following:
1. Brief description of the International Organization/Program: title, scope, partners, timeplan, budget
2. Aim and objectives of the Conference (1 page)
3. Description of the organization of the Conference, the objectives to be presented, expected results, publications (1 page)
4. Description of the collaboration frame between the local Institution (HCMR) and the international Organization/Program
5. Budget: maximum 50.000 Euro

I have already started to write the proposal. Any idea or advice is welcomed

Thanks

Dimitris

----- Original Message -----
From: <jeroen.kenter@falw.vu.nl>
To: Dimitris Sakellariou <sakell@ncmr.gr>
Cc: <hipolito.monteiro@igm.pt>
Sent: Friday, September 12, 2003 1:22 AM
Subject: Re: Workshop in Greece

> Dear Dimitri,
>
> Thanks for your positive mesaage on the upcoming conference. The general
> plan looks fine with me but will need some refinement when you write the
> proposal. We (ESSAC Office) could assist you here.
>
> As regarding the letters of support and invited persons the following. The
> best would be to have support letters from IODP and ECORD. I'll check who
> will be the best person to contact within IODP, the ECORD person to
contact

> is
>
> Dr. José H. Monteiro
> Departamento de Geologia Marinha
> Instituto Geológico e Mineiro
> Apartado 7586
> 2720 Alfragide
> Tel: +351 1 471 89 22
> Fax: +351 1 471 90 18
> Email: hipolito.monteiro@igm.pt
>
> who is the EMCO delegate as well as the interim Chair for the ECORD
Council
> until October 1st.
>
> The persons who I would recommend to invite for the meeting would be Ted
> Moore (Chair SPC - science), Kenji Kato (SPC Japanese member - science),
> Raymond Schorno (ECORD Council Chair October 1st onwards - European
funding
> agencies), Catherine Mevel (EMA director - banker ECORD), Alister Skinner
> (ESO - BGS infrastructure), and myself (ESSAC Chair - ECORD science). We
> should probably expand this a little further as persons may cancel.
>
> Let me know what kind of support letter you would need and I'll check who
> would be the contact person for this within IODP.
>
> Best regards,
>
> Jeroen
>
>

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 14B

Netherlands Organisation for Scientific Research
Earth- and Life Sciences

Dimitris Sakellariou
Hellenic Centre for Marine Research POBox 712
47th km Athens-Sounio Avenue
19013 Anavyssos, Attiki
Griekenland

Date: 30 October 2003
Filenr: 800.11.400
Correspondencenr: 2003/05532/ALW
Telephone: +31 (0)70 344 08 37
Fax: +31 (0)70 381 90 33
E-mail: schorno@nwo.nl
Please refer in your reply to the date, file and correspondence nr.

Re: support for conference on Greece participation in IODP

Dear dr. Sakellariou,

We were happy to learn of Greece interest joining the European Council for the Ocean Research Drilling (ECORD) and we feel that this would be a wonderful chance for the European Consortium to increase the number of partner nations and enhance our IODP membership. In addition, membership would allow Greece to play an active role in IODP and send scientists on board of the drilling platforms and shore laboratories.

ECORD Council discussed your proposal in Paris last week and it was unanimously decided that the Hellenic Centre for Marine Research, Athens, Greece should have all our support towards the IODP-HELLAS initiative. Greece, a maritime country in the Mediterranean Sea, would contribute significantly to the scope of IODP and would strengthen the role of Europe in IODP. For that reason we welcome the forthcoming Conference in Greece aiming to promote the participation of Greece in ECORD and thus in IODP and ECORD.

Through our ECORD Science Support and Advisory Committee (ESSAC) we can provide all the possible support in a scientific and organizational manner of the Greek initiative.

With best regards,

Raymond Schorno
Chair ECORD Council

cc. Dr. C. Mevel, EMA director
Dr. J. Kenter, ESSAC Chair

Laan van Nieuw Oost Indië 300, 2593 CE Den Haag
Postbus 93510, 2509 AM Den Haag, The Netherlands
www.nwo.nl
www.ecord.org

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 15

X-MimeOLE: Produced By Microsoft Exchange V6.0.6249.0
Subject: Ref: IODP Euroforum Scientific Drilling
Date: Mon, 22 Sep 2003 13:47:30 +0200
X-MS-Has-Attach:
X-MS-TNEF-Correlator:
Thread-Topic: Ref: IODP Euroforum Scientific Drilling
Thread-Index: AcOA/02NZ2ZUvanDReiO9hMV3Fm2Dg==
From: "Volbers, Andrea" <A.Volbers@bgr.de>
To: <jeroen.kenter@falw.vu.nl>
X-OriginalArrivalTime: 22 Sep 2003 11:47:33.0277 (UTC) FILETIME=[4F593CD0:01C380FF]
X-Spam-Status: No, hits=3.2 required=5.0
tests=AWL,RCVD_IN_OSIRUSOFT_COM,X_OSIRU_OPEN_RELAY
version=2.55
X-Spam-Level: ***
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear Jeroen,

I think that we should proceed with the preparation of the next IODP -ICDP -meeting in March 2004 at Bremen. Last week we had a first meeting with Prof. Wefer and his crew to discuss the technical requirements and the general outlay of the meeting. In my previous email to you and ESSAC I specifically asked to initiate workshops which could be performed at the 16 of March, the day before the meeting. At the 17 of March we thought that after the usual introduction and technical remarks a general overview of the perspectives of IODP and may be also of ICDP would be appreciated by the plenum. With respect to IODP I suggested that you as the present chair of ESSAC would be the most suitable person to present this overview. Therefore I would like to ask you if you could open the scientific session by presenting the European role in the first years of IODP or a much more general overview of the IODP targets. I have also asked ICDP -coordinators to give a similar presentation of 30-45 minutes. After these two presentations IODP and ICDP participants will separate for the rest of the day and hear in two parallel session relevant news on their scientific management etc. the next two days and than used for posters and presentations.

Please let me hear your opinion to these suggestions even when I am at sea until 9 of October.

With best regards,
Hermann Kudraß

Dr. Andrea Volbers
Bundesanstalt für Geowissenschaften und Rohstoffe (BGR)/
Federal Institute for Geosciences and Natural Resources
Stilleweg 2
30655 Hannover
Germany
phone: 49(0)511 643-2785
fax: 49(0)511 643-3663
http://www.bgr.de/odp/home.htm
the next biannual meeting of the European ocean-drilling community is scheduled from the 17 to 19 of March 2004 at the Bremen University. The meeting tentatively called _European perspectives of the IODP participation_ is mainly aimed to increase the scientific cooperations in Europe by

-identifying the European scientific priorities,

-specifying mission-specific drilling proposals,

-developing European drilling proposals for JOIDES RESOLUTION and CHIKYU

-intensifying the cooperation with other earth science programmes like ICDP, IMAGES, OMARC

-informing on the status of ECORD-IODP relations, and

-designing strategies for a public outreach and education.

The two last annual meetings of the Germ an ODP-community have been successfully performed with our colleagues from the ICDP (International Continental Drilling Programme). I therefore have suggested to include the ICDP-community to profit from their experience in mission -specific platform operations and to promote joint IODP-ICDP projects like the drilling of Chixulub and New Jersey.

The tentative schedule compromises three days. The meeting starts in the morning of the 18 March with separate sessions of the ECORD units (Council, ESSAC, EMA, ESO) and special workshops (e.g. public outreach, education, specific drilling proposals). The afternoon of the 18 March will be used to inform the IODP-community on the ECORD-activities including the progress of the ERANET-project, presentations of the ECORD-representatives in the IODP-SAS and scheduled IODP-drilling proposals for the JOIDES RESOLUTION and European mission specific platforms.

The following two days are devoted to scientific presentations combined in thematic sessions. Thematic sessions include a short key note talk (?), the most recent results from ODP/ICDP projects and presentations of European drill proposals. Most of the information, however, will be presented on posters. The themes will cover all the scientific IODP -objectives like paleoclimate/gashydrate/microbiology/ocean crust/hydrothermal processes/tectonics/impacts. The length of allocated time will depend on the amount of interest and responses.

The following actions are needed:

ESSAC to approve the schedule and the general outlay of the meeting

ESSAC to discuss and approve participation of ICDP, IMAGES, OMARC

ESSAC to set up a coordinating committee to support the outline of the meeting

National funding agencies and national coordinators to ensure travel funds for participation

BGR to install a web-site for the meeting.

I will inform you in September on the progress of the preparations. Please inform your elevant scientists on the schedule and block these days in your calendar (17 to 19 March 2004 at Bremen)

With best regards

Hermann Kudrass

Dr. Andrea Volbers
Bundesanstalt für Geowissenschaften und Rohstoffe (BGR)/

Federal Institute for Geosciences and Natural Resources
Stilleweg 2
30655 Hannover
Germany
phone: 49(0)511 643-2785
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http://www.bgr.de/odp/home.htm

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for Ocean Research Drilling

Enclosure 16D1

Faculty of Earth Sciences

Date	Our subject	Appendices
October 22, 2003	IODP-USSSP	
Your letter of	Your subject	
Phone	Fax	E-mail
(3120) 4447360	(+3120) 4449941 (+3120) 6462457	jeroen.kenter@falw.vu.nl

Postal address: Faculty of Earth Sciences, De Boelelaan 1085, 1081 HV Amsterdam, the Netherlands

To: Dr. John Farrell
Director JOI/USSSP
Joint Oceanographic Institutions, Inc.
1755 Massachusetts Ave., NW, Suite 700
Washington, DC 20036
U.S.A.

vrije **Universiteit** *amsterdam*

Dear John,

Thank you for your communication regarding the plans of Joint Oceanographic Institutions, Inc. (JOI) to submit a response to the solicitation from the U.S. National Science Foundation to administer an Integrated Ocean Drilling Program-U.S. Science Support Program (IODP-USSSP). My understanding is that this program will succeed the Ocean Drilling Program-USSSP, which has been effectively managed by JOI for nearly 20 years.

You propose enhanced coordination and collaboration among the IODP member countries through our respective advisory committees, namely the USSSP's US Science Advisory Committee (USSAC), the European Consortium for Ocean Research Drilling Science Support and Advisory Committee (ESSAC), and the Japan Drilling Earth Science Consortium (JDESC). We whole-heartedly agree that improved communication and harmonization among our advisory bodies would improve the manner in which IODP productively conducts scientific ocean drilling activities.

In consultation with IODP Management International, we would welcome the opportunity to discuss ways in which JOI/USSAC, ESSAC and JDESC could devise effective procedures and practices for a variety of matters, including: (a) nominating scientists for IODP scientific parties (both shipboard and shorebased); (b) selecting representatives for membership on panels and committees of the IODP Science Advisory Structure such that expertise balance is achieved; (c) organizing and implementing coordination of scientific planning workshops and results symposia; (d) coordination of educational initiatives, such as sharing educational materials and ideas for activities; (e) synchronizing efforts to conduct public affairs and community engagement activities, such as websites and list servers to communicate with the scientific communities we represent; (f) assisting with or augmenting pre-drilling activities, such as geophysical "site surveys;" and (g) sharing plans to develop instruments and tools associated with IODP, such as for borehole study and experimentation.

Should JOI successfully become the awardee to manage the USSSP-IODP, we would look forward to working with JOI and USSAC.

Sincerely,

Jeroen Kenter
Associate Professor Sedimentology and Petrophysics
Chair of ESSAC

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for
Ocean Research Drilling

Enclosure 16D2

Japan Drilling Earth Science Consortium

October 24, 2003

Dr. John Farrell
Director JOI/USSSP
Joint Oceanographic Institutions, Inc.
1755 Massachusetts Ave., NW, Suite 700
Washington, DC 20036

Dear John,

Thank you for your communication regarding the plans of Joint Oceanographic Institutions, Inc. (JOI) to submit a response to the solicitation from the U.S. National Science Foundation to administer an Integrated Ocean Drilling Program-U.S. Science Support Program (IODP-USSSP). My understanding is that this program will succeed the Ocean Drilling Program-USSSP, which has been effectively managed by JOI for nearly 20 years.

You propose enhanced coordination and collaboration among the IODP member countries through our respective advisory committees, namely the USSSP1s US Science Advisory Committee (USSAC), the Japan Drilling Earth Science Consortium (JDESC), and the European Consortium for Ocean Research Drilling Science Support and Advisory Committee (ESSAC). We wholeheartedly agree that improved communication and harmonization among our advisory bodies would improve the manner in which IODP productively conducts scientific ocean drilling activities.

In consultation with IODP Management International, we would welcome the opportunity to discuss ways in which JOI/USSAC, JDESC, and ESSAC could devise effective procedures and practices for a variety of matters, including: (a) nominating scientists for IODP scientific parties (both shipboard and shore based); (b) selecting representatives for membership on panels and committees of the IODP Science Advisory Structure such that expertise balance is achieved; (c) organizing and implementing coordination of scientific planning workshops and results symposia; (d) coordination of educational initiatives, such as sharing educational materials and ideas for activities; (e) synchronizing efforts to conduct public affairs and community engagement activities, such as web sites and list servers to communicate with the scientific communities we represent; (f) assisting with or augmenting pre-drilling activities, such as geophysical ﾒsite surveys;ｪ and (g) sharing plans to develop instruments and tools associated with IODP, such as for borehole study and experimentation.

To this end, and on behalf of the JDESC, we wish JOI success in its efforts to become the successful bidder, and we would look forward to working closely with JOI and USSAC in efforts to support the participation of all scientists in the IODP.

Sincerely,

Chair of IODP Section, J-DESC

Hidekazu Tokuyama

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 16E

THE STATE UNIVERSITY OF NEW JERSEY

RUTGERS

Department of Geological Sciences, Wright Labs
Rutgers, The State University of New Jersey
610 Taylor Road, Piscataway, New Jersey 08854-8066
Telephone 732/445-3622, 2044 FAX 732/445-3374 E-mail: kgm@rci.rutgers.edu

November 11, 2003

Jeroen Kenter
ESCO chairman, Department of Earth Sciences
Vrije Universiteit, De Boelelaan 1085
1081 HV Amsterdam, The Netherlands
kenj@geo.vu.nl

Dear Dr. Kenter,

I am writing to you as Chair of the Publications Subcommittee Of the Science Planning Committee (SPC) of IODP to solicit input from the national committees on the issue of publications. As you are aware, both the iSciMP and CUSP have recommended that IODP produce full paper copies of the Initial Reports (IR) volume and iSciMP has recommended that the equivalent of the Scientific Results Volume (SR) consist of an Expedition Science Summary written by the chief scientists that will serve as a lead-in to the on-line bibliography. The first recommendation has large budgetary implications while the second all but eliminates the SR as a venue for publication of data reports. Our subcommittee has been charged to evaluate these recommendations and has decided to contact USSAC, J-DESC, and ESSAC for comment. I am sending a similar letter to the chairs of J-DESC and USSAC.

The budgetary implications for producing a paper IR have not been considered in previous recommendations, but it is within the mandate of our subcommittee and SPC to conduct a cost-scientific benefit analysis. Jeff Fox has reported that the cost of producing an 800 paper version of an IR volume is approximately $250,000 for 800 pages above the current cost of producing a hybrid paper-CD-web version. Ann Klaus., publications manager of ODP, reports that IR volumes have increased to and average of 1200 pages since we have gone electronic, for a total cost of $375,00. Assuming 6 non-risered legs, 1 MSP, and 1-6 Chikyu legs per year yields a minimal estimate of $3,000,000 and a maximum of just under $5,000,000. While having a paper copy may be desirable, I would like ESSAC to discuss via e-mail whether spending $3,000,000-5,000,000 is a worthwhile expenditure.

On the second issue, I would like the national committees to consider the implications of eliminating a venue for data reports, effectively eliminating the SR as a publication other than a summary and bibliography. Does ESSAC concur with this recommendation, or would it like to see the SR continue as a combined summary, bibliography, and data reports volume? On a related manner, should publication of an ODP journal for scientific papers be considered, or should we continue to rely on the general literature? This latter issue is not fully formulated and also would have important financial implications, but I raise the issue to see if ESSAC wants to see us move in the direction of our own journal.

Finally, IMI has asked SPC to comment on what constitutes program-wide publication products(s) and who should be responsible for producing and disseminating it (them)? Our committee's mandate on this is to discuss the following:

"With three IO's, should publications be unified under one organization or alliance (i.e., are there *scientific issues* that would merit this recommendation) or is it sufficient that the format and publication method of initial and scientific results from each platform be uniform? (If the latter, then this is an issue for SPOC)." PubSubcom Mandate

We invite your committee to provide comment on this issue while not specifically discussing or endorsing one organization.

On behalf of the subcommittee, I request that ESSAC take this issue up as soon as possible and try to get us at least preliminary comments in the next two months. I think that the issue of paper vs. hybrid to be the most pressing, followed by the SR issue. If your committee can provide consensus opinion, it is probably not necessary to poll the general community. However, if you committee cannot reach a consensus, we encourage you to contact your community via listserver to solicit opinion. If you do so, I believe that it would be appropriate to include the financial constraints on the issue.

Our committee will meet via e-mail to discuss these issues and will report to SPC in March. We highly desire the input of your committee and appreciate the time and effort necessary to revisit this contentious issue.

Sincerely yours,

Kenneth G. Miller
SPC Member

cc:
M. Coffin, SPC Chair, J. Austin, SPC Co-Chair
PubSubcom: Y. Tatsumi, SPC, K. Kato, SPC, T. Quinn, SPC, K. Miller, SPC
S. Bohlen, J. Farrell, JOI
J. Fox, A. Klaus, ODP

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

European Consortium for Ocean Research Drilling

Enclosure 16F

U.S. Science Advisory Committee Meeting
Hamilton, Bermuda
Princess Louise Meeting Room, Hamilton Princess
July 9-11, 2003

Participants

USSAC

Nathan Bangs	The University of Texas, Austin
Barbara Bekins	U.S. Geological Survey, Menlo Park
Dave Christie	Oregon State University
Peter deMenocal	Lamont-Doherty Earth Observatory, Columbia University
Gabe Filippelli	Indiana University-Purdue University
Jeff Gee	Scripps Institution of Oceanography, UCSD
Al Hine	University of South Florida, St. Petersburg
Mark Leckie	University of Massachusetts, Amherst
John Mahoney	University of Hawaii
Greg Mountain	Rutgers, The State University of New Jersey
Warren Prell (Chair)	Brown University
Carolyn Ruppel	Georgia Institute of Technology
Ellen Thomas	Wesleyan University
Jill Whitman	Pacific Lutheran University

Liaisons

J. Paul Dauphin	National Science Foundation
Tom Davies	Texas A&M University
John Farrell	Joint Oceanographic Institutions

Guests and Observers

Jennifer Anziano	Joint Oceanographic Institutions
Jamie Austin	iPC/University of Texas, Austin
Steve Bohlen	Joint Oceanographic Institutions (Wed. morning only)
Bob Burger	Joint Oceanographic Institutions
Bridget Chisholm	Joint Oceanographic Institutions (Wed. morning only)
Andrea Johnson	Joint Oceanographic Institutions
Nick Pisias	Joint Oceanographic Institutions (Wed. only)

Regrets

Earl Doyle	Consultant (retired from Shell Oil Company)

USSAC Meeting
Bermuda, July 9-11, 2003

Action Items

Action Item 1
JOI staff will distribute a list of all USSSP workshop and site augmentation awards to date to USSAC. The list should include: principal investigator, institution, award amount, and title.

Action Item 2
JOI will further assist Distinguished Lecturers in addressing questions regarding IODP by supplying additional IODP Powerpoint presentations, such as one from Jamie Austin, on IODP science and opportunities to participate.

Action Item 3
USSAC members will read the draft report of the U.S. IODP Education Workshop and will, by August 13, send: 1) comments and 2) recommended priorities to Jill Whitman and Al Hine (cc: Andrea Johnson, JOI).

Action Item 4
Interim IMI Director, Jamie Austin requests that a focused group (a handful of USSAC members and workshop attendees) think about how the recommendations of the U.S. IODP Education Workshop and USSAC dovetail with an international educational effort at the IODP CMO. (This group will potentially meet with their Japanese counterparts in the near future.) Al Hine and Jill Whitman will follow up with the help of Andrea Johnson, JOI.

Action Item 5
USSAC will read the draft report of the GeoSCAN workshop report and will send comments to Nathan Bangs by August 13.

Action Item 6
Barbara Bekins will forward USSAC's discussion on data policy and data access with respect to seafloor observatories to Andy Fisher/Kevin Brown before the OOI-IODP workshop on July 17-18. Warren Prell will pass these same issues on to SCIMP.

USSAC Meeting
Bermuda, July 9-11, 2003

Motions and Consensus Statements

USSAC Motion 1
USSAC recommends to IMI that the CMO appoint a staffing coordinator (with appropriate support staff) who will be responsible for:
1) Coordinating staffing of individual expeditions in consultation with co-chiefs, IOs, and IODP members; and
2) Tracking and ensuring long-term balance of science party staffing among participating members.

USSAC Motion 2
USSAC requests that SAS broaden the mandate of the ILP to assemble and maintain a list of global 3D seismic data sets that can be used by proponents in developing IODP drilling plans.

USSAC Motion 3
USSAC recognizes that significantly increased site survey costs will be incurred in meeting goals of the IODP, and strongly encourages NSF to support these activities at levels anticipated by the GeoSCAN workshop report.

USSAC Motion 4
USSAC recommends modest support for those (especially graduate students) who commit to attending a full day of the ODaSSI workshop on December 7, in San Francisco.

USSAC Motion 5
USSAC endorses the concept of a test facility (for borehole hydrogeologic tests and a downhole seismometer) and encourages Charlie Paull (MBARI) to submit a full proposal to the appropriate SAS committee.

USSAC Motion 6
JOI/USSAC must recruit young scientists to more actively participate in all IODP activities.

USSAC Motion 7
USSAC affirms the importance of using a variety of drilling technologies to achieve the goals of the Initial Science Plan and urges IODP to support drilling in high latitude, shallow water, carbonate, or similar settings as warranted by proposals.

USSAC Motion 8
USSAC, NSF, and IODP have received great leadership and wisdom from Paul Dauphin. We thank him for his service and wish him well in his non-ODP life.

USSAC Consensus Statement 1
USSAC Consensus Statement 1
USSAC recommends that the following levels of salary support be adopted for IODP SAS and USSAC chairs as guidelines to IMI and JOI and for future planning.

Position	Months
SPPOC Chair	0
SPC Chair	9
SPC Vice Chair	3
OPCOM Chair	3
Co-chairs of all other sci. & serv. panels	3
Chairs PPGs	1
Chairs DPGs	0
USSAC Chair	6

USSAC Consensus Statement 2
USSAC endorses the general plan and budget proposed by JOI for a USSSP successor program that spans the three-year phase-in period of IODP.

USSAC Consensus Statement 3
On behalf of the U.S. community, USSAC wishes to acknowledge the contributions made by all those who sailed on the *JOIDES Resolution*, and thank them for their commitment to a job well done. Through the dedication, expertise and hard work of the ship's crew and officers, drilling staff and supervisors, and the entire complement of TAMU technicians, ODP has steadily advanced the knowledge of earth processes. We look forward to the discoveries ahead in IODP that will be made possible by the dedicated work of a team such as this.

USSAC Meeting Minutes
Hamilton, Bermuda
Princess Louise Meeting Room, Hamilton Princess
July 9-11, 2003

I. USSAC Activity Status

1. Introduction

1.1 Welcoming remarks and introductions
Due to airline delays, USSAC Chair, Warren Prell arrived several hours late. USSAC member Al Hine stepped in to open the meeting and make introductions.

1.1 Meeting logistics
Bridget Chisholm, JOI, outlined meeting logistics including directions to a barbeque July 10 dockside of the *JOIDES Resolution* during its port call.

1.3 Approval of 2/03 minutes
Hine called for any proposed changes to the February 2003 USSAC minutes. None were offered and the minutes were approved.

1.4 Approval of meeting agenda
Due to Prell's delayed arrival, the order of the agenda was shifted somewhat. These minutes will follow the order of the original agenda.

II. Status Reports

1. **NSF/IWG**
1.1 Status/timing of NSF selection of the SIC
1.1 Status/timing of the USSSP-successor program announcement
1.1 IWG report from the Capri meeting & lead agency memorandum
1.1 Changes with regard to NSF personnel and a post-cruise funding mechanism
1.1 Update on NSF FY03 budget, status of FY04 budget, and request for FY05
1.1 Status/timing of CMO RFP

Paul Dauphin, NSF, reported on U.S. ODP management issues. The NSF National Science Board (NSB) approved the FY2003-2007 ODP Program Plan, including ODP phaseout. The phaseout plan preserves and transfers ODP data and knowledge to IODP. During the IODP transition, NSF will ensure community access to data and samples.

Dauphin noted that NSF has been using the report from the USSAC Conference on U.S. Participation (CUSP) for guidance regarding pre- and post-project science support, education and outreach. The more complex IODP will require additional science support, especially in terms of planning. NSF also recognizes that production of comprehensive knowledge and data sets is essential. To address community needs, the amount of potential post-cruise research support will be significantly increased. The USSSP-successor program will continue to offer limited funding that allows leg participants to fulfill their shipboard obligations. However, additional funds will be available directly through ODP/NSF. During a window of time (from the time that staffing has been completed until one year post-cruise, in parallel with the sampling moratorium), both shipboard and shorebased scientists associated with the leg will be able to submit proposals for leg-objective science. The current NSF ODP proposal target dates (August 15 and February 15) and joint panel reviews will initially be used. Outside this special window of opportunity, proposals stemming from scientific ocean drilling should be submitted to NSF/MGG.

Eventually, when fully operating, the U.S. support program for scientific ocean drilling is envisioned to be in the neighborhood of $30M, an approximate doubling of the current program. Like the current program, the management of these funds will be divided between NSF and an outsourced program. Dauphin expects the obligation-based post-cruise fund allocation to continue, but NSF would like to see new ideas regarding how these funds are handled and reviewed. Like the current USSSP, a bottom line amount of funds will be available per year—depending on the nature of the legs scheduled that year. Site survey funds will continue to be administered through NSF as they are at present.

The RFP synopsis for the non-riser vessel System Integration Contractor (SIC) was released March 4 following the previous USSAC meeting and proposals were due May 5. NSF is currently evaluating the responses and the SIC is expected to be identified this summer.

Dauphin reported on international IODP planning. Japan's MEXT and the U.S. NSF, as IODP lead agencies, signed an IODP Memorandum in April. The Center for the Deep Earth Exploration (CDEX/JAMSTEC) is the riser vessel Implementing Organization (IO) and the U.S. SIC, once selected, will be the non-riser vessel IO. The process of establishing the Central Management Organization (CMO) is underway and the contract for it will be awarded early 2004. The IODP Management International, Inc. (IMI) has been formed to create and manage the CMO. IMI membership currently includes representatives from U.S. and Japanese institutions.

European countries have not yet joined IODP. Funding agencies from these countries have joined together to form ECORD, the European Consortium for Ocean Research Drilling. In April, ECORD designated a European Management Association (EMA) and a European Implementing Organization (also known as the European Science Operator [ESO]). The EMA is in the Centre National de la Recherche Scientifique-Institut National des Sciences de l'Univers (CNRS-INSU), headed by John Ludden and Catherine Mevel. Ludden, will head the office, and Mevel will run day-to-day operations. The ESO is the British Geological Survey (BGS), headed by David Falvey. The IODP timeline presented at IWG calls for ECORD signing a membership memorandum with the lead agencies (U.S. and Japan) by October, however, at this point they still need to sign an internal memo among their consortium members and to organize internally their funding. It is not clear how long it will take to accomplish this. The stated goal of the

Europeans at this time is to acquire two participation units in the IODP program. The status of Mission Specific Platforms is still unclear.

Dauphin did not present a budget update because numbers for this year are not yet final. The FY04 budget has been released, but it is still with the appropriation committees. It should be available by October 1, but in past years it has often been delayed. In response to a question, Dauphin said that the future of the *JOIDES Resolution* is unclear.

On a final note, Dauphin reminded USSAC that this would be his last USSAC meeting before retiring later this year. Brad Clement, the ODP rotator, will also be returning to Florida International University at the end of July. Strong candidates have applied for both positions and the replacement process is well underway.

2. JOI/ODP

2.1 SIC RFP update

Steve Bohlen, JOI President, reported that a JOI alliance composed of TAMU and LDEO submitted a proposal to NSF to be the System Integration Contractor (SIC) for IODP's non-riser drilling vessel. JOI is waiting to hear the results of the NSF selection process. In the mean time, JOI and its subcontractors are making plans and taking actions to be prepared to move forward immediately if selected. Currently, JOI is advertising for a Scientific Ocean Drilling Director, however, the position will not be filled unless JOI is selected. If JOI is selected, IODP will be ramped up while ODP is ramped down.

2.2 ODP phase-out and legacy development

Nick Pisias, Interim ODP Director at JOI, reported that a phaseout plan for ODP was submitted to NSF the first week of July. He also introduced Jennifer Anziano who, after spending nearly a year at JOI as an intern, has been hired to assist with developing the ODP legacy. Anziano outlined the status of the planning for the ODP Legacy Project. At this point, JOI and its subcontractors are collaborating to define a web-based product containing documents and records, which is unified, stands alone, and comprehensive. Discussions are focusing on: 1) how to gather, organize, and assemble the information; and 2) how to distribute and maintain the legacy. The legacy team will include a coordinator at JOI, liaisons from the subcontractors, and members from the scientific community. Currently the project is in its definition and implementation phase. Collection and organization of material will follow. The construction and distribution phase is expected to take about two years and maintenance will be a long-term issue.

USSAC discussion followed. Leckie asked if the legacy project would be integrated with other databases and Pisias responded that this is not the goal. The goal is to focus on ODP. He added that although much of the legacy is electronic, much is paper and may require scanning. PDF is not considered a legacy format but the first step will be to collect the items, consult committees, and then decide how best to proceed. Hine asked if any thematic syntheses would be produced and Pisias responded that the first step is to deal with what materials exist and to make them accessible in an organized way. This program is not intended to generate or fund syntheses because ODP funds are running out. Bekins suggested that the citation database be organized by theme and that this organization could serve as a base to tie in other database components.

2.3 Status of Arctic planning

John Farrell, USSSP Program Director, updated USSAC on the status of proposed Arctic drilling in 2004. At this point, three more things are needed for the expedition to occur: 1) ECORD must become a formal member of IODP; 2) all the funds ($9-10M) must be lined up; and 3) the IODP SAS must give its approval. Expedition planning is being conducted by means of an ODP contract between JOI and the Swedish Polar Research Secretariat (SPRS). This contract is currently in its second phase (February 2003-February 2004). Planning includes refining the timeline for critical activities and having the British Geological Survey (BGS), the expedition's implementing organization, coordinate with the SPRS when the BGS develops an operational plan. Other tasks in this planning phase are: assessing and conducting tool design; improving our understanding of icebreaker-supported dynamic positioning; developing a public affairs plan; and preparing a program-wide insurance plan. A newly formed "European Management Agency, " administered by France's CNRS-INSU (as mentioned above, during Dauphin's presentation), will commingle the European funds and a European Science Advisory Committee (as a USSAC equivalent) will be set up. Europe has been focusing on the expedition, but the IODP lead agencies would like ECORD's IODP membership in place soon. By working carefully with Sweden and the U.S., BGS has developed a very mature plan, which includes lots of flexibility (science approval for a range of sites) due to unpredictable ice cover. The biggest issue to be resolved is assembling a proper "Armada."

If the Arctic expedition crystallizes during the next few months, it will also impact the new USSSP's activity. First, the opportunity to participate in this expedition must be announced; second, U.S. staffing issues must be handled; and finally, the new program will need to provide salary, as well as travel and research support.

2.4 USSSP: Status of Year 19

Farrell reported on the status of USSSP's Year 19 Program Plan. On March 5, NSF approved the plan with a budget of $4.6M and on April 18, NSF accepted JOI's Year 18 closeout report and approved the carry forward request. To date, cost savings in some categories (science support) are offsetting cost overruns in others (workshop and site augmentation), therefore JOI does not expect any uncommitted funds by the end of the FY (February 28).

Bob Burger updated USSAC on workshop, site augmentation awards since the previous USSAC meeting.

Site Augmentation Awards:

Geoff Wheat (UH)
"Retrieval of Data and Continuous Fluid Samplers from the CORK at ODP Site 1200," March, 2003

Charlie Paull (MBARI)
"Site Augmentation Mini-Workshop to Develop IODP Pre-Proposal 621 (Monterey Bay borehole instrument test facility)," March, 2003

Sean Gulick (UTIG) and Peter Flemings (Penn State)

"Site Augmentation in the Nankai Trough: Geological Reconnaissance, Seafloor Fluid Flow Indicators, and Shallow Seafloor Measurements using *Kaiko* ROV," May, 2003

John Jaeger (UF)
"Evaluating Decadal-Scale Climate Change and Geomagnetic Paleointensity Records in Continental Shelf Strata of the Subarctic Pacific," July, 2003

Other Site Augmentation Activity:
Liviu Giosan (WHOI)
"Mini-Workshop on Quaternary Sedimentation and Climate History of the Black, Marmara, and Aegean Seas," October 21-22, 2003, Stony Brook, NY

Recent Workshops:
John Jaeger (UF) and Sean Gulick (UTIG)
"Interplay of Collisional Tectonics and Late Cenozoic Glacial Climate in Alaska and the Northeastern Pacific Ocean," May 4-5, 2003, Austin, TX

Al Hine (USF) and Ellen Thomas (Wesleyan)
"U.S. IODP Education Workshop," May 6-7, 2003, URI

Nathan Bangs (UTIG)
"IODP GeoSCAN (GEOphysical Site Characterization and Needs), a planning workshop focusing on geophysical needs for IODP, " June 6, 2003, Houston, TX

Upcoming Workshops:
Andrew Fisher (UCSC) and Kevin Brown (Scripps)
"Workshop on linkages between the Ocean Observatories Initiative and IODP," July 17-18, 2003, Seattle, WA

Peter Clift (WHOI)
"Workshop for Planning Drilling of the Indian Ocean Fan Systems," July 23-25, 2003, Boulder, CO

Jeff Gee (SIO) and Greg Mountain (Rutgers)
"IODP ODaSSI (Ocean Drilling and Site Survey Introduction): a Primer for the Marine Community," December, 2003, San Francisco, CA

Recent Results Symposium:
Will Sager and Gary Acton (TAMU)
"ODP Contributions to Paleomagnetism," April 7-11, 2003, Nice, France

Burger also reviewed recent post-cruise science awards and statistics. Carolyn Ruppel raised a concern that some individuals may be using USSSP as a primary funding source. Burger responded that if a proposal receives positive reviews, there are no grounds for rejecting it. USSAC debated the issue. Although individual reviewers sometimes send negative reviews, JOI has never funded a proposal against the advice of the panel majority. Farrell pointed out that proposals are oftentimes resubmitted to address the concerns raised by reviewers. Barbara Bekins requested that a list of workshop and site augmentation awards be distributed to the committee by email.

Action Item 1
JOI staff will distribute a list of all USSSP workshop and site augmentation awards to date to USSAC. The list should include: principal investigator, institution, award amount, and title.

USSAC also debated the idea that proposal deadlines and appropriate advertising should be instituted to stimulate more competition for these funding opportunities. Instituting deadlines would infringe upon the flexibility of the USSSP programs and would imply that funding was available only at the deadline. Given the nature of the USSSP Program Plan, that would imply that funds are available at the beginning of the program year, thus March 1, as currently organized. A positive result of broader advertising would be that awareness of the opportunity would be greater. The wording of a USSAC motion to address the situation was discussed at length. In the spirit of the discussion, Prell requested that the JOI staff examine the logistics of proposal deadlines within the USSSP budget cycle and draft an advertisement to announce opportunities to the community. without compromising the strengths of the current system.

Greg Mountain asked the other committee members whether or not they were happy with how JOI staff was handling the funding decisions. Jeff Gee commented that he had confidence in the staff but believed that deadlines are necessary for proposal comparison. Farrell issued a standing invitation to any USSAC member to visit JOI to review the program files on past proposals, including correspondence and reviews, and to examine the decision-making process revealed in the files, or by interviewing JOI staff and recent USSAC chairs. Farrell said that all funding decisions by JOI program directors are based on peer review (generally including at least one USSAC member), as outlined in the USSSP procedure manual. Every funding decision is also reviewed, in advance, with the USSAC chair and with the NSF USSSP program manager. The extent to which the USSAC chair wishes to promulgate the information, and engage USSAC in the advisory process is up to the chair. Based on past experience, chairs have shown a wide range in the extent to which they do this.

Andrea Johnson reported on USSSP educational activities. A review panel met prior to this meeting and selected three out of sixteen proposals for one-year Schlanger Ocean Drilling Fellowships:

Anna Cipriani , Lamont-Doherty Earth Observatory
“Space/Time Mantle Heterogeneity below the Mid Atlantic Ridge: an Isotopic Study of Peridotites and Gabbros Drilled during Leg 209”
(one-year, shorebased , Leg 209)

Kristina Dahl, Woods Hole Oceanographic Institution
“Holocene Reconstruction of the Summer and Winter South Asian Monsoon”
(one-year, shorebased, Leg 117)

Matthew O’Regan, University of Rhode Island
“Lateral Fluid Flow in the Nankai Trough Study Area”
(one-year, shorebased, Legs 181, 190, and 196)

Johnson showed the slate of schools to be visited by the JOI/USSAC Distinguished Lecturer program during the 2003-2004 academic year. Ruppel commented that it was a great list with speakers going to a diverse range of institutions. Mountain remarked that his experience as a DLS speaker this past year was very positive but that it was sometimes difficult talking about a program that was winding down. He recommended preparing future speakers with additional information on IODP and its opportunities.

Action Item 2
JOI will further assist Distinguished Lecturers in addressing questions regarding IODP by supplying additional IODP Powerpoint presentations, such as one from Jamie Austin, on IODP science and opportunities to participate.

Johnson reported that undergraduate Sharon Stant, from Florida State University, would be sailing on Leg 210 as a U.S. participant in the Undergraduate Student Trainee Program. In addition, JOI/USSSP has hired two new recent graduates to serve as interns in the JOI office for the upcoming year: Anna Henderson (Brown University) and Matt Niemitz (College of William and Mary). She also reviewed the status of several USSSP-supported (unsolicited) education proposals.

JOI is seeking to better evaluate the current USSSP education programs and the staff is conducting a longitudinal study of the DLS and Fellowship programs. Surveys sent to past participants are providing essential information. For future tracking of programs, Johnson asked USSAC for feedback on an assessment form to be sent to institutions that host DLS speakers and an assessment form to be completed by JOI Interns following their term at JOI.

3. iSAS

3.1 Highlights from recent iSAS committee/panel meetings
3.2 Guide to the IODP, pubs policy, and SAS mandates
3.3 Preview of September iPC/SPC meeting,
3.4 Science Planning and Policy Oversight Committee (SPPOC)

Pisias presented draft organization charts for the SAS, which will evolve in phases. The SAS will have a Science Planning and Policy Oversight Committee (SPPOC) that will be a rough equivalent to JOIDES EXCOM. This committee will include one IMI BoG member from the U.S. (Pisias). The mandate for SPPOC was included in the agenda for this meeting book along with the draft mandates for the other SAS panels. SPPOC will initially have 14 members with seven from the U.S., including Pisias. The remaining six members are to be nominated by USSAC at this meeting. USSAC is to forward these nominations to the JOI BoG for approval before they are sent to the IMI BoG for ratification. SPPOC is the top SAS committee, and will subsequently approve the mandates for all the other SAS panels.

Jamie Austin, attending this meeting as the iPC liaison, reported that the SAS panels will be run by a chair and a vice-chair (one from Japan the other from the U.S.), in the case of the Science Planning Committee (SPC), and by co-chairs, in other cases, in order to distribute the heavy workloads. Terms for the SPC chair and vice-chair are two years each, and the vice chair will succeed the chair, such that most chairs will have served for four years in total before their tenure has been completed.

Austin briefly reviewed the draft committee/panel mandates and presented highlights from recent iSAS committee/panel meetings. Of note is that the iSSEPs will hold their first electronic meeting this August. The ISP themes are not well represented by the current proposals in the system. Austin also mentioned that there is a shortage of U.S. riser proposals in the system. ISciMP has many issues on the table and will next meet jointly with iTAP. Austin recommends better communication between the SAS and USSAC and this could be achieved in several ways: U.S. SAS chairs could be invited to USSAC meetings or USSAC representatives could attend SAS meetings. David Naar of iSSP has proposed an interactive system on the web (called MATRIX) for IODP proposals. The purpose is to provide proponents and panel members with a rapid way to interact. After an IODP proposal is submitted on the web, digital information for each site proposed (plus additional information prompted by the web, if needed) would allow the program to e-mail site characterization requirements to proponents. The primary iPPSP issue of relevance to USSAC is a request for panel nominees with experience in well design and deepwater drilling.

Austin reviewed progress on the "Guide to the IODP." He is currently collecting input to this guide and expects a first draft to be complete by September.

4. IMI and CMO

4.1 Status of IMI (incorporation, membership, bylaws, etc.)
4.2 Interim IMI office and personnel, background, status, scope of work
4.3 Developing the first IODP Program Plan (FY04), & timeline
4.4 Status of search for CMO president, location
4.5 Tasks and responsibilities of the CMO and how it will function
4.6 IMI's preparation of a response to the NSF RFP for CMO (Pisias)
4.7 SAS office in Japan

Pisias updated USSAC on IODP Management International (IMI) which is the corporation established to function as the Central Management Organization (CMO) for IODP. The role of IMI will be to oversee and integrate the operations of all the IODP platforms. It will also manage the process for consistency and functional integration of all the IODP platforms. The twelve founding members of IMI are: University of Tokyo; Kochi University; Hokkaido University; Tohoku University; National Institute of Advanced Industrial Science and Technology; Japan Marine Science and Technology Center; Scripps Institution of Oceanography; University of Hawaii; University of Texas; University of California, Santa Cruz; Woods Hole Oceanographic Institution; and the University of Miami. Since its founding, ten new members have joined the IMI board: Florida State University, Lamont Doherty Earth Observatory, Oregon State University, Rutgers University, Texas A & M University, Tokai University, University of Florida, University of Michigan, University of Rhode Island and the University of Washington. The U.S. members of the IMI board are: Bob Detrick (WHOI), Dennis Kent (Rutgers), John Orcutt (SIO), Nick Pisias (OSU), and Paul Stoffa (UT Austin). U.S. Alternates to the board are: Eli Silver (UCSC) and Neil Opdyke (U Florida).

An interim IMI office has been established at The University of Texas at Austin to develop the first IODP Program Plan (FY04) and to help set up the permanent IMI. The interim IMI: (www.ig.utexas.edu/imi/) will also assure a smooth transition from the iSAS to the SAS. Paul Stoffa is serving as interim president of IMI and Jamie Austin is serving as the interim director of IODP. A search for an IMI president is underway and promising candidates are being considered. The IMI Board of Governors make a final selection in September. Although the IMI will be in the U.S., the final decision as to its location will be made when the president is selected. An advertisement is out for a Vice-President to IMI. This individual will be located in Japan as part of the SAS office.

Pisias reviewed the tasks and responsibilities of the CMO, which were sent to USSAC prior to this meeting. He also discussed potential budgets and a draft organization chart. The RFP for the CMO will be released once it is approved by the NSF's NSB in October. The RFP may be a sole source request for the IMI Inc. to manage the CMO. The response date will depend on whether or not there is NSB approval for a sole source request

III. Nominations

1. **Review current membership on SAS panels and committees**
2. **Preview list of SAS nominees received by USSAC**
3. **Nominations for SAS panels and USSAC**
   3.1 Sci. Planning & Policy Oversight Comm. (SPPOC)
   3.2 Sci. Planning Comm. (SPC) and SPC Vice-Chair
   3.3 USSAC members - nominations to JOI BoG
   3.4 Science Steering and Evaluation Panel for Earth's Environment
   3.5 Science Steering and Evaluation Panel for Earth's Interior
   3.6 Scientific Measurement Panel (SciMP)
   3.7 Site Survey Panel (SSP)
   3.8 Pollution Prevention and Safety Panel (PPSP)
   3.9 Technology Advice Panel (TAP)
   3.10 Industrial Liaison Panel (ILP).
4. **Distinguished Lecturer Series**

Prell reviewed the lists of nominees and openings on SAS panels/committees and outlined a procedure for USSAC to move forward. These lists had been compiled by JOI/USSSP in response to various ads and solicitations. Prell also presented specific requests from the Chairs for members with certain expertise. USSAC went to work to determine lists of nominees and alternates for each panel. Following the USSAC meeting, Prell will present the nominations for SPPOC, SPC, and USSAC for approval by the JOI BoG at their meeting on Friday (9/11/03). USSAC also nominated eight scientists for the JOI/USSAC DLS. Margo Cortes will contact the potential DLS candidates.

IV. ODP/TAMU science operations report

Tom Davies, ODP/TAMU, reported on recent and upcoming ODP activities. Since the previous USSAC meeting, ODP Leg 207, Demeara Rise, was completed. This leg was successful, recovering multiple black shales and six cores with ejecta layers from the K/T boundary. These cores represent the first documentation of the boundary in the Southern Hemisphere. ODP Leg 208, Walvis Ridge, also went well coring the Paleocene/Eocene boundary at five sites and the K/T boundary at two sites. USSAC member Ellen Thomas, who participated on Leg 208, added a few words noting that high-resolution records had been recovered at five sites. ODP Leg 209 concluded at the port call associated at this meeting. Cores including lots of gabbros and some peridotites were recovered from eight sites. The gabbros, crystallized at high pressures (10-15 km), showed little fabric and little deformation as well as little change across transform faults. Hole stability issues were encountered due to much bare-rock drilling. Davies believes that the leg reached record or near record hard-rock penetration. From Bermuda, the *JOIDES Resolution* departs on Leg 210, the final leg of the program. The goal of the leg is to drill a single deep hole (approximately 2200 m) into continental margin crust off of Newfoundland. Following the end of the leg on September 6, the ship will transit to Galveston to begin demobilization on September 21 before the end of the ship contract on September 30.

Because of the uncertain role of TAMU in the future program, ODP/TAMU has allowed the staff—through attrition—to decrease to four staff scientists and a core group of technicians. The amount of equipment to be removed from the ship depends on NSF decisions and negotiations in the near future. The best-case scenario for the operation is to find employment activity for key staff and to be back to full staffing levels by next April. Davies concluded his report by showing scientific participation statistics. These numbers are nearing the final statistics for the life of the program.

V. Thematic Working Groups Follow-up (Implementing CUSP recommendations)

2. Discussion and adoption of USSAC planning documents

1.1 **Terms of reference for future USSAC**
Dave Christie showed USSAC the most recent version of the "Terms of Reference" for the new USSAC that will advise the USSSP-successor program. Christie has been shepherding this effort since the previous USSAC meeting. The committee discussed details and wording. A question was raised about creating a role for outgoing USSAC chairs. Others debated the merits of having a USSAC vice chair. The consensus was that past USSAC chairs could be invited back to meetings on an "ad hoc" basis. USSAC members were in favor of establishing a "vice-chair" to aid the chair. Prell incorporated the recommended changes into a final, approved Terms of Reference for the future USSAC. Fillipelli moved to accept the revised Terms of Reference and Mountain seconded. Prell is scheduled to present the new TOR to the JOI BoG at their meeting on Friday afternoon (7/11/03).

1.2 **U.S. protocol for staffing IODP expeditions - JOI proposal**
Burger presented a model for proposed U.S. staffing in IODP based on the discussions at the previous USSAC meeting. The first step of the process would be announcements of the cruise opportunity approximately 12 months prior to each program year with applications being submitted (online or hard copy) to JOI or its successor. "JOI" would review the applications to flag those that are incomplete or questionable. Next, after reviewing the proposals, the JOI staff coordinator, a USSAC committee, and the U.S. Co-Chief for the expedition would generate a preferred slate of nominees to be forwarded to the IODP CMO and then to the appropriate SICs. The operators will consider the slates, consult accordingly, and finally the IO will send invitations. The formal link in communications would be through the CMO, but communication can also occur between the U.S. support program and the SICs.

USSAC discussions assume that the primary job of the CMO would be to ensure that the IODP program plan is executed. The figure developed by the USSAC working group at the previous meeting best illustrates the relationships among the entities but also needs to show communications between JOI and the SICs. USSAC's prime role in the future operation would be to help develop pools of acceptable applicants, including students and teachers. USSAC's involvement and oversight is intended to protect the interests of the U.S. community. Austin added that the issue of participation balance among the national consortia on the platforms should be handled at the CMO. Farrell pointed out that such a function is not on the list of projected CMO tasks. Aside from participation balance, Davies added that there are two other levels of review: the first level is screening applicants to make sure they have baseline qualifications and the second level is to select a scientific party that can best serve the leg being staffed. These two levels of review will be accomplished by the JOI-USSAC nominations committee. Mahoney and Christie volunteered to draft a recommendation to the interim IMI for adding staffing coordination to the list of CMO tasks and responsibilities to be incorporated in the draft IMI program plan. The following motion resulted:

USSAC Motion 1
USSAC recommends to IMI that the CMO appoint a staffing coordinator (with appropriate support staff) who will be responsible for:

1) **Coordinating staffing of individual expeditions in consultation with co-chiefs, IOs, and IODP members; and**
2) **Tracking and ensuring long-term balance of science party staffing among participating members.**

1.3 **Obligations (USSSP and IODP) incurred by IODP participants**

Historically, obligations were defined only at the ODP level (i.e., international) and the shipboard participant's primary obligation was to publish a paper or data report. However, obligations may be incurred at both the international (IODP) and national (USSSP) levels and USSAC must consider whether or not future program participants should have any nationally defined obligations connected with their USSSP funding.

1.4 Financial support for U.S. reps on SAS and the USSAC Chair

At the Chair's request, Farrell presented a straw model for panel chair support in the future USSSP. The model was based on the anticipated time and effort that panel and committee chairs are likely to commit in the new IODP SAS. Their contributions will increase significantly in the IODP which, by its nature, will be a larger and more complicated program requiring a commitment of more meetings, time, effort, and travel by chairs. The model included the following levels of funding for committee/panel chairs: SPOCC Chair (0 months), SPC Chair (9 months), SPC Vice-Chair (3 months) which may be combined with the OPCOM Chair (3 months), 7 other science/service panel chairs (2 months each), PPG chairs (1 month each), and the USSAC Chair (6 months). Farrell also suggested the possibility of honoraria for USSAC members.

Highlights of the following USSAC discussion are:

1. Panel chair support for the SSEPs chairs should be increased to 3 months because these chairs seem to have a larger workload. Subsequent discussion concluded that the salary for all science and service panels, not just the SSEPs, should be increased to 3 months, from 2.
2. The idea of support for DPG chairs was considered but rejected because much of the effort is directed toward their specific proposals and science.
3. USSAC members rejected the idea of Honoraria for USSAC.
4. Co-chairs or chairs from industry (rather than academia), may not be able to accept salary. Honoraria may be appropriate for these representatives.

5. Support should also be considered for any new panels, committees, or groups that may be formed by SAS.
6. Funding could originate from international, commingled funding (the precedent is salary support for the SCICOM and PCOM chairs), or from national programs. USSAC's preference was for the funding to come from national programs.

USSAC Consensus Statement 1
USSAC recommends that the following levels of salary support be adopted for IODP SAS and USSAC chairs as guidelines to IMI and JOI and for future planning.

Position	**Months**
SPPOC Chair	**0**
SPC Chair	**9**
SPC Vice Chair	**3**
OPCOM Chair	**3**
Co-chairs of all other sci. & serv. panels	**3**
Chairs PPGs	**1**
Chairs DPGs	**0**
USSAC Chair	**6**

VI. USSAC Participation in the ODP/IODP Transition

1. USSAC/ODP/IODP planning activities

1.1 Education Workshop Report

Al Hine and Jill Whitman, co-chairs of the U.S. IODP Education Workshop, reported on the results of the meeting that was held in May. The purpose of the workshop was to establish a U.S. vision and goals for education and outreach activities for IODP; to identify U.S. educational products, activities, and opportunities appropriate for IODP; and to identify strategies to implement the recommended educational activities for IODP. The draft workshop report was distributed in the USSAC agenda books. Hine presented background to the workshop and Whitman focused on the recommendations and outcome of the workshop. Austin remarked that the program is inherently resource limited so more specific priorities than those in this report will be needed. Prell responded that workshop participants were given a mandate for a broad range of ideas and that the report reflects this. It is now up to USSAC to think about how they want to focus education efforts in the future. Education permeates the entire program (CMOs, IOs, and the future USSSP), how should these efforts mesh? Austin would also like to hear USSAC's input on what aspects of education should be international and which activities would best complement USSSP efforts.

Action Item 3
USSAC members will read the draft report of the U.S. IODP Education Workshop and will, by August 13, send: 1) comments and 2) recommended priorities to Jill Whitman and Al Hine (cc: Andrea Johnson, JOI).

Action Item 4
Interim IMI Director, Jamie Austin requests that a focused group (a handful of USSAC members and workshop attendees) think about how the recommendations of the U.S. IODP Education Workshop and USSAC dovetail with an international educational effort at the IODP CMO. (This group will potentially meet with their Japanese counterparts in the near future.) Al Hine and Jill Whitman will follow up with the help of Andrea Johnson, JOI.

1.2 GeoSCAN Workshop Report
Nathan Bangs reported on the Geophysical Site Characterization and Needs (GeoSCAN) workshop which he co-chaired with Earl Doyle. The workshop was held June 6 in Houston and was attended by both scientists and industry representatives. The purpose of the workshop was to educate the participants, foster interaction and collaboration with industry, and to make recommendations to NSF on resource needs. A bottom line conclusion was that high-quality 3-D geophysical data will be critical for both reaching IODP targets and maximizing total science return. These issues need to be considered early in IODP's evolution. A program of the desired scale would realistically cost $17-20 M/year. Recommendations of the draft report include: 1) Establishing a panel for input on survey design, 2) Establishing an advisory panel (through a "JOI contract"?) for negotiating contracts with the seismic industry, and 3) Establishing a data management and/or processing facility to provide processed data for scientific analysis. At this point, Bangs requests feedback from USSAC on the draft report.

Action Item 5
USSAC will read the draft report of the GeoSCAN workshop report and will send comments to Nathan Bangs by August 13.

USSAC Motion 2
USSAC requests that SAS broaden the mandate of the ILP to assemble and maintain a list of global 3D seismic data sets that can be used by proponents in developing IODP drilling plans.

USSAC Motion 3
USSAC recognizes that significantly increased site survey costs will be incurred in meeting goals of the IODP, and strongly encourages NSF to support these activities at levels anticipated by the GeoSCAN workshop report.

1.4 **ODaSSI Report**
Carolyn Ruppel reviewed planning progress for an upcoming workshop titled Ocean Drilling and Site Survey Introduction (ODaSSI): A Primer on Formulation of Site Survey and Drilling Proposals for the International Ocean Drilling Program (IODP). The one-day workshop will be held in San Francisco on December 7, the day before the American Geophysical Union (AGU) meeting begins. The ODaSSI workshop is an offshoot of the planning process for GeoSCAN. The purpose of ODaSSI is to educate the drilling community on site surveys. Specifically, it will include an introduction to new aspects of IODP, provide information on how to submit site survey proposals to NSF, and how to facilitate the development of survey partnerships. Participants will also be provided with reference handouts. The expected audience includes: scientists already involved in

drilling, new communities (biologists), graduate students, and Japanese scientists. Because of its timing before AGU, the workshop should be relatively low cost to hold and free to participants. If all goes well, such a workshop could be held annually. Additional information on the workshop will be available on the USSSP website in August.

USSAC Motion 4
USSAC recommends modest support for those (especially graduate students) who commit to attending a full day of the ODaSSI workshop on December 7, in San Francisco.

1.5 **USSSP/IODP in seafloor observatory science /MBARI mini-workshop report**
Barbara Bekins updated USSAC on planning activities for seafloor observatory science. She recently attended a mini-workshop focusing on a pre-proposal to install one or more cased boreholes in Monterey Bay. The project was originally proposed as a test facility (the holes would be connected by cable to MBARI), but the SSEPs wanted to see scientific justification, which is what led to the workshop. About 20 attendees, including seismologists, hydrologists, engineers, and microbiologists, discussed the design and goals of the facility. The project has multiple goals including seismometer coverage for the San Gregorio Fault, cross-hole hydrologic tests, and microbiology experiments. Charlie Paull is currently writing the full proposal. The science justification is still somewhat weak so if IODP supports test facilities, the SSEPs require guidance to make this project a priority. USSAC discussed how best to support a technical non-science proposal like this.

USSAC Motion 5
USSAC endorses the concept of a test facility (for borehole hydrogeologic tests and a downhole seismometer) and encourages Charlie Paull (MBARI) to submit a full proposal to the appropriate SAS committee.

Bekins continued her presentation by outlining a number of observatory issues, including the following:

- Initial Data recovery and archiving: Should recovery of data be funded by USSSP funds or CMO, NSF? Ownership of recovered data (IODP). Should a 12-month moratorium be in place after recovery of data? Should all observatory data be archiving and available in Janus?
- Evaluation of success: Who will do this (IODP panels?) What criteria will be used? Who will fund maintenance? Not USSSP (CMO, NSF)
- How will sites will be used in future? Who decides? (IODP panels, NSF) Active experiments funding (USSSP, IODP, NSF) Adding equipment funding (USSSP, IODP, NSF)

Bekins personally supports the latter on a case-by–case basis.

Action Item 6
Barbara Bekins will forward USSAC's discussion on data policy and data access with respect to seafloor observatories to Andy Fisher/Kevin Brown before the OOI-IODP workshop on July 17-18. Warren Prell will pass these same issues on to SCIMP.

2. Future USSAC/USSSP

2.1 Setting up the USSSP successor program
2.2 First 3 years (phase-in) of the USSSP-successor, a budget exercise

Farrell first presented a set of assumptions upon which the phase-in of the USSSP successor program would based. Some of the assumptions were based on anticipated vessel operations, and types of publications, while others stemmed from the outcome of U.S. planning activities, such as the CUSP report and the education workshop. Included in these assumptions was an initial description of obligations that could (or should) be incurred by U.S. (and indeed all) participants in the international IODP program. After the assumptions were discussed, and vetted, Farrell then led USSAC through a budget exercise on what the first three years of a new USSSP might look like. Scientist support involves two tiers of obligation/funding.

Tier 1: Participant contributes to the Initial Results volume (travel plus 3 months of salary).
Tier 2: Participant contributes to the Initial and Scientific Results volumes (travel, 4 months of salary, and post-cruise research grant).

Tier 2 is much like the typical participation in the current program, but would include upping the average proposal amount to $40k. To administer such a program, Prell proposed a model involving a separate USSAC subcommittee meeting to review proposals and to make awards.

Farrell assumes similar fundamental tasks in the new USSSP, with evolution and growth as necessary. In particular, increases in workshop and site augmentation support are expected due to the more complex nature of a multiplatform drilling program. Special engineering funds would also be set aside as seed money for conceptual efforts on new or adapted technologies and to support small proposals to coordinate seafloor observatories with drilling. USSSP educational efforts would be enhanced with dedicated staff, greater emphasis on teacher education and professional development, development of more accessible scientific content, increased partnership/entrepreneurial efforts, and program assessment built in from the outset. The total budget is highly dependent on the number of non-riser legs and MSPs planned.

USSAC discussion of the draft budget was generally favorable as it reflects many of the CUSP recommendations.

USSAC Consensus Statement 2
USSAC endorses the general plan and budget proposed by JOI for a USSSP successor program that spans the three-year phase-in period of IODP.

VII. Discussion of future USSSP and adoption of USSAC recommendations

1. Further SAS nomination discussions and actions

USSAC wrapped up discussion of nominations and future USSSP business.

3. Issues arising from the meeting

Several USSAC motions were proposed in response to general discussion during the meeting.

USSAC Motion 6
JOI/USSAC must become more proactive in helping recruit young scientists to more actively participate in all IODP activities.

USSAC Motion 7
USSAC affirms the importance of using a variety of drilling technologies to achieve the goals of the Initial Science Plan and urges IODP to support drilling in high latitude, shallow water, carbonate, or similar settings as warranted by proposals.

USSAC Motion 8
USSAC, NSF, and IODP have received great leadership and wisdom from Paul Dauphin. We thank him for his service and wish him well in his non-ODP life.

USSAC Consensus Statement 3
On behalf of the U.S. community, USSAC wishes to acknowledge the contributions made by all those who sailed on the *JOIDES Resolution*, and thank them for their commitment to a job well done. Through the dedication, expertise and hard work of the ship's crew and officers, drilling staff and supervisors, and the entire complement of TAMU technicians, ODP has steadily advanced the knowledge of earth processes. We look forward to the discoveries ahead that will be made possible by the dedicated work of a team such as this in IODP.

4. **Invitation of U.S. SAS co-chairs to February USSAC meetings**

USSAC confirmed the decision to invite the U.S. SAS chairs and vice-chairs to January/February USSAC meetings beginning in 2004.

VIII. Reviewers

1. **Upcoming post-cruise science proposals for legs 209 & 210**
2. **Workshop and site augmentation proposals**

Burger requested volunteers and recommendations for reviewers for ODP Legs 209 and 210, as well as current workshop and site augmentation proposals.

IX. USSAC Scheduling Issues

1. **Next USSAC meeting**

Dates were discussed for the next USSAC meeting. Meeting in Portland, Oregon from January 21-23 was proposed with San Diego as a back up location. No dates were discussed for the following meeting, but Prell proposed that he would be happy to host a meeting in Rhode Island for his last meeting as USSAC chair.

Prell thanked USSAC members for their attendance and efforts. He offered a special thanks to USSAC members rotating off the committee before the next meeting (Barbara Bekins, Peter deMenocal, Jeff Gee, and Carolyn Ruppel).

Acronyms

AGU: American Geophysical Union
BGS: British Geological Survey
BoG: JOI Board of Governors
CDEX: Center for the Deep Earth Exploration (at JAMSTEC)
CMO: Central Management Organization (for IODP)
CNRS-INSU: Centre Natl. de la Recherche Scientifique-Inst. Natl. des Sciences de l'Univers
CUSP: Conference on US Participation in IODP
DLS: Distinguished Lecturer Series
DPG: Detailed Planning Group
DSDP: Deep Sea Drilling Program
ECORD: European Consortium for Ocean Research Drilling
EMA: European Management Association
ESO: European Science Operator
ESF: European Science Foundation
EXCOM: Executive Committee (for ODP)
GeoSCAN: Geophysics Site Characterization and Needs workshop
iILP: interim Industry Liaison Panel (for IODP)
ILWG: Industry Liaison Working Group (for IODP)
IMI: IODP Management International
IO: Implementing Organization
IODP: Integrated Ocean Drilling Program
iPC: interim Planning Committee (for IODP)
iPPSP: interim Pollution Prevention and Safety Panel (for IODP)
iSAS: interim Science Advisory Structure (for IODP)
iSciMP: interim Science Measurement Panel (for IODP)
ISP: IODP Initial Science Plan
iSSEP: interim Science Steering and Evaluation Panel
iSSP: interim Site Survey Panel (for IODP)
iTAP: interim Technology Advice Panel (for IODP)
IWG: International Working Group (for IODP)
IWGSO: IWG Support Office
JAMSTEC: Japanese Marine Science and Technology Center
JEODI: Joint European Ocean Drilling Initiative
JOI: Joint Oceanographic Institutions
JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
LDEO: Lamont-Doherty Earth Observatory
MEXT: Japanese Ministry of Education, Culture, Sports, Science, and Technology
MGG: NSF Marine Geology and Geophysics Division
MSP: Mission Specific Platform
NSB: National Science Board
NSF: U.S. National Science Foundation
ODaSSI: Ocean Drilling and Site Survey Introduction
ODP: Ocean Drilling Program
ODP-TAMU: ODP Science Operator at Texas A&M University
OOI: Ocean Observing Initiative
OPCOM: Operations Committee
PEC: Performance Evaluation Committee
PPG: Program Planning Group

PPSP: Pollution Prevention and Safety Panel (for ODP)
RFI: Request For Information
RFP: Request For Proposals
SAS: Science Advisory Structure
SCICOM: Science Committee (for ODP)
SciMP: Science Measurement Panel
SIC: Systems Integration Contractor
SPC: Science Planning Committee
SPPOC: Science Planning and Policy Oversight Committee
SPRS: Swedish Polar Research Secretariat
SSEP: Science Steering and Evaluation Panel
SSP: Site Survey Panel (for ODP)
TAP: Technology Advice Panel
TOR: Terms of Reference
URL: Uniform Resource Locator
USSAC: US Science Advisory Committee
USSSP: US Science Support Program

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 16I1

X-Sender: jfarrell@192.168.100.2
Date: Fri, 10 Oct 2003 08:09:01 -0400
To: Mike Coffin <mcoffin@ori.u-tokyo.ac.jp>
From: John Farrell <jfarrell@joiscience.org>
Subject: Re: Education and the IODP
Cc: Jamie Austin <jamie@utig.ig.utexas.edu>, kbecker@rsmas.miami.edu,
 Ted Moore <Tedmoore@umich.edu>, Warren_Prell@brown.edu,
 Hidekazu Tokuyama <tokuyama@ori.u-tokyo.ac.jp>, jeroen.kenter@falw.vu.nl,
 macleod@cf.ac.uk, isasoffice@jamstec.go.jp, davies@odpemail.tamu.edu,
 sbohlen@joiscience.org, npisias@joiscience.org, rburger@joiscience.org,
 ajohnson@joiscience.org, mcortes@joiscience.org
X-Spam-Status: No, hits=1.3 required=5.0
 tests=AWL,EMAIL_ATTRIBUTION,IN_REP_TO,QUOTED_EMAIL_TEXT,
 RCVD_IN_OSIRUSOFT_COM,REFERENCES,REPLY_WITH_QUOTES,
 X_OSIRU_OPEN_RELAY
 version=2.55
X-Spam-Level: *
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear Mike,

Many thanks for your response. While there are many promising educational issues and activities to be developed for IODP, I think the "undergraduate student trainee program" requires prompt attention if this program is to begin next June, when the first expedition of IODP begins. If we wait until March, we won't have sufficient lead time to implement the program on a timely basis. IODP member countries will need to solicit applications from students, process them internally, and work with other IODP entities, especially the IOs, to place the students where and when opportunities arise. Since the first non-riser leg will begin in June 2004, time is of the essence. Given that there will likely be only one year of non-riser operations in phase one, before the hiatus when the non-riser refit occurs, we have a window of opportunity of one year, in the near term. I don't know if there will be opportunities for students on the Arctic MSP expedition. That's for the European operator to decide.

Although it's not an ideal solution, I propose that given the circumstances (short time until operations begin, and pending opportunity), the SPC (or a designated subcommittee) review the "undergraduate student trainee program", described below, propose revisions to it, such that it is made consistent with the terms and conditions of the IODP, and then electronically seek the endorsement of the program from SPC (and SPPOC, in December, if necessary). My read of the extant program, as configured for ODP, is that with a few tweaks, the activity can be successfully modified to fit IODP.

The "undergraduate student trainee program" has been an educational success story in ODP, and I think it would be beneficial to all of us to seize the opportunity, early in IODP, to see the program continued.

Thanks for considering this proposal.

Regards,

JF

At 3:57 PM +0900 10/10/03, Mike Coffin wrote:
>Dear John,
>
>Thank you for the background on the ODP undergraduate student trainee program.
>
>Although the SPC didn't have any time to devote to education issues
>at last month's meeting, the agenda for the March 2004 meeting will
>include education. I realize that the JOI/USSAC "U.S. IODP Education
>Workshop" (www.joiscience.org/USSSP/Ed_Wksp/Ed_Wksp.html) addressed
>a broad range of education issues earlier this year, and with this
>email I encourage the JDESC and ESSAC to devote some thought to the
>issue so that we can have an informed discussion next March.
>
>Thanks again for highlighting the important educational components
>of the IODP.
>
>Best regards,
>
>Mike
>
>At 18:25 -0400 6.10.03, John Farrell wrote:
>>Dear Mike,
>>
>>I see from one of your recent messages that you're swamped. Good
>>luck with you many responsibilities. I won't burden you further,
>>here, but I'd like to raise an issue that SPC might want to
>>consider at their next meeting, in March, if not sooner.
>>
>>The issue, a relatively small one, is the "undergraduate student
>>trainee program" which existed under ODP, and was popular. I would
>>hope that the SAS would consider incorporating this program in the
>>IODP. The program is described in the "Guide to the Ocean Drilling
>>Program."The text is reproduced below.
>>
>>In preparing JOI's bid to NSF to be the entity that secures the
>>"contract" (actully a cooperative agreement) for the
>>USSSP-successor program, we're anticipating that the undergraduate
>>student trainee program will become a part of IODP, and as such,
>>we're seeking support for this activity in our bid response. It's
>>putting the cart a bit before the horse, but so be it.
>>
>>In ODP, undergrads participated on the JR, but in the IODP, we
>>would hope that undergrads could participate, to some extent, on
>>all program platforms.
>>
>>Thanks for considering this request.
>>
>>Regards,
>>
>>JF
>>
>>
>>==
>>[excerpt from "The Guide to the Ocean Drilling Program" 1997
>>
>>APPENDIX VI:
>>Undergraduate Student Trainee Program
>>
>>The Ocean Drilling Undergraduate Student Trainee Program provides

>>undergraduates with a unique educational opportunity to participate
>>in a scientific cruise on board the research vessel JOIDES
>>Resolution. A maximum scientific and technical crew of 50 can be
>>accommodated on the JOIDES Resolution, and the number and
>>composition of that crew varies depending on the objectives of a
>>particular cruise. Occasionally, berths become available for
>>Undergraduate Student Trainees, providing them with unique
>>opportunities for scientific growth and career development.
>>
>>The intent of the Undergraduate Student Trainee Program is to
>>provide undergraduates in the Earth Sciences with exposure and
>>training in a variety of scientific and technical activities.
>>Specific responsibilities of the Undergraduate Student Trainee
>>(hereafter referred to as the "Student Trainee") will be defined by
>>a shipboard mentor, in consultation with the Co-Chief Scientists,
>>the Lab Officer, and the Trainee. Duties will be dependent on
>>background and experience, but can include assisting the shipboard
>>scientists by rotating through the laboratories and helping with
>>processing of cores and scientific analyses.
>>Opportunities to fill available slots with Student Trainees will be
>>available to all members of the Ocean Drilling Program. Nominations
>>of students to participate in the Program will be requested from
>>the ODP Member Country/Consortium Offices when such opportunities
>>are available. Student Trainee positions will be available on an
>>opportunity basis, and will not displace any scientific, technical
>>or engineering positions on the drill ship required to meet the leg
>>objectives or high priority engineering developments. The provision
>>of students to the Undergraduate Student Trainee Program should not
>>be viewed as mandatory, but rather as an opportunity.
>>
>> Science Operator's Responsibilities
>>*	The availability of Student Trainee positions will be
>>announced by the Science Operator in the JOIDES Journal and through
>>ODP Member Country/Consortium Offices. The application for the
>>Undergraduate Student Trainee Program will be available on the ODP
>>web site, and applicants will send their completed applications to
>>their national ODP offices.
>>*	The Science Operator will process and evaluate only those
>>Student Trainee Program applications that have been forwarded from
>>the national ODP offices.
>>*	On the basis of space availability, the Science Operator will
>>aim to identify 3 Student Trainee positions annually.
>>*	The Science Operator will staff these positions in
>>consultation with the Co-Chief Scientists based on the student's
>>skills, balanced with the requirements of the leg. Student Trainee
>>staffing decisions are made by the Supervisor of Technical Support
>>and approved by the Manager of the Science Services Department at
>>ODP-TAMU. Final selection of individuals to fill these positions is
>>the sole responsibility of the Science Operator.
>>*	The Science Operator, in collaboration with the Co-Chief
>>Scientists, will select a member of the shipboard scientific party
>>to act as a mentor for the student during the cruise
>>*	The Science Operator will assist with the students' travel
>>arrangements. ODP can make hotel and airline reservations in the
>>students' names, as well as assist with acquisition of visas.
>>Student Trainees will be notified by the ODP travel office about
>>the hotel selected for use at the port call, and they will be
>>expected to stay at the same hotel as the scientific and technical
>>staff.
>>*	The Lab Officer will participate in defining the tasks to be

>>assigned to the student in consultation with the designated
>>shipboard mentor and the Co-Chief Scientists.
>>* ODP/TAMU will provide each student participating in the
>>Undergraduate Student Trainee Program with a certificate
>>documenting his/her participation upon completion of the ODP Leg.
>>
>> ODP Member's Responsibilities
>>* Member countries/consortia will coordinate the advertisement
>>of Student Trainee positions, and receive all applications.
>>* All applications must include a letter of endorsement from
>>the respective ODP National office, who will also be responsible
>>for submitting applications to ODP-TAMU for consideration
>>* ODP member countries/consortia will provide
>> all travel expenses for the student. This includes flights,
>>visas, lodging and meals in the port call both before and after the
>>leg.
>>* Compensation for students participating in the
>> Undergraduate Student Trainee Program is the responsibility
>>of the ODP member country/consortium. Some members may choose to
>>compensate the Student Trainee in different ways (e.g., salary,
>>course credits, etc.); others may choose not to compensate them at
>>all. Under either circumstance, the availability, level, and type
>>of compensation should be clearly communicated to the student prior
>>to acceptance of the position. It is critical (to avoid tension and
>>morale problems on the ship) that terms of compensation are worked
>>out with the student prior to the cruise, and that the student is
>>made aware that he/she will be working with paid ODP scientists and
>>technicians.
>>* Each ODP member may submit applications from more than one
>>student for consideration per leg to sail in an available Student
>>Trainee position.
>>* All applications must be received at ODP-TAMU no later than 6
>>months prior to the beginning of the requested Leg.
>>
>>Student Trainee's Responsibilities
>>* Applicants must submit a complete application form to their
>>ODP National Offices. This must include a letter from their primary
>>academic adviser(s) documenting the student's academic status and
>>accomplishments.
>>* The pre-participation medical physical examination (in accordance
>>with ODP-TAMU pre-employment physical and reimbursement policies)
>>must be successfully completed by the applicant and the results
>>returned to the ODP-TAMU Personnel Supervisor by a specified date.
>>* The Student Trainee will be expected to participate in the watch
>>system adhered to by scientists and technicians, and to carry out
>>the tasks assigned to him/her.
>>* Student Trainees are expected to be involved with the science
>>of the leg, and are expected to attend scientific meetings as
>>possible.
>>* Student Trainees must provide their own steel-toed safety shoes
>>to be available on day one of the port call.
>>* Student Trainees are eligible to request a limited number of
>>shipboard core samples for scientific projects with results to be
>>included in the leg publications. The student's sample request must
>>be supported by a letter from his/her supervisor ensuring that
>>necessary facilities will be available to allow the student to
>>complete the work, and meet the requirement and deadline for
>>submission of a data report.
>>
>>Shipboard Mentor's Responsibilities

>>*	The shipboard mentor will be responsible for advising
>>	the Student Trainee during the cruise, and ensuring that the
>>student is exposed to a variety of scientific and technical
>>activities.
>>* At the beginning of the cruise, the shipboard mentor will meet
>>with the Co-Chief Scientists and Lab Officer to define the program
>>of activities for the Student Trainee.
>>*	During the cruise, the shipboard mentor will monitor the
>>progress of the student and will be available at any time to assist
>>the student with any problems. * The shipboard mentor will write a
>>short evaluation of the student and submit it to ODP-TAMU.
>>
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>>John Farrell
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>>Associate Director, ODP
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>
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>
>**

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

Enclosure 16I2

X-Sender: mevel@mailhost.ipgp.jussieu.fr
Date: Tue, 14 Oct 2003 08:55:38 +0200
To: jeroen.kenter@falw.vu.nl
From: Catherine MEVEL <mevel@ipgp.jussieu.fr>
Subject: Fwd: education and outreach in IODP
X-Security: MIME headers sanitized on sheba
    See http://www.wolfenet.com/~jhardin/procmail-security.html
    for details. $Revision: 1.104 $Date: 2000-05-10 08:51:15-07
X-Antivirus: scanned by sophie at shiva.jussieu.fr
X-Spam-Status: No, hits=0.3 required=5.0
    tests=AWL,FWD_MSG,QUOTED_EMAIL_TEXT
    version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

>X-Sender: jamie@utig.ig.utexas.edu
>Date: Fri, 10 Oct 2003 16:29:52 -0500
>To: tokuyama@ori.u-tokyo.ac.jp
>From: Jamie Austin <jamie@utig.ig.utexas.edu>
>Subject: education and outreach in IODP
>Cc: tatsumi@jamstec.go.jp, Katherine Ellins <kellins@utig.ig.utexas.edu>,
>   mcoffin@ori.u-tokyo.ac.jp, mevel@ccr.jussieu.fr, pauls@utig.ig.utexas.edu
>X-Antivirus: scanned by sophie at shiva.jussieu.fr
>X-Antivirus: scanned by sophie at shiva.jussieu.fr
>Status: O
>X-Status:
>X-Keywords:
>X-UID: 1244
>
>Hello Tokuyama-san-
>
>   It was good to see you again in Tokyo; I enjoyed your J-DESC
>presentation very much. May I remind you to identify people from
>J-DESC who could help me begin to think about education and outreach
>issues for IODP? USSAC has just completed a U.S.-based activity
>(workshop report) on this subject (attached), and I would like to
>begin to think about IODP-wide E&O activities, in line with my
>interim planning mandate on behalf of IMI.
>
>   I have taken the liberty of asking one of the U.S. workshop
>attendees, Dr. Kathy Ellins from UTIG, to take the lead on the U.S.
>side of this interim planning effort (probably along with Dr. Sarah
>Hickox of the University of Rhode Island). Can you or Tatsumi-san
>identify at least a couple of lead people from Japan with interest
>in and expertise concerning this topic? That would be wonderful.
>
>   I would then propose to work with you all, perhaps use the
>U.S. workshop report as a starting point, then plan to have a
>workshop (in Japan? in January?) with perhaps a dozen attendees to
>begin to address what IMI can do to support E&O activities in IODP.
>
>   As soon as I get some input and potential nominees from you,
>I will also approach ECORD/EMA for their input and potential
>nominees. I am flexible on the timing and structure for all
>activities on this broad and diverse topic, so don't let that be a
>problem for J-DESC participation.
>
>   I look forward to hearing from you.
>
>Best wishes, Jamie

>
>********************************
>James A. Austin, Jr.
>Senior Research Scientist
>The University of Texas at Austin
>Institute for Geophysics
>4412 Spicewood Springs Road, Building 600, Austin, TX 78759-8500
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>
>

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Catherine Mevel

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Attachment Converted: "F:\eudora\attach\US_IODP_EdWkshpRept.pdf"

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD

European Consortium for Ocean Research Drilling

Enclosure 16I3

Agenda

U.S. IODP Education Workshop
Narragansett, Rhode Island
May 6-7, 2003

Tuesday, May 6

8:30 AM Welcoming Remarks

Introductions and welcome: Al Hine, Sara Hickox, David Farmer.
Goals of workshop and the U.S. educational component of IODP. (20 min)

Plenary Session

1) The ODP/IODP transition and motivation for workshop. (Prell) (10 min)
2) Scientific ocean drilling overview. (Farrell) (10-15 min)
3) Existing USSSP educational programs. (Johnson) (10 min)
4) Educational strategies for using ocean drilling resources. (Hickox) (10 min)
5) How can scientists contribute to the U.S. educ. system? (Walker/Schoedinger) (15 min)
6) Workshop marching orders. What are the specific questions we need answered? (Whitman). (10-15 min)

10:15 AM Coffee Break

Breakout groups by interest:

Groups will have co-facilitators: one educator and one scientist familiar with ocean drilling.
Under-represented groups will be considered at all levels

1) K-8th grades (Haynes/Filippelli)
2) 9-12th grades (Humphris/Walker)
3) Undergraduate-graduate (including technical and vocational) (Delaney/Schoedinger)
4) Informal education/public education (Reed/Prager)

Breakout Groups: Scientist-Educator Partnership Exercise

The goal of this exercise is for educators and scientists to become acquainted and to understand each other's perspectives. Each group will have a scientist share some exciting results—key concepts, data, graphs, illustrations, etc—about one exciting research finding. The group members will brainstorm about ways to incorporate this information into an active learning activity for members of their target interest group (e.g., K-8). Possible scientific topics: extinction of dinosaurs, mountain building, glaciers, giant volcanoes, massive ore deposits, climate change. Breakout groups may subdivide into teams of scientists and educators.

Noon: Lunch

1 PM Breakout Groups: Identifying Educational Activities Appropriate for IODP

Groups will be the same as the morning session.

Discussion questions:

1) How can each educational group benefit from IODP? How should we engage specific audiences within each group to maximize the educational benefit?
2) How can IODP benefit from greater involvement with the educational community?

3) What are the educational “products/activities/opportunities” needed by educators (e.g., to meet standards) to which IODP can contribute? (Briefly identify the primary purpose/goal of each item.)
4) How do these products/activities/opportunities mesh with the goals of the U.S. educational component of IODP?

3:15 PM Coffee break
3:30 PM Plenary Session

Sharing of breakout group exercise and discussion results. Each group will have approximately 20-25 minutes to present their responses and recommendations. What are the common themes?

6 to 8:30 PM Dinner – Clambake
Narragansett Beach Club. Mini-coaches will depart for the clambake following the afternoon plenary session. Mini-coaches will return to the hotel after the clambake. Be sure to bring a warm jacket if you plan to walk on the beach.

<u>Wednesday May 7</u>

8:30 AM Plenary Session

Review and guidance for continued discussions. (Hine/Whitman)

Breakout Groups: Implementing Recommended Educational Activities for IODP

Discussion questions for recommendations

5) How may the previously identified “products/activities/opportunities” be created? (If a large number of items were identified, each group should prioritize their recommendations and note the criteria for prioritization.)
6) What partners are available and how might we collaborate to create these products/activities/opportunities?
7) What infrastructure for the “USSSP successor program” would allow the products/activities/opportunities to be implemented? (A model will be provided to provide a starting point only.)
8) How will we assess the effectiveness of the recommended products/activities/opportunities?
(Assessments should be balanced against the stated goals.)

10:15 AM Coffee break
10:30 AM Breakout groups continue
Noon: Lunch

1 PM Plenary Session

Breakout groups present responses and recommendations (20-25 minutes per group). Are there overarching consensus themes and recommendations? Summary discussion.

3 PM Workshop Evaluation

3:30 PM & 4:15 PM
Mini coaches depart for the airport.

Background

U.S. IODP Education Workshop
May 6-7, 2003

Workshop Co-Chairs
Al Hine, University of South Florida
Jill Whitman, Pacific Lutheran University.

Workshop Steering Committee:
Susan Haynes, Virginia Institute of Marine Science
Sara Hickox, University of Rhode Island
Susan Humphris, Woods Hole Oceanographic Institution
Ellen Prager, StormCenter Communications
Sarah Schoedinger, Consortium for Oceanographic Research and Education
Ellen Thomas, Wesleyan University
Sharon Walker, University of Southern Mississippi.

Introduction
The U.S. Science Support Program (USSSP), funded by NSF/OCE, is sponsoring this workshop to focus on the U.S. educational component of the future Integrated Ocean Drilling Program (IODP). The purpose of the workshop is to open a dialog among experts in marine/science education and ocean drilling science in order to develop an effective U.S.-focused educational strategy for the IODP. The meeting is expected to produce recommendations that will address, but are not limited to: ideas for initiating and fostering educational activities, the educational role of a future U.S. scientific ocean drilling support program, and potential partnerships to develop and produce educational activities, products, and opportunities.

Goals of the Workshop:
1. To establish a U.S. vision and goals for education and outreach activities for IODP.
2. To identify U.S. educational products, activities, and opportunities appropriate for IODP.
3. To identify strategies to implement the recommended educational activities for IODP.

Vision:
The educational component of a future U.S. scientific support program for ocean drilling will strive to increase awareness and understanding of IODP science – by sharing discoveries, ideas, and concepts on earth history and process as seen through ocean drilling – and to make a contribution to science education by cultivating the educational assets of scientific ocean drilling.

Goals of the U.S. Educational Component:
1. To promote ocean drilling science to: the public, K-12 students, higher education students, educators, and the scientific community.
2. To communicate both the scientific process and sense of discovery.
3. To make science accessible. (e.g., as a career track, for an informed populace)
4. To promote access to ocean drilling scientific data for use in education.
5. To encourage science education as a vehicle for improved stewardship of the earth (i.e., by fostering knowledge of earth history/processes and global change.)
6. To facilitate active learning.

A Report on:

US-IODP Education Workshop

For the:

United States Component of the
Integrated Ocean Drilling Program

Sponsored by:

U.S. Science Support Program
Joint Oceanographic Institutions

And convened by:

U.S. Science Advisory Committee

At:

The University of Rhode Island
Graduate School of Oceanography
Narragansett Bay Campus

May 6-7, 2003

Executive Summary

A workshop, focused on the U.S. educational component of the future Integrated Ocean Drilling Program (IODP), was held May 6-7, 2003 at the Narragansett Bay Campus of the University of Rhode Island. The U.S. Science Support Program (USSSP), managed by Joint Oceanographic Institutions (JOI) and funded by the National Science Foundation's Division of Ocean Sciences (NSF/OCE), sponsored this effort. Its purpose was to open a dialog among experts in marine/science education and ocean drilling science in order to develop an effective U.S.-focused educational strategy for the IODP. The three primary workshop goals were to:

1. Establish a U.S. vision and goals for education and outreach activities for IODP.
2. Identify U.S. educational products, activities, and opportunities appropriate for IODP.
3. Identify strategies to implement the recommended educational activities for IODP.

The workshop was attended by 75 participants, representing the scientific drilling community, geoscience/marine educators, agency representatives, science communicators, formal educators, and foundation/corporate representatives. The workshop structure featured plenary sessions and four breakout groups defined by targeted audiences (K-8th grade students, 9-12th grade students, undergraduate-graduate students, and informal/public education) and led by two facilitators, one from the scientific ocean drilling community and the other from the education and outreach community. Each breakout group was asked to address eight questions over the two days:

1. How can each educational group benefit from IODP? How should we engage specific audiences within each group to maximize the educational benefit?
2. How can IODP benefit from greater involvement with the educational community?
3. What are the educational products/activities/opportunities needed by educators (e.g., to meet standards) to which IODP can contribute?
4. How do these products/activities/opportunities mesh with the goals of the U.S. educational component of IODP?
5. How may the previously identified products/activities/opportunities be created?
6. What partners are available, and how might we collaborate to create these products/activities/opportunities?
7. What infrastructure for the USSSP successor program would allow the products/activities/opportunities to be implemented?
8. How will we assess the effectiveness of the recommended products/activities/opportunities?

Clear consensus emerged from the workshop regarding the major priorities for the education elements in the future IODP and USSSP-successor science program. Two key points were:

1. The IODP and USSSP-successor programs must show a commitment to education.
2. Education should be an integral component from the beginning of both new programs.

In order for the USSSP-successor program to have a clear commitment to education and outreach, the JOI-successor office should have sufficient staff to accomplish the following for the educational portions of the science program: make ocean drilling research findings accessible, create avenues for professional development, expand opportunities for student experiences, identify/foster educational partners and networks, develop and maintain an effective website, assess the education activities, and identify/seek additional funds to support the endeavors. Each of these points is expanded upon below and discussed in greater detail within the report:

1) Staffing at JOI-successor office

Many fulltime positions dedicated to education and outreach are required. The consensus was that 3.5 FTE's would be the minimum effective staff for doing full justice to IODP's educational and outreach potential, however, an educational program must first be defined before specifically assigning staff. These persons will need a background in both education and science in order to effectively interface between the education community and the science of ocean drilling. Included among these positions should be a web support person dedicated to the education and outreach portions of the web presence. Some of these positions or duties could potentially be subcontracted. One of the primary responsibilities of these staff positions would be to seek additional partnership and funding opportunities to support educational endeavors.

2) Materials/Content

There is a need to develop educational content and produce hands-on and interactive materials that can be circulated to a much wider audience than is currently being reached by ODP. A few examples of these materials include: displays – traveling and permanent; classroom kits – of samples, material (photos, thin sections), and data; curricula to accompany the kits as well as to be used independently; media and educational resources (videos, ship-to-shore links); and thematic syntheses of scientific ocean drilling results.

3) Professional Development/Teacher Preparation (formal/informal)

It is vital to provide opportunities for teachers and educational professionals to learn more about the science of ocean drilling and the materials available to them. This can be done through professional development and teacher preparation workshops, courses, and summer institutes. Such activities could be developed by the USSSP-successor program or be accomplished through partnerships with existing programs such as the Teacher Armada project. In particular, developing opportunities for research experiences at sea and shore will offer fewer opportunities but higher impact exposure.

4) K-20 Student Experiences

Offering opportunities for students of a wide range of ages to participate in hands-on activities and research is essential to create an informed and science literate society. ODP and USSSP have provided many such opportunities for undergraduate and graduate students, through such programs as the Distinguished Lecture Series and the Schlanger Fellowship. These programs should be continued and expanded. New student opportunities should also be created to broaden the audience that is impacted (REU experiences, summer institutes, and internships).

5) Partnerships

Partnerships are vital to the success of the educational endeavors of the USSSP-successor program. Teachers, scientists, students, and science education professionals and researchers will need to work side-by-side throughout the program. Many existing organizations can partner with the USSSP-successor program and these partners will be able to play varied and complementary roles in different efforts. There are many opportunities for collaboration with existing programs as well as opportunities to identify new and innovative partnerships.

6) Web site

A USSSP staff position that is dedicated to the educational component of the web presence for IODP is needed. This person's responsibility would be to develop and maintain an easily accessible web site that provides data in usable format to a variety of different audiences: teachers (formal and informal), students, scientists, and the public. It is very important that the past data as well as the new IODP data be accessed and/or managed in a way similar to other scientific data sets (e.g., the seismic data on the IRIS website) that are available for educational purposes.

7) Assessment

Assessment of the educational products, activities and/or opportunities of the program is essential and must be integrated into the program from its beginning. The assessment must be developed and implemented by professional evaluators and must consider the program internally and externally. The success of the educational efforts will be evaluated in terms of whether or not they meet program goals.

In summary, the workshop participants urge those planning the future of scientific ocean drilling in the U.S. to fully develop the tremendous educational resources that will be an inherent part of IODP. Unique and valuable educational opportunities exist for mutual benefit among IODP, the USSSP-successor program, scientists, educators, and the public. To accomplish these opportunities, the USSSP-successor program should include an educational component that has been significantly expanded from the minimal activities associated with the current ODP and USSSP programs. An expanded educational component should include better assessment practices, clearly defined goals, and better leveraging strategies for using limited funds.

Introduction

The Integrated Ocean Drilling Program (IODP)

IODP is an international scientific venture that will use multiple research platforms to collect samples of sediment, rocks, biota, and fluids from seafloor environments at depths never before attempted, and to deploy state-of-the-art downhole measurement devices and long-term seafloor observatories. This new drilling program, which builds upon the 35-year legacy of accomplishments by the Deep Sea Drilling Project (DSDP) and the Ocean Drilling Program (ODP), is slated to begin on October 1, 2003. The initial phase of IODP is proposed to extend 10 years, to September 30, 2013. When fully operational in 2008 (i.e., when all anticipated vessels are in use), IODP will be a significantly larger program than DSDP and ODP combined. More information can be found at www.iodp.org/brochure/planning_article.html.

The birth of this new, major international scientific endeavor comes at a time of increased interest and concern about the state of science education not only in the U.S., but in other IODP member nations as well. As a result, it is anticipated that IODP will develop and promote international education and outreach through scientific ocean drilling. This report summarizes the U.S. workshop on IODP education and its recommendations for viable educational activity within the successor program to the U.S. Science Support Program (USSSP). A primary goal of USSSP has been to enhance the scientific contribution of ocean drilling and to maintain its vitality, and the USSSP-successor program is expected to have similar goals. In addition to encouraging education and outreach, USSSP has supported U.S. scientists in pre-drilling planning, participation on board the drillship, and post-drilling research efforts. Although it is focused on U.S. educational needs and opportunities, this report may also contribute to the development of an IODP-wide, multi-national education and outreach program.

Existing USSSP Education Activities

At its initiation in 1984, there were no funds in the USSSP budget for educational activities. However, given advice from the scientific drilling community over time, approximately 2.5% of the USSSP program budget is now dedicated to educational activity. This activity consists of two basic components:

1. Programs
    a. Schlanger Ocean Drilling Fellowships
    b. Distinguished Lecture Series
    c. Internships at JOI
    d. U.S. participation in the JOIDES Undergraduate Student Trainee Program
2. Curriculum Enrichment, Publications and Other Resources
    a. Cenozoic Glaciation: A Curriculum Supplement
    b. “Blast from the Past” educational poster
    c. “ODP: Mountains to Monsoons,” an interactive educational CD-ROM
    d. “Gateways to Glaciation,” an interactive educational CD-ROM

A more detailed explanation of these components can be found at:
http://www.joiscience.org/USSSP/education.html

Workshop Mandate: Conference on U.S. Participation in IODP (CUSP)

The Conference on U.S. Participation in IODP (CUSP), funded by JOI/USSSP and convened in Washington DC from June 11-14, 2002 by the U.S. Science Advisory Committee (USSAC), provided 19 specific recommendations to help define the role of U.S. scientists in the forthcoming Integrated Ocean Drilling Program. The CUSP report is available on line at:
http://www.joiscience.org/USSSP/iodp/cusp.html

Of the 19 recommendations, three directly addressed education and outreach issues. They are:

CUSP Recommendation 17: “USSAC/USSSP should increase its efforts to initiate and foster educational activities and should partner with educational agencies and researchers to conduct the detailed development and production of education materials.”

CUSP Recommendation 18: “USSSP should continue support for the Schlanger fellowships during the ODP/IODP transition and should, in the IODP, at least double the number of fellowships currently awarded by USSSP for the ODP.”

CUSP Recommendation 19: “USSSP should continue support for the U.S. Distinguished Lecturer Series during the ODP/IODP transition and in the IODP.”

Summary explanations of these recommendations included in the CUSP report have been appended to this document (See Appendix #1).

At the USSAC meeting immediately following CUSP, held in San Francisco in July, 2002, USSAC recommended that an education steering committee be established to design a full workshop to address and evaluate the three CUSP recommendations as well as to determine the nature, size, and scope of the education and outreach program that should be provided by the USSSP-successor program. USSAC members Albert C. Hine and Ellen Thomas along with Andrea Johnson of JOI agreed to recruit steering committee members and to convene a meeting to design a full workshop that would include attendees from a broad range of constituencies of the science education community including members of under-represented groups.

Planning the Future

The USSAC Education Steering Committee Workshop

The following individuals constituted the USSAC Education Steering Committee which met November 12, 2002 in Washington, DC at the JOI office to plan the full workshop:

Susan Haynes, Virginia Institute of Marine Science
Sara Hickox, University of Rhode Island
Albert C. Hine, University of South Florida, Co-Chair
Susan Humphris, Woods Hole Oceanographic Institution
Ellen Prager, StormCenter Communications
Sarah Schoedinger, Consortium for Oceanographic Research and Education
* Ellen Thomas, Weslyan University, Co-Chair
Sharon Walker, University of Southern Mississippi

*Due to her participation on ODP Leg 208, Ellen Thomas was replaced in February, 2003 by Jill Whitman, Pacific Lutheran University, who is a USSAC member.

The framework for the full workshop was developed by the steering committee. Sara Hickox, Director, Office of Marine Programs, volunteered to host the workshop at her conference facility on the campus of the Graduate School of Oceanography at the University of Rhode Island.

At its February 2003 meeting in St. Petersburg, FL, USSAC approved final workshop plans to hold the workshop in early May 2003. Shortly thereafter, individuals representing the scientific ocean drilling community, federal agencies, and various targeted audiences in education and outreach were invited to apply. Members of the U.S. scientific community at large were also invited to apply via the JOI/USSSP listserver. Final invitations were extended to individuals based upon their background, experience, and diversity.

The Workshop

Workshop and Program Goals

Based upon the Steering Committee's recommendation and USSAC's input, the following goals for the full workshop were generated:

1. To establish a U.S. vision and goals for education and outreach activities for IODP.
2. To identify U.S. educational products, activities, and opportunities appropriate for IODP.
3. To identify strategies to implement the recommended educational activities for IODP.

Additionally, the following goals for a future education program were suggested:

1. To promote ocean drilling science to: the public, K-12 students, higher education students, educators, and the scientific community.
2. To communicate both the scientific process and sense of discovery.
3. To make science accessible. (e.g., as a career track, for an informed populace)
4. To promote access to ocean drilling scientific data for use in education.
5. To encourage science education as a vehicle for improved stewardship of Earth (by fostering knowledge of earth history/processes and global change).

Workshop Participants

The 75 invited participants represented the following groups:

Scientific drilling community: 31%
Geoscience/marine educators: 33%
Agency representatives: 3%
Science communicators: 9%
Formal educators: 9%
Informal educators 4%
Foundation/corporate representatives: 11%

It was widely recognized and accepted that numerous individuals attending had experience in more than one group. In addition, representatives from minority groups came from a wide variety of education and outreach backgrounds as well. The names and contact information of the attendees may be found in Appendix #2.

Workshop Structure, and Agenda

The workshop was structured around plenary sessions and four breakout groups each defined by targeted audiences and led by two facilitators, one from the scientific ocean drilling community and the other from the education and outreach community. The breakout groups and their facilitators were as follows:

K-8th grades: Susan Haynes, Gabe Filippelli
9-12th grades: Susan Humphris, Sharon Walker
Undergraduate-graduate: Peggy Delaney, Sarah Schoedinger
Informal/public education: Don Reed, Ellen Prager

After an initial plenary session during which presentations were made to acquaint the workshop participants with background material on the present Ocean Drilling Program, the ODP/IODP transition, existing USSSP education programs, and the goals of the workshop, each breakout group was asked to address eight questions over the two days and to report back to present their responses to these questions during ensuing plenary sessions. The full agenda of the workshop can be found as Appendix #3.

The eight questions addressed were:

1. How can each educational group benefit from IODP? How should we engage specific audiences within each group to maximize the educational benefit?
2. How can IODP benefit from greater involvement with the educational community?
3. What are the educational products/activities/opportunities needed by educators (e.g., to meet standards) to which IODP can contribute?
4. How do these products/activities/opportunities mesh with the goals of the US educational component of IODP?
5. How may the previously identified products/activities/opportunities be created?
6. What partners are available, and how might we collaborate to create these products/activities/opportunities?
7. What infrastructure for the USSSP successor program would allow the products/activities/opportunities to be implemented?
8. How will we assess the effectiveness of the recommended products/activities/opportunities?

Workshop Results

Consensus Issues

Early in the workshop, participants agreed that a fundamental theme influencing their discussions should be the unique aspects of scientific ocean drilling as compared to other major scientific endeavors. The following elements, which were viewed as unique to the Ocean Drilling Program, should be emphasized in crafting an education and outreach program for IODP:

1. ODP studies Earth's history as well as its dynamic present, addressing processes that operate on a broad range of times scales.
2. ODP requires unique technologies to accomplish its mission.
3. ODP provides a unique human element in that scientists, technicians and ship's crew, who know little about each other at first, have to work together extremely well under stressful conditions.
4. ODP is an international program that works extremely well. ODP scientists travel extensively and work closely with scientists from many nations.
5. ODP is not geographically biased, but conducts operations in all but a few hostile parts of the global ocean.
6. ODP has a huge archived data set that is accessible.

Other important issues that provided a baseline for discussion were:

1. ODP science involves exploration and discovery.
2. The scientific content is tangible and can readily be made relevant to most members of society.
3. The scientific operations are compelling enough to interest many in a real-time mode on the internet.
4. There is a need to understand the culture of scientific ocean drilling research and the culture of science education and how to mesh these two together using incentives and rewards.
5. It is important to emphasize facilitation in creating, funding, managing programs and helping scientists and educators understand opportunities at all levels of education.

Finally, a clear consensus emerged from the discussion of some major priorities for the education elements in the science program. They are:

1. The US-IODP program has the opportunity to become a leader in all of science education in the U.S. The nature of scientific ocean drilling is a great attractor to interest diverse groups in science.
2. The U.S.-IODP program must show a strong commitment to education and outreach.
3. Education and outreach should be integral from the beginning of the new program.
4. The program should promote a climate of mutual respect between scientists and educators.

5. There are many partnerships and examples of educational activities using scientific data that can serve as models for the new education program of IODP.

Vision and Mission Statements

The workshop produced the following vision and mission statements.

Vision Statement

As an integral part of a future U.S. scientific support program for IODP, education will increase awareness and understanding of ocean drilling science and technology and make a positive sustainable impact on science education and society.

Mission Statement

Education is integral to the new U.S. scientific support program for IODP. It will foster scientific investigation and understanding through provision of high-quality materials and experiential opportunities that share ocean drilling science—discoveries, ideas, data, and concepts on earth history and process as seen through ocean drilling—in ways that promote inquiry-based learning at all levels.

Overarching Themes

The results of the full workshop are presented as overarching themes that emerged from the breakout groups and plenary sessions. The breakout groups' responses to the eight questions are embedded within these themes.

Staffing at JOI-successor office

Joint Oceanographic Institutions is currently the prime contractor for the international Ocean Drilling Program and the manager for the U.S. Science Support Program (USSSP) through a cooperative agreement with NSF. As this report was being written, JOI was responding to NSF RFPs to be the Systems Integration Contractor for the U.S. non-riser drilling vessel and to manage the USSSP successor program. The current USSSP educational activities require approximately 2 FTEs, however, this staffing support is distributed among 8 different USSSP staff in the JOI office, with no one staff person being dedicated to education. Consensus among the workshop participants was that education and outreach should be a very important focus of the JOI-successor office and there should be dedicated staff positions to carry out these functions. A straw model, requiring 3.5 FTEs, was presented to the workshop participants for the purpose of stimulating discussion. The workshop consensus was that 3.5 FTEs would be the minimum number of staff for this work. One breakout group suggested six, full-time dedicated positions, which included:

1. Director for education and outreach
2. Web site developer
3. Informal education expert

4. News media expert and science writer
5. Partnership coordinator
6. Science educator

Most of these individuals would need a background in both education and science in order to effectively interface between the education community and the science of ocean drilling. In practice, several of the six functions outlined above could be combined into fewer positions and with other functions in the JOI-successor office. Two issues were paramount in the responses of all the breakout groups:

1. A web support person is essential.
2. Identifying partnerships to seek additional funding opportunities to support the educational endeavors should be a primary mission of this staff.

Other suggestions included: contracting an educator to work at a Center for Ocean Science Education and Excellence (COSEE) for IODP projects or to explore funding opportunities for a new COSEE center all together with a primary focus on IODP science.

Materials/Content

There is a need to develop content and produce hands-on and interactive materials that can be circulated to a much wider audience than is currently being reached by ODP. First and foremost is the need for IODP to organize and synthesize its findings by scientific theme. This is an imperative first step in translating scientific results into understandable and useful education and outreach products. Once the science is made understandable, relevant, and appealing to broad educational audiences, then a large number of activities can be generated. Suggested products and activities (in no order of priority) are:

1. Create displays both traveling and permanently installed. Such displays can be set up in public areas such as airports, cruise ports, and malls.
2. Develop kits with core samples, photos, thin sections, etc. and exercises with accompanying curricula. Provide training for use of kits and curricula. Provide more interactive software.
3. Develop curricula, in collaboration between teachers and scientists, science education researchers.
4. Partner to develop new undergraduate/graduate textbook on Marine Geology based heavily upon ODP/IODP discoveries. For advanced teachers and students, focus on content, problem solving, developing quantitative skills, and overall career development. Develop an upper level course based on the real-life process of drilling-based science from initial hypothesis definition, proposal writing, filling pre-drilling requirements (site survey and site selection, shipboard party selection, special requirements), going to sea (exposure to real-life drilling problems), and all post-cruise activities—a virtual experience from beginning to end.
5. Establish more of an ocean drilling presence in introductory oceanography and geoscience textbooks.
6. Create IODP Careers book.

7. Produce videos - for classroom use, workshops, conferences
8. Develop products for vocational use and application, i.e., health safety, and environmental issues, engineering/technology to make science happen, information technology and data management, and maritime training.
9. Media outreach that would include:
    a. Ship-to-shore links. High-quality, near real time videos made on drilling platforms—"meet the scientists" venue.
    b. Port-call platform tours
    c. Leg-specific promotions
10. Promote science fairs.
11. Coordinate outreach to policymakers.
12. Coordinate outreach to entertainment industry.
13. Work to integrate IODP results and applications into other disciplines – biology, chemistry, geography, policy, environmental studies, etc.

Professional Development/Teacher Preparation (formal/informal)

It is vital to provide opportunities for teachers and professionals to learn more about the science of ocean drilling and the materials available to them. Scientific ocean drilling can be used generically as an effective vehicle to demonstrate the scientific process and how science works. Awareness of scientific ocean drilling can be achieved through professional development, teacher preparation workshops, courses, shipboard experiences, and summer institutes and camps. Such activities could be developed by the USSSP-successor program or be accomplished through partnerships with existing programs such as the Teacher Armada project at the University of Rhode Island. IODP benefits as this provides a key investment in future scientists, teachers, politicians, and fundraisers. In addition, an initial investment in professional development will help teachers educate future teachers thus increasing the sustainability effort. Key points made by workshop participants include:

1. Professional development should be part of the U.S.-IODP education program from the beginning.
2. Workshops should be held to teach graduate students and young professionals in science how to write proposals, with an emphasis on ocean drilling proposals.
3. Scientists and educators should each make more of an effort to attend one another's professional meetings/conferences. This would help in meshing these two often disparate groups.
4. IODP needs to be aware of teacher time limitations.
5. There should be an effort to concentrate on pre-service teachers.
6. The inquiry-based skills of teachers at all levels should be increased.
7. Content sharing between scientists and teachers should be emphasized.
8. IODP can help teachers focus on awareness for younger students and scientific inquiry (hypothesis testing, data analysis) for older students.
9. Graduate students involved in IODP science should be exposed to the option of becoming teachers.
10. Develop relationships with COSEE and REU centers.

11. An IODP presence should be established at meetings of the National Science Teachers Association (NSTA) and other teacher conferences.

K-20 Students Experiences

Offering opportunities for students of a wide range of ages to participate in hands-on activities and research is essential to create an informed and science literate society. There is a very broad range of audiences to address. These include: K-12, undergraduate, and graduate students. In the undergraduate area, there are science majors and non-science majors, pre-service and in-service teachers, technical schools, 2-year colleges, 4-year colleges, and universities.

ODP has provided many such opportunities for undergraduate and graduate students, through such programs as the Schlanger fellowship and the Distinguished Lecture Series. These programs should be continued and expanded. New ones should be created to broaden the audience that is impacted. Some suggestions are:

1. Create/support REU experiences, summer institutes, and internships
2. Continue and expand the Schlanger Fellowship
3. Continue and expand the Distinguished Lecture Series
4. Promote workshops and training to use IODP materials and resources
5. Summer camps (like Camp SEA Lab)

Partnerships

Partnerships are vital to the success of the educational endeavors of the program as they can increase diversity and broaden participation. As a practical matter, the new U.S.-IODP education program cannot be entirely self sufficient, but will require resources from partnerships in order to be effective. This matter is so important that the workshop recommended that staffing of a new education and outreach program specifically include someone who deals with developing partnerships even on the international level. As a first step, such an individual should examine other educational partnerships as potential models such as the JASON Project, Lawrence Hall of Science, Alexandria Digital Library, and the American Geological Institute. Efforts should also be made at all levels in IODP and the USSSP successor program to facilitate long-term relationships between institutions with researchers conducting IODP research and those with limited exposure to IODP research. On the individual level, teachers, scientists, students, and science education professionals and researchers will need to work side-by-side throughout the program to make it successful. Finally, workshop participants pointed out that honest and respectful feedback is essential to any healthy partner relationship.

There are many opportunities for collaboration with existing partnerships as well as opportunities to identify new and innovative partnerships. The workshop identified the following potential partners:

1. Other programs with NSF including but not limited to COSEE, RIDGE, MARGINS
2. Government agencies; National Aeronautic and Space Administration (NASA,) National Oceanic and Atmospheric Administration (NOAA), U.S. Geological Survey (USGS)
3. Professional societies; International Society of Technology Education (ISTE), International Research Institutes for Seismology (IRIS), National Association of Geology Teachers (NAGT), American Geophysical Institute (AGU), Geological Society of America (GSA), IEEE, OES, Marine Technology Society (MTS), American Chemical Society (ACS), Society for Advancement of Chicanos and Native Americans in Science (SACNAS), National Earth Science Teachers Association (NESTA).
4. Public entities; Public Broadcasting System (PBS), National Public Radio (NPR), National Oceanographic Partnership Program (NOPP), Digital Library for Earth System Education (DLESE), National Science Digital Library (NSDL), and The Bridge: Ocean Science Resource Center for Teachers.
5. Corporate partners, either direct financial or in-kind support
6. Private donors/foundations
7. Individual educators/researchers and academic institutions (e.g., URI Teacher Armada project).

Web site

As mentioned previously, a staff position should be dedicated to the educational component of the web presence for IODP. This person's responsibility will be to develop and maintain an easily accessible web site that provides data in usable format to a variety of different audiences. Some key points were:

1. Make data and results easily available to all audiences – scientists and non-scientists.
2. Possibly as different tracks accessed from the same initial web page: teachers (formal and informal), students, scientists, and the public.
3. It is very important that the research findings of DSDP and ODP, as well as the new IODP data, be accessed and/or managed in a way similar to other scientific data sets that are available to the similar audiences (e.g., IRIS seismic data).

Assessment

Assessment of the educational products, activities and/or opportunities of the program is essential and must be integral to the program from the beginning. The assessment must be done by professional evaluators and must consider the program internally and externally. The success of the program will be evaluated in terms of whether the efforts meet the goals of program.

Workshop Assessment

In keeping with the importance of assessment, workshop participants were asked to complete a workshop evaluation form (Appendix #4). Fifteen different categories were presented for review as well as six questions requiring written responses. We received 45 completed forms from the 75 participants (60% response rate). The results are presented in Appendix #5.

Conclusions and Summary Recommendations

The workshop participants urge all those involved in planning the future of scientific ocean drilling in the U.S. to fully develop the tremendous educational resources that will be an inherent part of IODP. Unique and valuable educational opportunities exist for mutual benefit among IODP, the USSSP-successor program, scientists, educators, and the public. To develop these opportunities, the USSSP-successor program should include an educational component that has been significantly expanded from minimal activities associated with the current ODP and USSSP programs. It is important that education be an integral component from the beginning of both new programs. Subsequently, both programs must be prepared to seek and allocate funds to accomplish this goal. However, if "significantly expanded" funds are not available in the future, it will be necessary for the educational components within both IODP and USSSP to be both targeted in accordance with their respective program goals and to be guided by solid assessment practices. Limited funding also means that leveraging strategies and partnerships will be even more critical to fulfilling the educational potential of the IODP both internationally and in the U.S.

Recommendations

A successful program will include the following components:

1. Adequate staffing at the JOI-successor office to support the education program.
2. The capability to develop materials and content to disseminate to the educational community and the public.
3. Opportunities for professional development and teacher preparation to learn more about ocean drilling.
4. Opportunities for K-20 students.
5. Partnerships with existing organizations.
6. Accessible web site of user-friendly ODP data.
8. Assessment of all activities from the outset.

Appendices

Appendix 1: CUSP Report Education Recommendations
Appendix 2: Workshop Participants and Contact Information
Appendix 3: Workshop Agenda
Appendix 4: Workshop Evaluation Form
Appendix 5: Workshop Evaluation Form Responses

Appendices

Appendix 1

CUSP Report Recommendations and Summaries Pertaining to Education Issues

Education and Outreach Activities

Activity/Issue: What role should USSAC/USSSP play in developing and producing educational materials for K-12, undergraduate, and general outreach audiences?

CUSP/USSAC Recommendation 17. USSAC/USSSP should increase its efforts to initiate and foster educational activities and should partner with educational agencies and researchers to conduct the detailed development and production of educational materials.
Many CUSP participants think the current level of USSSP activity in the fields of education and outreach is inadequate and should be increased in the new IODP. However, participants also indicated that education activities should be via partnerships with appropriate educational researchers and agencies to leverage the small "seed" money grants the USSSP could provide. CUSP strongly supported USSAC's role in identifying educational opportunities and initiating educational materials based on the ODP/IODP operations and results. Several discussion groups noted that one or more specialists in education/outreach would be needed at the JOI-successor to develop contacts with educational researchers and agencies, generate educational and outreach products based on IODP results, and seek funding for educational efforts. Additional suggestions were that USSAC should have a standing committee on education, and that a workshop on ODP/IODP-related education and outreach should be supported by USSAC.

Activity/Issue: What should be the level of Schlanger fellowships for ODP/IODP graduate student support in IODP?

CUSP/USSAC Recommendation 18. USSSP should continue support for the Schlanger fellowships during the ODP/IODP transition and should, in the IODP, at least double the number of fellowships currently awarded by USSSP for the ODP.
CUSP discussions strongly supported the Schlanger Fellowships as a successful and cost-effective outreach and development of the next generation of IODP researchers. Suggestions were made to both increase the number of fellows each year and to lengthen the tenure to two years. Some participants felt that the fellowship program should be modeled after the NSF or NASA fellowship programs and that both external review and USSAC review were needed. Other participants asked that the goals and objectives of the fellowship program be clarified for the community. Is it to recognize excellent ODP/IODP-related science, to recruit new ODP/IODP researchers, or as general scientific ocean drilling outreach?

Activity/Issue: What should be the level of effort in the USSSP-funded U.S. Distinguished Lecturer Series in the IODP?

CUSP/USSAC Recommendation 19. USSSP should continue support for the U.S. Distinguished Lecturer Series during the ODP/IODP transition and in the IODP.
Discussion: CUSP participants thought that the U.S. Distinguished Lecturer program was a cost effective mechanism for getting the ODP/IODP message out to parts of the broader academic community. Participants also felt that this program was important during the transition between ODP and IODP, regardless of whether new drilling platforms are yet in operation, so that the levels of interest in the new program would not lag behind the needs of IODP.

Appendix 2: U.S. IODP Education Workshop Participants

	First Name	Last Name	Department/Division	Institute/Organization	Address 1	Address 2	City	State	Postal Code	Country	email	telephone
1	Jennifer	Anziano		Joint Oceanographic Institutions	1755 Massachusetts Ave., NW	Ste. 700	Washington	DC	20036-2102	US	janziano@joiscience.org	202-232-3900 x270
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26	Sara	Hickox	Graduate School of Oceanography	University of Rhode Island	Narragansett Bay Campus		Narragansett	RI	2882	US	sara@gso.uri.edu	401-874-6277
27	Albert C.	Hine	Department of Marine Science	University of South Florida	140 7th Avenue South		St. Petersburg	FL	33701	US	hine@marine.usf.edu	1 727 553 1161
28	Sylke	Hlawatsch		Leibniz-Institut	Olshausenstr. 62		Kiel		24098	Germany	hlawatsch@ipn.uni-kiel.de	49-431-880-3131

29	Julie	Hood		MAST Academy High School	3411 SW 18 Terrace		Miami	FL	33145	US	hood@mast.dade.k12.fl.us	305-365-6278
30	Steve	Hovan	Geosciences Department	Indiana University of Pennsylvania	114 Walsh Hall		Indiana	PA	15705	US	hovan@iup.edu	724-357-7662
31	Michael W.	Howell	College of Marine Science	University of South Florida	104 7th Avenue South		St. Petersburg	FL	33701	US	howell@marine.usf.edu	727-553-1267
32	Michael	Hubenthal		IRIS Consortium	1200 New York Ave NW	Suite 800	Washington	DC	20005	US	hubenth@iris.edu	202-682-2220
33	Susan E.	Humphris	Department of Geology and Geophysics	Woods Hole Oceanographic Institution			Woods Hole	MA	2543	US	shumphris@whoi.edu	508-289-3451
34	M. Frank	Ireton		Science Systems & Applications Inc.	10210 Greenbelt Road	Suite 500	Lanham	MD	20706	US	frank_ireton@sesda.com	301-867-2034
35	Susan Kaschner	Jagoda	Lawrence Hall of Science	University of California	1 Centennial Drive		Berkeley	CA	94720-5200	US	skjagoda@uclink4.berkeley.edu	510-642-8941
36	Jill	Johnen	Dept of Oceanography	University of Rhode Island	Bay Campus	South Ferry Road	Narragansett	RI	2882	US	jjohnen@gso.uri.edu	
37	Kevin	Johnson	Dept. of Natural Sciences	Bishop Museum	1525 Bernice St.		Honolulu	HI	96817	US	kevinj@soest.hawaii.edu	808-848-4124
38	Andrea	Johnson		Joint Oceanographic Institutions	1755 Massachusetts Ave., NW	Suite 700	Washington	DC	20036	US	ajohnson@joiscience.org	202-232-3900 x213
39	Amanda Palmer	Julson	Department of Natural Science	Blinn College	PO Box 6030		Bryan	TX	88705-6030	US	ajulson@blinn.edu	979-209-7503
40	Kim A.	Kastens		Lamont-Doherty Earth Observatory	of Columbia University	PO Box 1000, 61 Route 9W	Palisades	NY	10964	US	kastens@ldeo.columbia.edu	845-365-8836
41	Andrea	Kecskes	Dept of Oceanography	University of Rhode Island	Bay Campus	South Ferry Road	Narragansett	RI	2882	US	akecskes@gso.uri.edu	
42	Paula	Keener-Chavis	NOAA Office of Ocean Exploration	Coastal Services Center	2234 South Hobson Ave		Charleston	SC	29405-2413	US	paula.keener-chavis@noaa.gov	843-740-1338
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45	Christopher	Knowlton		University of Rhode Island	Bay Campus	South Ferry Road	Narragansett	RI	2882	US	cknowlton@gso.uri.edu	401-874-6481
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47	Roger	Larson	Graduate School of Oceanography	University of Rhode Island			Narragansett	RI	2882	US	rlar@gso.uri.edu	401-874-6165
48	Richard H.	Levy	Staff Scientist	ANDRILL Science Management Office	2255 W Street, Suite 1101	Nebraska - Lincoln	Lincoln	NE	68588-0851	US	rlevy2@unl.edu	402-472-6711
49	Ann Elizabeth	Linsley			800 Circle		Bellaire	TX	77401	US	alinsley@swbell.net	713-432-1417
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51	Kathryn	Moran	Dept. of Ocean Engineering, GSO	University of Rhode Island	Narragansett Bay Campus		Narragansett	RI	02882-1197	US	kate.moran@uri.edu	401-874-6421
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56	Robert A.	Pockalny	Graduate School of Oceanography	University of Rhode Island			Narragansett	RI	02882-1197	US	robp@gsosun1.gso.uri.edu	401-874-6926
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60	Don	Reed	Dept. of Geology	San Jose State University	SAB 106-0062		San Jose	CA	95192-0102	US	dreed@geosun1.sjsu.edu	408-924-5036
61	Veronique	Robigou-Nelson	School of Oceanography	Univ. of Washington	Box 357940		Seattle	WA	98195-7940	US	vero@ocean.washington.edu	206-543-9282
62	Lisa	Rom		NSF/OCE, Room 725	4201 Wilson Blvd.		Arlington	VA	22230	US	erom@nsf.gov	703-306-1585 x7225
63	Carolyn	Ruppel	School of Earth and Atmospheric Sciences	Georgia Tech	221 Bobby Dodd Way		Atlanta	GA	30332-0340	US	cdr@piedmont.eas.gatech.edu	404-894-0231
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65	Leslie	Sautter	Dept. of Geology & Env. Geosciences	College of Charleston			Charleston	SC	29424	US	sautterl@cofc.edu	843-953-5586
66	Sarah	Schoedinger		Consortium for Oceangraphic Research & Education	1755 Massachusettes Ave, NW	Suite 800	Washington	DC	20036-2102	US	sschoedinger@coreocean.org	202-448-1223
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Appendix 3

Agenda

U.S. IODP Education Workshop
Narragansett, Rhode Island
May 6-7, 2003

Tuesday, May 6
8:30 AM Welcoming Remarks
Introductions and welcome: Al Hine, Sara Hickox, David Farmer.
Goals of workshop and the U.S. educational component of IODP. (20 min)

Plenary Session
1) The ODP/IODP transition and motivation for workshop. (Prell) (10 min)
2) Scientific ocean drilling overview. (Farrell) (10-15 min)
3) Existing USSSP educational programs. (Johnson) (10 min)
4) Educational strategies for using ocean drilling resources. (Hickox) (10 min)
5) How can scientists contribute to the U.S. educ. system? (Walker/Schoedinger) (15 min)
6) Workshop marching orders. What are the specific questions we need answered? (Whitman). (10-15 min)

10:15 AM Coffee Break

Breakout groups by interest:
Groups will have co-facilitators: one educator and one scientist familiar with ocean drilling.
Under-represented groups will be considered at all levels
1) K-8th grades (Haynes/Filippelli)
2) 9-12th grades (Humphris/Walker)
3) Undergraduate-graduate (including technical and vocational) (Delaney/Schoedinger)
4) Informal education/public education (Reed/Prager)

Breakout Groups: Scientist-Educator Partnership Exercise
The goal of this exercise is for educators and scientists to become acquainted and to understand each others perspectives. Each group will have a scientist share some exciting results—key concepts, data, graphs, illustrations, etc—about one exciting research finding. The group members will brainstorm about ways to incorporate this information into an active learning activity for members of their target interest group (e.g., K-8). Possible scientific topics: extinction of dinosaurs, mountain building, glaciers, giant volcanoes, massive ore deposits, climate change. Breakout groups may subdivide into teams of scientists and educators.

Noon: Lunch

1 PM Breakout Groups: Identifying Educational Activities Appropriate for IODP
Groups will be the same as the morning session.

Discussion questions:
1) How can each educational group benefit from IODP? How should we engage specific audiences within each group to maximize the educational benefit?

2) How can IODP benefit from greater involvement with the educational community?
3) What are the educational "products/activities/opportunities" needed by educators (e.g., to meet standards) to which IODP can contribute? (Briefly identify the primary purpose/goal of each item.)
4) How do these products/activities/opportunities mesh with the goals of the U.S. educational component of IODP?

3:15 PM Coffee break
3:30 PM Plenary Session

Sharing of breakout group exercise and discussion results. Each group will have approximately 20-25 minutes to present their responses and recommendations. What are the common themes?

6 to 8:30 PM Dinner – Clambake

Narragansett Beach Club. Mini-coaches will depart for the clambake following the afternoon plenary session. Mini-coaches will return to the hotel after the clambake. Be sure to bring a warm jacket if you plan to walk on the beach.

Wednesday May 7

8:30 AM Plenary Session

Review and guidance for continued discussions. (Hine/Whitman)

Breakout Groups: Implementing Recommended Educational Activities for IODP

Discussion questions for recommendations

5) How may the previously identified "products/activities/opportunities" be created? (If a large number of items were identified, each group should prioritize their recommendations and note the criteria for prioritization.)
6) What partners are available and how might we collaborate to create these products/activities/opportunities?
7) What infrastructure for the "USSSP successor program" would allow the products/activities/opportunities to be implemented? (A model will be provided to provide a starting point only.)
8) How will we assess the effectiveness of the recommended products/activities/opportunities?
(Assessments should be balanced against the stated goals.)

10:15 AM Coffee break
10:30 AM Breakout groups continue
Noon: Lunch

1 PM Plenary Session

Breakout groups present responses and recommendations (20-25 minutes per group). Are there overarching consensus themes and recommendations? Summary discussion.

3 PM Workshop Evaluation

3:30 PM & 4:15 PM

Mini coaches depart for the airport.

Appendix 4
U.S. IODP Education Workshop
May 6-7, 2003

Workshop Evaluation

A) Please use a scale of 1-5 to indicate how valuable you feel each of the meeting activities was in achieving the workshop goals. Your comments will help us improve future workshops. Thank you for your time.

No Value	Limited Value	Average Value	Valuable	Very Valuable
1	2	3	4	5

Opening Plenary Session	1	2	3	4	5
Scientist-Educator Partnership Exercise	1	2	3	4	5
Tuesday afternoon breakout session	1	2	3	4	5
Tuesday afternoon plenary session	1	2	3	4	5
Wednesday morning breakout session	1	2	3	4	5
Wednesday afternoon plenary session	1	2	3	4	5
Breakout group questions	1	2	3	4	5
Specific recommendations identified in plenary sessions	1	2	3	4	5
Overall workshop infrastructure	1	2	3	4	5
Facilitators	1	2	3	4	5

B) Please use a scale of 1-5 to indicate your level of satisfaction with the following logistical aspects of the meeting.

Pre-meeting communication	1	2	3	4	5
Lodging	1	2	3	4	5
Meals	1	2	3	4	5
Clambake	1	2	3	4	5
Overall workshop logistics	1	2	3	4	5

C) Please circle the category that best describes your professional role:

Scientist
Geoscience/Marine Educator
Agency Representative
Science Communicator
Formal Educator
Informal Educator
Foundation/Corporate Representative
Other ____________

Please see back for more questions

D) Please answer the following questions. We value your input.

1) Was the opening plenary session of value in setting the tone and preparing you for the rest of the workshop?) Yes ___ No___. Please explain.

2) Was there adequate time for each activity? Yes ___ No___. Please explain.

3) Was there any one particular recommendation that emerged from the workshop that you think is most important. Yes ___ No___. Please explain.

4) What single suggestion would you make that would have improved this workshop? Yes ___ No___. Please explain.

5) Did the workshop meet your expectations and its goals? Yes ___ No___. Please explain.

6) Additional comments?

Your Name (optional): ________________________

Joint Oceanographic Institutions, 1755 Massachusetts Avenue, NW, Suite 700, Washington DC 20036-2102
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Appendix 5a: U.S. IODP Education Workshop Evaluation

A. Value of meeting activities on a scale of 1 to 5. (1=no value, 5=very valuable) **B.** Satisfaction with logistics (1 to 5 scale) **C .** Professional category of respondent.

Opening Plenary Session	Scientist-Educator Partnership Exercise	Tuesday afternoon breakout session	Tuesday afternoon plenary session	Wednesday morning breakout session	Wednesday afternoon plenary session	Breakout group questions	Specific recommendastions identified in plenary sessions	Overall workshop infrastructure	Facilitators	Pre-meeting communication	Lodging	Meals	Clambake	Overall workshop logistics	Scientist	Geoscience/Marine Educator	Agency Representative	Science Communicator	Formal Educator	Informal Educator	Foundation/Corporate Representative	Other
4	2	3	3	3	3	2	3	3	4	3	5	5	5	4		1						
3	4	4	4	4		3.5	4	4	4	4	5	4	4	4	1	1		1				
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5		1						
5	2	5	5	5	5			4	5	5	4	3	4	4		1						
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5								1
4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5	5	5	5	5		1						
5	3	4	4	4	4	4	4	4	4	4	4	4	5	5		1						
5	3	5	4	5	5	4	5	5	5	5		4		5	1	1						
5	4	5	5	5	5	3	4	5	5	5	5	5	5	5		1						
3	4	4	3	4	5	4	4	4	4	3	4	4	5	4	1	1		1				
		5	4	4	4	4	4	4	4	5	4	5	5	5		1			1			
3	5	5	3	5	3	3	3	5	4	4	5	5	5	4	1							
4	4	5	5	3					5	4	5	4	5	5					1			1
5	3	5	5	5	5	5	5	5		5	4	4	5	4	1	1		1				
5	4	5	5	5	4	4	4	5	5	4	5	4	5	5		1						
5	5	5	5	5	5	5	4	5	5	5	5	5	5	5		1						
4		3	4	3		4	4	4	5	4		3	3	3	1	1						
4	5	5	4	5	5	3.5	4	4	5	5		5	5		1							
5		4	5	4	5	4	4	4		5	5	3	3	5					1			
4	4	3	3	5	4	3	3	4	5	4	5	5	5	5	1							
4	3	4	4	4	5	4	4	4	5	5	5	5	5	5	1							
5		5	4	5	4	4	4	5	5	4	5	5	5	4		1						
4	4	5	5	5	5	4	5	4	5	5	5	5	5	5	1	1						
5	2	5	4	5	5	5	5	5	5	5	5	5	5	5					1			
5	3.5	5	4	5	4	4	5	4	4	4	4	4	4	4		1						
5	4	5	5	4	5	5	5	5	5	5	5	5	5	5								1
2	5	5	5	5	5	4		5	5	5	3	4	2	4		1		1		1		1
5	1	5	5	5	5	5	5	5	2	5	3	5	1	5	1	1						
3	3	5	5	5	5	5	5	5	5	5	5	5	5	5	1	1						
4	3	5	5	5	4	2	4	5	4	5	5	5	5	5					1			1
4.5		3	3	4	5	5	2	5	2	4	5	4	5	4		1						
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5					1			
3	4	3	3	4	5	3	3	4	5	5	5	5	4						1			
4	4	4	4	4	4	5	4	5	5	5	5	5	5	5	1	1			1			
5	4	4	4	4	4	4	4	4.5	4	5	5	5	5	5				1				
4		5	5	4	4	3	4	5	5	5	3	3	5	5	1							
5	4	5	5	4	4	5	4	5	5	4	4	4	4	4		1						
5	3	5	4	5						5	5	3	5	5	1					1		
4	2	5	5	5	5	5	5	5	5	5		5		5		1						
3		4	4	4	4	3	2	4	5	4	4	1	5	3	1							
4	4	5	5	5	5	5	5	5	5	5	5	4	5	5		1						
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4							1	
5	4	5	4	5		5	5	5	5	5	5	5	5	5			1					
5	1	4	4	5	5	3	5	4	4	5	5	5	5	5				1				
5	2	5	5	5	5	4	5	5	5	5	5	5	5	5		1						
4.34	*3.58*	*4.54*	*4.34*	*4.52*	*4.56*	*4.08*	*4.21*	*4.56*	*4.58*	*4.62*	*4.63*	*4.40*	*4.60*	*4.63*	*16*	*26*	*1*	*6*	*8*	*2*	*1*	*5*

Appendix 5b
Written Responses to the Workshop Evaluation Form

Was the opening plenary session of value in setting the tone and preparing you for the rest of the workshop?
(40 yes, 2 no)

Good introduction to objectives

Well done!

Very helpful

The IODP preliminary materials, resources, and final schedule with IDOP overview was very helpful in "setting the stage" for this Educational Workshop.

It was helpful to hear and see the presentation of what I had read in the pre-workshop materials. I knew something, but not a lot, about ODP and IODP and this helped focus me.

Good to get the background and steering committee perspective.

Good overview of content and goals of IODP.

Somewhat ? but it worked well to have some flexibility for groups to form their own priorities/opinions. Excellent facilitators!! Friendly open atmosphere, which led to most people entering and contributing to discussion.

We came from such diverse backgrounds that this session was instrumental in getting us all pointed in the same direction. As a teacher, I was prepared to be a bit cowed by the scientists. But this session helped level the playing field.

Good background, setting the stage and giving clear goals and guidance.

Would have been helpful to get the IODP background reading >1 day before the meeting. There was a lot to read/digest/ponder!

It was to the point and told us what to do. The organization that was laid out made it possible to get the jobs done.

The good, clear presentations from both IODP and educators set the stage well. I think it would be helpful to coordinate the IODP program presentation(s) to make it simpler.

It would have been very helpful to have funding agency (i.e., NSF) people at the workshop - surprised that this didn't happen

It set the tone and provided an overview of why we were here and what we needed to accomplish. My only comment is that the entire session could have been shorter.

Gave background info --> the materials that were sent ahead of time was also helpful.

I hadn't had adequate time to read packet material - opening plenary did a great job providing IODP background

I thought that the presentations on the background of the program and the goals of the workshop were useful. I would have like to hear something from the NSF representative regarding their priorities for E+O and other avenues of funding.

It put all the work to be done in perspective and gave a valuable framework to work with.

I am personally familiar with ODP and had a good sense of the workshop goals from pre-workshop materials sent to me. For those individuals unfamiliar with ODP, I believe this plenary session was of value.

Partially: Seemed to repeat what was provided in the resources provided electronically before the meeting.

Perhaps clearer picture of what IODP education wants to ultimately look like - actions w/ specific targets

My first experience w/ the program, therefore very valuable.

Good intro

It helped focus everyone on the task ahead as well as provide background on groups other than our own.

Good to have existing ed programs outlined as a starting point.
Some speakers were long and said absolutely nothing of value.

Updated me on ODP + IODP.

Clearly defined goals.

Yes, but more emphasis on how US IODP is unique w/ its own set of needs and objectives. Some of the talks were by people who spoke really of ocean science ed. A more focused tone & specific to IODP might have produce a more unique product in terms of a report for *IODP* not ocean science education generally.

Was there adequate time for each activity?
(33 yes, 7 no, 1 yes/no)

Yes it's good to keep the time limited - keeps us moving.

No. A small amount of preparation time needed to be built in between breakout and plenary sessions. Second day was better. Length of plenary sessions and breakout sessions were fine.

Yes, but as a Facilitator, it was difficult to *always* stay "caught-up" with summarizing discussions for the "Report Out" sessions.

Yes. We had adequate time on Tuesday - possibly more than adequate on Wednesday, although I'm not sure we had addressed the questions as the planning committee expected.

No. More time in breakout groups.

No, but there never is enough time. The time available was well managed and alternated between groups focus versus general meeting.

There never is --> no problem.

Time is what it is. We utilized what we had. Perhaps we could have used more, but I'm sure we would have expanded our deliberations to fill whatever time was provided. The big question is, "Did we meet your expectations?"

A little rushed, but workable

I appreciate *not* being rushed.

Jobs expand to fill time.

The questions/discussion closely matched the time allotted.

I would have like more discussion about existing Ed. programs in other organizations, plus more wrap-up time.

(As would be expected) Wednesday's after-lunch breakout was short.

Sometimes, it seemed like the activities were too similar or the presentations from the 4 groups were very similar.

The breakout sessions on Tue were too long. Brainstorming needs to be built and done with at least one more break the first session.

Too much time for plenary sessions.

IO education as a clear and significant goal of the IODP

We answered our questions adequately, but with little extra wasted time.

Yes w/in constraints of 2-day workshop

We didn't do the scientist - educator partnership exercise envisioned. I think you could skip it. We seemed to run over in every group session.

These things are always rushed. It was fine... we dealt with it.

Took longer to sort out the different aspects of education components to specific audiences and sub-audiences.

There were more ideas than time, but the time schedule was definitely adequate to get the best ideas and ensure everyone stayed focused on the topics.

Yes and no. Our session needed more time to work out process and implementation of ideas. This is so important - and was left to the end w/ not enough time to articulate a good plan.

Was there any one particular recommendation that emerged from the workshop that you think is most important?
(25 yes, 2 no)

Defining goals and important concepts to be conveyed by IODP - what is unique and what audience would most benefit.

We need to establish a cooperative scientist (research)-educator network to adequately and clearly convey the unique discovery-based science furthered by IODP to K-16 and general public (WHEW!).

That this kind of work takes resources (people w/ different types of expertise, funding).

IODP needs a strong education and marketing plan to complement its research results. Funding needs to be increased for implementation of the Education recommendations.

Good website development - initially this will be a lot of work and require input from a variety of parties. When finally set-up, a mechanism for updating and keeping it "lively" is important as well as strategies for integrating into the classroom.

The creation of primary materials (not curriculum) is the key for IODP.

Educator @ Sea/Exhibits
Focus - IODP should not forget its uniqueness and concentrate on doing very well a few things rather than taking on all avenues from informal to K-16-graduate education.

Pre-service vital: Many science teachers (even those responsible for Earth Science) have inadequate (or even no) geoscience background!

Discussion of programmatic elements that would support educational research was minimal. Seemed to be a fair amount of opinion on either side of this issue. I wonder is we constrained our ideas to a limited box.

IODP needs to work to establish partnerships that allow it to leverage its resources to expand the final impact.

No. Many.

Not really. The group was very thoughtful and the participants were well-chosen.

Yes. Make data accessible.

Find dedicated *education professionals* as staff in the "JOI-like" entity and subcontract and/or write proposals to fund the activities by leveraging other programs' funding (e.g. ,NSF, EHR)

Professional development of teachers is key

Yes. The need to have potential partners, particularly those that represent diverse (new) IODP stakeholders at the table BEFORE activities/materials are developed.

Yes. 1) Focus on *resource* development - for variety of audiences. 2) Make sure "education" is percieved as *more* than K-12 = be sure undergrad/grad is included.

Yes. Getting the education funding up front in US part of IODP.

Yes. The lack of recognition by university of science prof to particpate in education outreach; the need for educators to recognize the role the scientist play (volunteer time, etc.)

Make database accessible to all audiences.

IODP is a great opportunity to teach integrated science and connect science ed. researchers and scientists.

Yes. Covered in the notes/reports adequately.

Make *data* available and *usable* by non-research scientists. IODP data, although in part available through papers is too complex and difficult to actually find.
That IODP endorse/pursue the goal to develop public understanding/awareness of scientific endeavor (and he nature of science) through the implementation of 'real' science in educational initiatives.

Spend the most time developing "high quality" meaningful vision, mission strategy and goals. The rest will fall into place as a result.

Specify objectives/goals for curriculum resources development. Focus on the quality! One thing should be done by JOI: provide an easy to access understandable possibility to obtain data and provide one example how to teach an inquiry-based lesson with that data for chemistry, physics, geography, biology. Research in Education needs to be done on how this major chance of IODP can get across to teachers and students. For this at least one of the future employees should be a researcher in science education.

1) So many people kept referring to the human element - the human role - the research - the stories - the experiences... this is sooo much what we ultimately address through geography. Humans/species adapt to the physical world—the comprehension of this realm is essential to completely understanding both concepts. 2) Consider the development of CUSC-studies using your data.

Importance of an *electronic delivery* system in delivery of IODP and outreach resources. Provide 8-10% of total funding to IODP for education and outreach efforts. Special consideration for research in learning ocean science content should be considered.

Benefits to the sustainability of health and the environment need to be defined.

Get the data on-line, in a format searchable and usable by teachers as well as scientists (via expert level) and use workshops to teach/promote it.

Syntheses of scientific results are the starting point for meeting educational objectives (Greatest Hits, etc.).

Ensure equal appreciation for science research and education among both groups and be sure IODP utilizes both groups in any planning of programs.

Hire staff you can bridge the gap between research scientists and educators.

Distinguished Educators

That IODP/JOI develop, implement, and assess w/ excellence, products and curricula, alone or in partnership, that meet the needs of each of the audiences.

The uniqueness of ODP(IODP) can give much to the educational community and can gain much from this community.

Partnering w/ various agencies/orgs, including COSEES & NOAA!

1) Materials development - the synthesis of research results (IODP scientists can do this well w/ help) into educator usable form. This is the foundation for the development of many other materials and programs. 2) Summer institutes for teachers & K-12 & undergrad/grad. Using existing programs (camps etc.) these would be so effective to implement other goals, use core repositories, recruit students, train, etc.

Lots of unknowns - espec. in regard to how CMO-USSSP successor and IODP contractor will handle ed. and outreach.

What single suggestion would you make that would have improved this workshop?

The process started somewhere in the middle. Working on the goals early on would help to inform the rest of the process.

Have professional evaluators on invite list to brief others on assessment needs/tools.

I would have liked to see what the group thought about *priorities* of the 4 sections.

I don't think it is easily done - but it would be helpful to interact with the *other* three groups - more!

That's tough. Being an IODP "novice" - more background and research info would have been helpful. There were a lot of folks who seemed to be "in the know" - I felt lost a few times.

Many groups had very ambitious ideas. A better idea of the possible size/funding would have allowed better focus.

Breakout questions can be streamlined/simplified

IODP personnel should have been better informed on recommendations from COSEE workshop. Lots of reinventing the wheel/redundance during workshop.

Bring in more real classroom teachers and even some school board/district/state-level science administrators. Pre-service.

Good point: Final vision statement focused on major education issues/question (inquiry/earning)

I felt rushed, not in terms of individual tasks but in terms of very little "down-time" to sort of digest what we had done before moving ahead to the next task.
A bit more time

I do not have one. My small comments wouldn't have made a difference - well done overall.

I think we could have included representatives from 2-year colleges and science education researchers, especially in the undergrad/graduate programs.

An icebreaker the evening before would have helped to break the ice in the AM. The morning sessions did this well, but it would have been a shorter process with an icebreaker.
Smaller breakout groups; Fewer large group presentations, more small group discussion

Nicer weather on Tuesday (just kidding). Actually, the one real suggestion would have been difficult to do, but I felt that I had inadequate background into ed. programs perhaps ed. folks had an inadequate sense of processes/funding of JOI, the RFP, NSF response.

Unfortunately, there weren't enough people in each breakout group who had experience in diversity issues. However, I realize that this is due to the fact that some of the invited professionals could not make the workshop (as opposed to oversight).

2 days, 3 nights w/ departures the morning of the 3rd day - (arrive)night-->(day)workshop-->(dinner)night-->(day)workshop-->(dinner)night-->departure ; Having 2 "immersion evenings would've been great or start at noon Day 1? and go 2.5 days?

Involve *public policy educators* (i.e., Env. Studies) not just earth scientists/educators.

Someone to present an overview of model programs. (Teacher as Researcher, Teacher Institutes, Jason Program) which are (lessons learned) related. INSTAR.

Would have been useful to have had an overview of different approaches to A+O taken by other groups concerned with geoscience education --> IRIS, RIDGE, EarthScope. Also, a presentation by the NSF representative a COSEE rep.

Have the vision and philosophy of IODP better stated. As they were, could not help us much in focusing on what was needed. We had to have our vision in mind.

Have had the first discussions about the vision and goals. This would clarify the objective and allowed activities and recommendations to flow from the visions. "Backwards Design" - where do we want to end up - then, how will we get there.

One of the 2 facilitators needs to be a person with a "research in science education" background. Teachers have a different perspective.

Perhaps a few more current classroom teachers. The classroom has changed so much in just 5 years. Only classroom teachers can tell you what it is like today and what is possible. College education profs are great - particularly with law and pedagogy - but the classroom teacher is the one that has the "power" to spark the interest of the future.

Carefully crafted questions on *future* ed + outreach and not a rehash of what has worked for participants in the past.

This was a well orchestrated workshop. A very informative and productive exchange.

None - it was well done.

Great workshop overall.

Airport - Hotel - Conf. Center too far apart. No one's fault. Unavoidable but made my travel complicated/too long.

More focus on what IODP can *realistically* do. This is a *science* program.

More time to complete the tasks assigned.

Split K-* session into K-4 + 5-8.

Warmer weather! (Just kidding!)

1) I felt there was a weak representation from the marine science informal education professional community. 2) I found it worrisome/illogical that USSAC/JOI would develop even a "strawman" org chart before determining what tasks they would take on for IODP US education.

1) More time for *implementation* of activities and ideas (development of a 'roadmap'). 2) More info from ODP/JOI folks on the uniqueness of ODP and the unique nature of its ed. programs/needs. This could make the report very strong. 3) More time for participants to speak specifically about partnerships and *how* partnerships (specific ones) will help implement the prioritized activities. This group is a great starting point to get some initial specifics in terms of how a partnership could work rather than a 'laundry list' of possible partnerships.

No rain

Did the workshop meet your expectations and goals? (41 yes, 1 no)

Excellent cross-section of stakeholders and contributors very concerned with the dissemination of IODP and ocean science knowledge.

Good work!

Based on the recommendations of the four groups, IODP should be able to implement an effective, productive education plan leveraging resources (people and money) and *not* re-inventing the wheel.

I'm not sure what my goals were now - if to learn more about IODP and discover something to use in my work - that was met partially. Meeting people involved in geosciences and oceansciences - yes.

A lot of good ideas and good energy.

Many valuable contacts made; some level for personal/professional growth, but most of these will benefit (I)ODP.

We came a long way in two days, and generally in a positive direction. We didn't score 100% on all of the goals, but what committee ever does!

Well planned and there were many opportunities to share ideas/points of view. Exceeded. I learned so much and felt I contributed.

Yes, I was hoping to see concrete recommendations on how to plan and implement education in IODP and this was not beyond my expectations.

I think that a clear voice came out - to do this right, JOI and NSF will have to make a significant investment in this area. Wonder how this can be done in the face of limited funds for science...

Beyond! Excellent job, Jill, Al, Andrea and others

Smaller discussion groups would have been nice.

Much more productive in developing a plan tailored to IODP objectives that I had thought - not just an OS education shopping list.

Provide a list of websites to look at before the meeting (EarthScope) of all of the related or model programs.

I would have like to have seen more diversity - representatives from historically black college, HACU, SACNAS, Native American institutions and professional organizations.

A very interesting debate - the participators were an incredible group of people.

Specifically I found the presence of international scientist/educators a very important part of this workshop... in the tradition of ODP.

There is much work to do but the workshop provided a great start.

I expected more "depth" concerning educational theories.

Yes.1) Materials: Consider the publication of lab manuals directed at high school students using the data, concepts, and findings - to have students work through "simulated" lab or inquiry based exercises. This is focused on ODP data with ultimate "answers" that are actual inquiry based results from real studies. These "lab" manuals are available at the college level in other sciences - why not earth/ocean science. 2) Summer teacher institutes should be desired along mentor and train the future workshop teachers. Please contact Bob Dulli @ Natl Geog Society to see how they have done the national institutes - this is what they do and it is a very strong and effective nationwide network. 3) I said this several times, but was "dismissed." I felt but the National Geography Standards and many state geog curriculums have major ocean and physical geology/earth science components. These teachers are ------ to teach this now - what they don't know the material they skip it. So when schools do not have earthscience/ marine geology and then the geog. teacher skips it - the material is not taught anywhere. You will have a much larger potential audience which ultimately reaches even more students with different approaches. It will also create more interdisciplinary development. More funding sources and best of all, better science, better geography and better students with increased interests in these related fields. 4) I see a combined effort and a broader curriculum/teacher audience will only encourage more broader curriculum/teacher audience will only encourage more students to pursue marine science as research/career options. It takes one "bad" teacher to ruin a student in all areas of natural or social science - if there is another trained course that is supporting the same studies then you can "save" those future marine scientists.

OK - meeting has provided some sounds suggestions, but ideas breaking new ground didn't seem to occur, and I thought that might occur.

Excellent

1) It provided valuable interactions with education professionals that opened up new collaborative possibilities for education programs at our institution. 2) Provided great input from science and education communities to shape this important new initiative.

Well done.

It certainly should jump-start the enterprise of disseminating DSDP/ODP & future data & implications of research to the citizenry.

Comments?

Great organization in all aspects: facilities, facilitators, participants, social... Thanks!

Would have been more convenient for hotel expenses to be covered *ahead* of time and not waiting to be reimbursed later.

1) One of the key roles of the Educational staff (however large it is) will be to find funding sources - and this takes significant time. 2) Let's get the various Educational and Outreach coordinators/ directors of related programs (IODP, Ridge2000, ---, IRIS, Earthscope) together to make sure we work in concert and not re-invent the wheel. There's not enough $$ anyway unless we coordinate efforts. Seems like we want to do the same things. Which is good! 3) I look forward to working together w/ IODP in the future! Thanks!

Reminder that a review and inventory of materials and curriculum should be done immediately to determine how IODP educational materials can be integrated and enhance what teachers are already doing - Avoid "re-inventing the wheel."

I think the success will depend on funding and *commitment* of IODP to create primary materials).

Great job! Good luck! Thank you! 1) Do not spread IODP education too thin by trying to do it all. Use your experience of becoming the flagship for lecture series which have been outstanding and have served as model for other communities to mimic. 2) Learn how to *translate the data* and *prepare it for professionals (teachers)* to use. Don't pre-work it for them. The strength of IODP is the *data* they collect.

1) Great thing as I will be teaching starting next week science teachers (towards their MA(MS) geology content - so I will infuse the SPECTACULAR results and potential of DSDP/ODP and upcoming IODP! 2) Great lobster :)

Good job all around

I met people and established connections that will last far beyond the end of the workshop. The synergy was something special.

If possible have lodging closer to meeting site - a bit more time available for personal needs during meeting. 7:30 - after 5 pm too long. Altogether very productive and enjoyable - well organized... thanks Andrea etc.

Thank you for this opportunity.

I think the travel people needed a map. Coming from Middletown, CT they wanted to have me drive to Hartford/Springfield airport, fly to Albany, NY and then to Green Airport!

Although the gender balance was not too bad - the group was not diverse. Efforts to increase diversity may be something to consider for future meetings.

JOI/IODP cannot (unless lots of $$ come forward) implement all of the great ideas. However, the program can leverage its resources through utilizing scientists and educators who have expertise/connections needed to bring about new outcomes. JOI/USSAC should also stay in touch with participants as workshop recommendations are considered.

I hope there's a followup mtg. once IODP is underway and the JOI-like office is established.

Great organization, great participants --> congenial atmosphere. Thank you.

I would be interested in working on IODP with *education* elementary, middle, and secondary majors. I do suggest involving more science education faculty. I would be interested in Ed. Research with this program.

In the near future, I think a very small focused workshop (about 15 people) who represent the E+O components of other geoscience programs/professional organizations would be useful - AGU, AGI, IRIS, MARGINS, reps from "The Revolution", RIDGE, EARTHSCOPE, DLESE, COSEE, etc. This would help initiate partnerships, identify areas of overlap and difference, and prevent "reinventing the wheel." This could e planned to coincide with an AGU meeting for example. OR, how about a special session at AGU on "Models for Geoscience/Ocean Science Education and Outreach"?

Earth system science should be imbedded in your philosophy and vision; it should be your strong and powerful message!

IODP should work to develop 'educational' partnerships with other scientific drilling programs. e.g. SHALDRIL, ANDRILL and others (I have an Antarctic bias...sorry)

1) Listen to the critical comments which came from diverse people with "research in science education" background. Earth Systems Education (global science literacy) should be the framework. 2) I am glad I was able to join the workshop. It was very interesting for me. I had a great time and met interesting people. I was excited about the final presentation of the outreach group. They worked very well. I hope we can implement international communication between students on IODP.

1) Clearly define phased priorities for education. 2) K-12 --> new! 3) Post 20 (overlap w/ existing fellowships, interns) prof roles as scientist 4) Informal - new!

Sending teachers to sea is expensive! Bigger bang for buck on regional conferences. Facilitators were awesome and contributed enormously to success of the workshop

Great job on organizing this! I don't often do education-related activities for this long.

This was terrific.

Build a culture of trust and respect among and between science educators and research scientists. This could be a model that will give IODP great credibility to a much wider audience.

Whatever educational component is put in place, make sure that the focus remains on geting IODP's message, data, findings, exposure, etc... out to educators and not have that focus redirected, diluted, or "swallowed up" by other organizations, such as COSEE. Such organizations can be learned form and used a partner, but IODP needs to retain control of their educational content, focus, and programs in order to have the greatest impact on education.

I'd be glad to participate if needed, as this unfolds. Best of luck - it's exciting...
It would have been valuable to get a ranking of importance for USSAC to focus on the 4 audience groups - because I doubt they can effectively hit all 4 groups.

1) Many of the activities could (should?) be carried out through partnerships w/ existing programs & infusing IODP into programs that currently emphasis ocean science/technology. Examples: Camp Sea lab - work w/ them to develop the summer camps, institutes of prof. development (in partnership w/ Cal. State Univ. Monterey Bay for units, etc). 2) MATE Center - to help career products, internships, etc. 3) AGU, NAGT, MB & other prof. soc. to pu ton IODP specific workshops. Leverage $, organizational effectiveness, new participants. 4) We need to keep the comments/ needs of folks expressed @ the CUSP meeting in mind. 5) Great job! Thanks all!

Please serve fruit @ breakfasts and/or lunches

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

European Consortium for Ocean Research Drilling

Enclosure 16I4

X-Sender: mcoffin@ori.u-tokyo.ac.jp@sslproxy.ori.u-tokyo.ac.jp
Date: Fri, 24 Oct 2003 14:52:06 +0900
To: John Farrell <jfarrell@joiscience.org>
From: Mike Coffin <mcoffin@ori.u-tokyo.ac.jp>
Subject: Re: Education and the IODP
Cc: Jamie Austin <jamie@utig.ig.utexas.edu>, kbecker@rsmas.miami.edu,
Ted Moore <Tedmoore@umich.edu>, Warren_Prell@brown.edu,
Hidekazu Tokuyama <tokuyama@ori.u-tokyo.ac.jp>, jeroen.kenter@falw.vu.nl,
macleod@cf.ac.uk, isasoffice@jamstec.go.jp, davies@odpemail.tamu.edu,
sbohlen@joiscience.org, npisias@joiscience.org, rburger@joiscience.org,
ajohnson@joiscience.org, mcortes@joiscience.org,
Kensaku Tamaki <tamaki@ori.u-tokyo.ac.jp>
X-Spam-Status: No, hits=-1.7 required=5.0
tests=AWL,EMAIL_ATTRIBUTION,IN_REP_TO,QUOTED_EMAIL_TEXT,
REFERENCES,REPLY_WITH_QUOTES
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear John,

Thank you for your further thoughts on the undergraduate student trainee program.

I have discussed the situation with the SPPOC chair, acting SPC vice-chair, iSAS office, and others, and perhaps the most efficient means to handle the issue would be for you or another expert on the undergraduate student trainee program to present it and its rationale to the SPPOC for consideration in December. The soon-to-be circulated first draft of the SPPOC agenda will include an 'undergraduate student trainee program' item. In the presentation, it would be helpful to include an overview of the program, how it might fit into the overall context of education associated with the IODP, and ODP statistics on the numbers of participants and which country or consortium they represented.

In this early stage of the IODP, it is not yet clear what the levels of interaction of the SAS below the SPPOC will be with IMI and the IOs, especially with respect to SPC recommendations. Decisions made at the SPPOC meeting should make the situation much clearer. Therefore, for the urgent issue below, it seems safest and most expedient for the SPPOC to deal with it directly.

Please contact me or Tamaki-san if you have any questions or comments.

Best regards,

Mike

At 8:09 -0400 10.10.03, John Farrell wrote:
>Dear Mike,
>
>Many thanks for your response. While there are many promising
>educational issues and activities to be developed for IODP, I think
>the "undergraduate student trainee program" requires prompt
>attention if this program is to begin next June, when the first
>expedition of IODP begins. If we wait until March, we won't have
>sufficient lead time to implement the program on a timely basis.
>IODP member countries will need to solicit applications from
>students, process them internally, and work with other IODP

>entities, especially the IOs, to place the students where and when
>opportunities arise. Since the first non-riser leg will begin in
>June 2004, time is of the essence. Given that there will likely be
>only one year of non-riser operations in phase one, before the
>hiatus when the non-riser refit occurs, we have a window of
>opportunity of one year, in the near term. I don't know if there
>will be opportunities for students on the Arctic MSP expedition.
>That's for the European operator to decide.
>
>Although it's not an ideal solution, I propose that given the
>circumstances (short time until operations begin, and pending
>opportunity), the SPC (or a designated subcommittee) review the
>"undergraduate student trainee program", described below, propose
>revisions to it, such that it is made consistent with the terms and
>conditions of the IODP, and then electronically seek the endorsement
>of the program from SPC (and SPPOC, in December, if necessary). My
>read of the extant program, as configured for ODP, is that with a
>few tweaks, the activity can be successfully modified to fit IODP.
>
>The "undergraduate student trainee program" has been an educational
>success story in ODP, and I think it would be beneficial to all of
>us to seize the opportunity, early in IODP, to see the program
>continued.
>
>Thanks for considering this proposal.
>
>Regards,
>
>JF
>
>
>
>
>
>At 3:57 PM +0900 10/10/03, Mike Coffin wrote:
>>Dear John,
>>
>>Thank you for the background on the ODP undergraduate student
>>trainee program.
>>
>>Although the SPC didn't have any time to devote to education issues
>>at last month's meeting, the agenda for the March 2004 meeting will
>>include education. I realize that the JOI/USSAC "U.S. IODP
>>Education Workshop" (www.joiscience.org/USSSP/Ed_Wksp/Ed_Wksp.html)
>>addressed a broad range of education issues earlier this year, and
>>with this email I encourage the JDESC and ESSAC to devote some
>>thought to the issue so that we can have an informed discussion
>>next March.
>>
>>Thanks again for highlighting the important educational components
>>of the IODP.
>>
>>Best regards,
>>
>>Mike
>>
>>At 18:25 -0400 6.10.03, John Farrell wrote:
>>>Dear Mike,
>>>
>>>I see from one of your recent messages that you're swamped. Good

>>>luck with you many responsibilities. I won't burden you further,
>>>here, but I'd like to raise an issue that SPC might want to
>>>consider at their next meeting, in March, if not sooner.
>>>
>>>The issue, a relatively small one, is the "undergraduate student
>>>trainee program" which existed under ODP, and was popular. I would
>>>hope that the SAS would consider incorporating this program in the
>>>IODP. The program is described in the "Guide to the Ocean Drilling
>>>Program."The text is reproduced below.
>>>
>>>In preparing JOI's bid to NSF to be the entity that secures the
>>>"contract" (actully a cooperative agreement) for the
>>>USSSP-successor program, we're anticipating that the undergraduate
>>>student trainee program will become a part of IODP, and as such,
>>>we're seeking support for this activity in our bid response. It's
>>>putting the cart a bit before the horse, but so be it.
>>>
>>>In ODP, undergrads participated on the JR, but in the IODP, we
>>>would hope that undergrads could participate, to some extent, on
>>>all program platforms.
>>>
>>>Thanks for considering this request.
>>>
>>>Regards,
>>>
>>>JF
>>>
>>>
>>>==
>>>[excerpt from "The Guide to the Ocean Drilling Program" 1997
>>>
>>>APPENDIX VI:
>>>Undergraduate Student Trainee Program
>>>
>>>The Ocean Drilling Undergraduate Student Trainee Program provides
>>>undergraduates with a unique educational opportunity to
>>>participate in a scientific cruise on board the research vessel
>>>JOIDES Resolution. A maximum scientific and technical crew of 50
>>>can be accommodated on the JOIDES Resolution, and the number and
>>>composition of that crew varies depending on the objectives of a
>>>particular cruise. Occasionally, berths become available for
>>>Undergraduate Student Trainees, providing them with unique
>>>opportunities for scientific growth and career development.
>>>
>>>The intent of the Undergraduate Student Trainee Program is to
>>>provide undergraduates in the Earth Sciences with exposure and
>>>training in a variety of scientific and technical activities.
>>>Specific responsibilities of the Undergraduate Student Trainee
>>>(hereafter referred to as the "Student Trainee") will be defined
>>>by a shipboard mentor, in consultation with the Co-Chief
>>>Scientists, the Lab Officer, and the Trainee. Duties will be
>>>dependent on background and experience, but can include assisting
>>>the shipboard scientists by rotating through the laboratories and
>>>helping with processing of cores and scientific analyses.
>>>Opportunities to fill available slots with Student Trainees will
>>>be available to all members of the Ocean Drilling Program.
>>>Nominations of students to participate in the Program will be
>>>requested from the ODP Member Country/Consortium Offices when such
>>>opportunities are available. Student Trainee positions will be
>>>available on an opportunity basis, and will not displace any

>>>scientific, technical or engineering positions on the drill ship
>>>required to meet the leg objectives or high priority engineering
>>>developments. The provision of students to the Undergraduate
>>>Student Trainee Program should not be viewed as mandatory, but
>>>rather as an opportunity.
>>>
>>> Science Operator's Responsibilities
>>>*   The availability of Student Trainee positions will be
>>>announced by the Science Operator in the JOIDES Journal and
>>>through ODP Member Country/Consortium Offices. The application for
>>>the Undergraduate Student Trainee Program will be available on the
>>>ODP web site, and applicants will send their completed
>>>applications to their national ODP offices.
>>>*   The Science Operator will process and evaluate only those
>>>Student Trainee Program applications that have been forwarded from
>>>the national ODP offices.
>>>*   On the basis of space availability, the Science Operator will
>>>aim to identify 3 Student Trainee positions annually.
>>>*   The Science Operator will staff these positions in
>>>consultation with the Co-Chief Scientists based on the student's
>>>skills, balanced with the requirements of the leg. Student Trainee
>>>staffing decisions are made by the Supervisor of Technical Support
>>>and approved by the Manager of the Science Services Department at
>>>ODP-TAMU. Final selection of individuals to fill these positions
>>>is the sole responsibility of the Science Operator.
>>>*   The Science Operator, in collaboration with the Co-Chief
>>>Scientists, will select a member of the shipboard scientific party
>>>to act as a mentor for the student during the cruise
>>>*   The Science Operator will assist with the students' travel
>>>arrangements. ODP can make hotel and airline reservations in the
>>>students' names, as well as assist with acquisition of visas.
>>>Student Trainees will be notified by the ODP travel office about
>>>the hotel selected for use at the port call, and they will be
>>>expected to stay at the same hotel as the scientific and technical
>>>staff.
>>>*   The Lab Officer will participate in defining the tasks to be
>>>assigned to the student in consultation with the designated
>>>shipboard mentor and the Co-Chief Scientists.
>>>*   ODP/TAMU will provide each student participating in the
>>>Undergraduate Student Trainee Program with a certificate
>>>documenting his/her participation upon completion of the ODP Leg.
>>>
>>> ODP Member's Responsibilities
>>>*   Member countries/consortia will coordinate the advertisement
>>>of Student Trainee positions, and receive all applications.
>>>*   All applications must include a letter of endorsement from
>>>the respective ODP National office, who will also be responsible
>>>for submitting applications to ODP-TAMU for consideration
>>>*   ODP member countries/consortia will provide
>>>   all travel expenses for the student. This includes flights,
>>>visas, lodging and meals in the port call both before and after
>>>the leg.
>>>*   Compensation for students participating in the
>>>   Undergraduate Student Trainee Program is the responsibility
>>>of the ODP member country/consortium. Some members may choose to
>>>compensate the Student Trainee in different ways (e.g., salary,
>>>course credits, etc.); others may choose not to compensate them at
>>>all. Under either circumstance, the availability, level, and type
>>>of compensation should be clearly communicated to the student
>>>prior to acceptance of the position. It is critical (to avoid

>>>tension and morale problems on the ship) that terms of
>>>compensation are worked out with the student prior to the cruise,
>>>and that the student is made aware that he/she will be working
>>>with paid ODP scientists and technicians.
>>>*   Each ODP member may submit applications from more than one
>>>student for consideration per leg to sail in an available Student
>>>Trainee position.
>>>*   All applications must be received at ODP-TAMU no later than 6
>>>months prior to the beginning of the requested Leg.
>>>
>>>Student Trainee's Responsibilities
>>>*   Applicants must submit a complete application form to their
>>>ODP National Offices. This must include a letter from their
>>>primary academic adviser(s) documenting the student's academic
>>>status and accomplishments.
>>>* The pre-participation medical physical examination (in
>>>accordance with ODP-TAMU pre-employment physical and reimbursement
>>>policies) must be successfully completed by the applicant and the
>>>results returned to the ODP-TAMU Personnel Supervisor by a
>>>specified date.
>>>* The Student Trainee will be expected to participate in the watch
>>>system adhered to by scientists and technicians, and to carry out
>>>the tasks assigned to him/her.
>>>*   Student Trainees are expected to be involved with the science
>>>of the leg, and are expected to attend scientific meetings as
>>>possible.
>>>* Student Trainees must provide their own steel-toed safety shoes
>>>to be available on day one of the port call.
>>>* Student Trainees are eligible to request a limited number of
>>>shipboard core samples for scientific projects with results to be
>>>included in the leg publications. The student's sample request
>>>must be supported by a letter from his/her supervisor ensuring
>>>that necessary facilities will be available to allow the student
>>>to complete the work, and meet the requirement and deadline for
>>>submission of a data report.
>>>
>>>Shipboard Mentor's Responsibilities
>>>*   The shipboard mentor will be responsible for advising
>>>   the Student Trainee during the cruise, and ensuring that the
>>>student is exposed to a variety of scientific and technical
>>>activities.
>>>* At the beginning of the cruise, the shipboard mentor will meet
>>>with the Co-Chief Scientists and Lab Officer to define the program
>>>of activities for the Student Trainee.
>>>*   During the cruise, the shipboard mentor will monitor the
>>>progress of the student and will be available at any time to
>>>assist the student with any problems. * The shipboard mentor will
>>>write a short evaluation of the student and submit it to ODP-TAMU.
>>>
>>>
>>>--
>>>--
>>>John Farrell
>>>Director, USSSP
>>>Associate Director, ODP
>>>Joint Oceanographic Institutions, Inc.
>>>1755 Mass. Ave., NW, Suite 700
>>>Washington, DC 20036-2102
>>>Vox: 202-232-3900 x211 Fax: 202-462-8754
>>>jfarrell@joiscience.org

>>>www.joiscience.org
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>>**
>>
>>Millard F. Coffin, Ph.D.
>>Professor
>>Ocean Research Institute, University of Tokyo
>>1-15-1 Minamidai, Nakano-ku
>>Tokyo 164-8639
>>Japan
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>>facsimile		+81.3.5351.6438
>>internet		mcoffin@ori.u-tokyo.ac.jp
>>WWW		http://ofgs.ori.u-tokyo.ac.jp/~ofgs/index-e.html
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>>**

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internet	mcoffin@ori.u-tokyo.ac.jp
WWW		http://ofgs.ori.u-tokyo.ac.jp/~ofgs/index-e.html

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DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 16J

From: "Batiza, Rodey" <rbatiza@nsf.gov>
To: "'jeroen.kenter@falw.vu.nl'" <jeroen.kenter@falw.vu.nl>
Cc: "Allan, James F." <jallan@nsf.gov>,
"'John Farrell'" <jfarrell@joiscience.org>
Subject: RE: AGU Town Meeting for IODP
Date: Wed, 5 Nov 2003 06:55:37 -0500
X-Mailer: Internet Mail Service (5.5.2657.72)
X-Spam-Status: No, hits=-0.7 required=5.0
tests=AWL,EMAIL_ATTRIBUTION,ORIGINAL_MESSAGE,QUOTED_EMAIL_TEXT
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear Jeroen, November 14 or 15 would be terrific. Many thnaks for getting back so quickly. I hope that the ESSAC meeting goes well. Cheers, Rodey

-----Original Message-----
From: jeroen.kenter@falw.vu.nl [mailto:jeroen.kenter@falw.vu.nl]
Sent: Wednesday, November 05, 2003 5:11 AM
To: Batiza, Rodey
Cc: mevel@ipgp.jussieu.fr
Subject: Re: AGU Town Meeting for IODP

Dear Rodey,

ECORD has already discussed the issue of representation at the AGU. Would it be ok if we decide on a speaker during the upcoming ESSAC meeting, November 14-15, or would that be too late for you?

Please, let me know what you think.

Best regards,

Jeroen

At 01:48 PM 11/4/2003 -0500, you wrote:
>Dear Jeroen and Catherine,
>
> as you probably know JOI and JAMSTEC are co-sponsoring an IODP Town
>meeting at the Fall AGU meeting in San Fransisco. The town meeting is
>scheduled for Monday, December 8, at 6-8 pm at the Argent Hotel (was the
>ANA). One possibility for speakers is:
>
> Lead Agencies (Lienen and/or Yoshida-san?)
>
> IMI (Okada-san and/or Stoffa?)
>
> USSSP/USSAC- (Batiza, NSF/ODP)
>
> Japanese Science Comm. Representative
>(speaker?)
>
> European Science Comm. Representative
>(speaker)
>
> The thought is that scientists at the international AGU meeting
>would benefit from hearing about the latest planning efforts and

>opportunities to participate in future IODP drilling activities.
>
> I am writing to ask whether you can suggest a speaker to represent
>ESSAC and the European community to discuss the latest planning activities
>in ECORD, arctic drilling, and anything else that would be of interest.
>Many thanks for your thoughts. Cheers, Rodey
>
>
>Rodey Batiza
>ODP; Ocean Sciences
>National Science Foundation
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>Arlington, VA 22230
>(703) 292-7710 (direct)
>Fax- (703) 292-9085
>rbatiza@nsf.gov
>
>
>
Dr Jeroen A.M. Kenter (present ESSAC Chairman and ECORD member on IODP SPC)
Faculty of Earth and Life Sciences
Dept. of Sedimentology
Vrije Universiteit
De Boelelaan 1085
1081 HV Amsterdam
Netherlands

Phone# (31) 20 4447360 (office)
(31) 6 20490933 (mobile)
(31) 36 5405228 (home)
Fax# (31) 20 4449941/6462457 (office)
(31) 36 5404607 (home)
E-mail kenj@geo.vu.nl (office)
New e-mail address: jeroen.kenter@falw.vu.nl (old address will be active
and forwarding mail until 2008)
URL: http://www.geo.vu.nl/users/sedimar/index.htm
http://www.geo.vu.nl/~esco/

Out of office:

I ususally check e-mail when travelling, if urgent, contact me on my mobile
phone.

Home address:
Damveld 6
1359 HE Almere-Haven
Netherlands

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 17D1

Date: Thu, 6 Nov 2003 11:05:33 +0100
To: pezard@dstu.univ-montp2.fr, emarnold@geo.su.se, fatima.abrantes@igm.pt,
arny@raunvis.hi.is, br@isor.is, herzig@mailtuba.tu-freiberg.de,
herzig@mineral.tu-freiberg.de, Benoit.Ildefonse@dstu.univ-montp2.fr,
gcamoin@arbois.cerege.fr, gilbert_camoin@yahoo.fr,
Annakaisa.Korja@seismo.helsinki.fi, kari.strand@oulu.fi,
helmut.weissert@erdw.ethz.ch, judy.mckenzie@erdw.ethz.ch,
MacLeod@cardiff.ac.uk, fhilgen@geo.uu.nl, jeroen.kenter@falw.vu.nl,
diazdelrio@ma.ieo.es, mcomas@ugr.es, sacchi@gms01.geomare.na.cnr.it,
acamerlenghi@ogs.trieste.it, Anders.Solheim@ngi.no,
rolf.pedersen@geol.uib.no, nm@geus.dk, aku@geus.dk, bil@geus.dk,
larsenhc@dlc.ku.dk, SCHORNO@nwo.nl, mevel@ipgp.jussieu.fr
From: Hans Christian Larsen <larsenhc@dlc.ku.dk>
Subject: IMPORTANT ODP/IODP questionnaire
Cc: shumphris@whoi.edu
X-Security: MIME headers sanitized on sheba
See http://www.wolfenet.com/~jhardin/procmail-security.html
for details. $Revision: 1.104 $Date: 2000-05-10 08:51:15-07
X-Spam-Status: No, hits=1.4 required=5.0
tests=HTML_20_30,HTML_FONT_COLOR_RED,HTML_MESSAGE
version=2.55
X-Spam-Level: *
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear all:

About two weeks ago, I reminded you about the importance of getting much increased input to the ongoing ODP review. Susan Humprhis has not exactly been swamped by responses: By November 1st, one more response was received by her. You can and you should do better than that!

Please, get it done by the end of this week and get it to Susan. We can still make use of the responses. Given the time there has been to contemplate on the questions, I am sure they will be very thoughtful!

Hope to see many of you at AGU IODP Town meeting, Monday Dec. 8th.

Thanks,

Hans Christian
****

Mail of 21/10:

Dear ECORD/IODP colleague:
Earlier this year I asked several of you to help with generating input from Europe to the ongoing PEC VI committee reviewing the ODP, its legacy and how to secure this best in the future and within the IODP. More specifically, I requested feed back on a a questionaire developed by PEC VI. During our recent committee meeting in College Station, it was realised that we had receieved good feed back from US and Japan, but only a couple of responses from Europe. Please, help rectifying this situation. Respond yourself and please, request some experienced ODP members from your national community to

repsond as well. If you have problems with some of the questions, an incomplete response is much better than no response. Also, keep in mind that the number (and quality) of responses not only helps PEC VI in their work, it is also a signal about European commitment to ODP/IODP. **Based on recent openings from the IODP lead agencies to welcome Europe as a significant partner, this is one of several opportunities to prove we are right when we claim Europe is important for the new program**

So please, take 15 minutes now and mail your response directly to the PEC chair Dr. Susan Humphris, WHOI (shumphris @whoi.edu)!

We need responses well ahead of our final meeting at JOI, November 13-14. Responses afetr November 1st will be less useful.

Looking forward to work with all of you in the future!

Many thanks

Hans Christian

PEC VI member

Questionnaire atached.

--

Geocenter Copenhagen
*** DANISH LITHOSPHERE CENTRE (DLC) ***

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1350 Copenhagen K
Denmark E-mail: larsenhc@dlc.ku.dk
http://www.dlc.ku.dk/

Attachment Converted: "F:\eudora\attach\ODP=PECVI-questionnaire2.doc"

Date: Fri, 25 Jul 2003 17:04:49 +0200
To: pezard@dstu.univ-montp2.fr, macleod@cf.ac.uk, kenj@geo.vu.nl,
herzig@mineral.tu-freiberg.de
From: Hans Christian Larsen <larsenhc@dlc.ku.dk>
Subject: Performance evaluation of ODP
Cc: shumphris@whoi.edu, Helmut.Beiersdorf@t-online.de
X-Security: MIME headers sanitized on sheba
See http://www.wolfenet.com/~jhardin/procmail-security.html
for details. $Revision: 1.104 $Date: 2000-05-10 08:51:15-07
X-Spam-Status: No, hits=0.5 required=5.0

tests=PRIORITY_NO_NAME
version=2.55
X-Spam-Level:
X-Spam-Checker-Version: SpamAssassin 2.55 (1.174.2.19-2003-05-19-exp)

Dear Chris, Jeroen, Peter and Phillipe:

I am writing you to get your help securing input to the ongoing performance evaluation of the ODP. I am, together with Helmut Beiersdorf, the european representatives in the PEC VI committe charged with reviewing the ODP and how to secure the legacy of ODP in the best possible way. PEC VI, chaired by Sue Humphris, WHOI, has decided to ask the ODP community a number of questions about certain aspects of the program. I enclose a questionnaire serving this purpose. Some of you may already got it directly from Susan, and may have responded to it as well. And EXCOM members where recently targeted at the Bermuda meeting.

Anyhow, what I like you to do, is to mail it around to a number of your active ODP scientists in each of your countries and make sure that we are getting a significant population of responses from Europe to this questionnaire. Please, target all panel members, sea-going scientists etc. We should get at least 10 responses from each of the 4 European membership countries/consortia.

It would be best if repsonses are mailed directly to Sue Humprhris with a copy to you (i.e., German scientists copy to Peter etc.). By this we can follow the process without delaying it. Responses are welcome, the sooner the better, but will considered until early September. We meet by late September to discuss these and many other documents, interview ODP-TAMU etc. In November we interview JOI in Washington and report in early December.

Thanks for you help and enjoy the summer,

Hans Christian

****

Questionnaire on ODP/IODP Structure and Legacy

Please respond to: Dr. Susan Humphris (shumphris@whoi.edu)

Dear Colleague:

We are the Performance Evaluation Committee (PEC VI) that is reviewing the legacy of ODP. One of our tasks is assessing "the effectiveness of the JOI program management and the JOIDES scientific advice structure...to determine whether these are the most appropriate models for the IODP, and if not, suggest changes." To refresh your memory, we have attached to this email a PDF file that contains the diagrams of the JOIDES panel structure and the proposed IODP panel structure.

We are writing to solicit your help in assessing the overall management of the Ocean Drilling Program (ODP), and to brainstorm on potential improvements for the new Integrated Ocean Drilling Program (IODP) which begins on October 1 of this year. There are several issues where you can help us get an accurate picture of the community's thoughts if you would kindly answer any or all of the following questions.

A. The ODP Management Structure

1. From your experiences with ODP, what has worked, and what has not worked, in the ODP scientific advisory panel structure? Please indicate the types of involvement you have had with ODP (e.g. panel member, PI on proposal, shipboard scientist).

2. The proposed scientific advisory structure for the IODP is modeled from the existing ODP/JOIDES structure. Is this an appropriate model or do you see a need for alternatives or major modifications in the structure and its procedures?

3. Do you think the IODP structure will improve communication and effectiveness? Why or why not?

4. How have you experienced the overall management of the ODP; i.e., the role of JOI in overseeing the main contractors and supporting the advisory structure? Are there changes you would like to see in the management of IODP?

B. Program Services

5. Are there activities within ODP (for example, relating to provision of shipboard technical staff, curation, data management, shipboard lab facilities, shipboard scientific party makeup, engineering services, logging services) that need to be changed in the more complex, multi-ship IODP, and how would you change them to make them more effective?

6. Has the new publication strategy (i.e. the current abbreviated Initial Reports (IR) and Scientific Results (SR), with most post-cruise publications ideally being published in the outside literature) resulted in increased, decreased, or has it not affected, the visibility and output of the program?

7. Do you believe that the new publication strategy has increased, decreased, or has it not affected, the flow of information and data from the program to the larger earth sciences community?

8. Are there any changes in the publication strategy that you would like to see?

C. International Partnerships and Participation

9. Do you think there has been good coordination and communication among the international partners (e.g., funding agencies, national research structures and research groups within the community) in ODP? Do you have suggestions for improvements?

10. Have you been satisfied with your interactions with ODP? What changes would you recommend to improve interactions between IODP and (i) individuals, and (ii) member nations?

D. The ODP Legacy

11. How is the legacy of the ODP (samples, data, scientific results) best secured? Are there specific areas that you are concerned about and feel require particular attention?

Of course, we welcome any and all comments you may have on other subject matters as well.

Please respond to Dr. Susan Humphris (shumphris@whoi.edu), Chair of the Sixth Performance Evaluation Committee (PEC VI, membership listed below), and note that your individual responses will be held in confidence.

We thank you in advance,

Performance Evaluation Committee VI (PEC VI)

Susan Humphris, Chair, Woods Hole Oceanographic Institution, USA, shumphris@whoi.edu

Jamie Austin, University of Texas, Austin, USA, jamie@utig.ig.utexas.edu

Helmut Beiersdorf, BGR, Hannover, Germany, beiersdorf@bgr.de

Hans Christian Larsen, Danish Lithosphere Centre, Copenhagen, Denmark, larsenhc@dlc.ku.dk

Art Maxwell, University of Texas, Austin, USA, art@utig.ig.utexas.edu

Rick Murray, Boston University, USA, rickm@bu.edu

Kensaku Tamaki, University of Tokyo, Japan, tamaki@ori.u-tokyo.ac.jp
Attachment Converted: "c:\program files\eudora light 3.0.6.32\attach\ODP=PECVI-questionnaire.doc"
--

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DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 17D2

Delivered-To: john.ludden@cnrs-dir.fr
X-Sender: cneal@pop.nd.edu
Date: Mon, 20 Oct 2003 17:30:35 -0500
To: dfeary@nas.edu, Neville.Exon@agso.gov.au, pobrien@agso.gov.au,
r.binns@syd.dem.csiro.au, Bob.Carter@jcu.edu.au, bornhold@pgc.emr.ca,
dmosher@nrcan.gc.ca, davis@pgc-gsc.nrcan.gc.ca, matts@agc.bio.ns.ca,
larsenhc@dlc.ku.dk, jcsibuet@ifremer.fr, ludden@crpg.cnrs-nancy.fr,
beslier@obs-vlfr.fr, huchon@obs-vlfr.fr, fouquet@ifremer.fr,
bjoergen@mpi-bremen.de, gbohrmann@geomar.de, gwefer@uni-bremen.de,
vill@uni-bremen.de, j.erbacher@bgr.de, RGersonde@AWI-Bremerhaven.de,
rtiedemann@geomar.de, acamerlenghi@ogs.trieste.it,
domenico@epidote.dmp.unipd.it, micro@imiucca.csi.unimi.it,
mikada@jamstec.go.jp, ataira@ori.u-tokyo.ac.jp,
gaku@geol.s.u-tokyo.ac.jp, Itaru.Koizumi@S1.hines.hokudai.ac.jp,
kasa2@eri.u-tokyo.ac.jp, suyehiro@jamstec.go.jp,
mshino@eri.u-tokyo.ac.jp, ryo@geol.s.u-tokyo.ac.jp,
kanazawa@eri.u-tokyo.ac.jp, Rolf.Pedersen@geol.uib.no,
pxwang@online.sh.cn, paull@email.unc.edu, flavio@erdw.ethz.ch,
kroo@geo.vu.nl, adam@esc.cam.ac.uk, dat@soc.soton.ac.uk,
kroo@geo.vu.nl, mccave@esc.cam.ac.uk, Godfrey.Fitton@ed.ac.uk,
Paul.A.Wilson@soc.soton.ac.uk, pfbarker@tiscali.co.uk,
bob.whitmarsh@soc.soton.ac.uk, dchristie@coas.oregonstate.edu,
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hine@seas.marine.usf.edu, aisern@nas.edu, fisher@emerald.ucsc.edu,
trehu@coas.oregonstate.edu, btucholke@whoi.edu,
btaylor@jacqueswhitford.com
From: "Clive R. Neal" <Neal.1@nd.edu>
Subject: On-site chemical analyses & IODP
Cc: kikawa@jamstec.go.jp, rickm@bu.edu, urumu@ep.sci.hokudai.ac.jp
X-ND-MTA-Date: Mon, 20 Oct 2003 17:30:16 -0500 (EST)
X-ND-Virus-Scan: engine v4.2.40; dat v4298

[Apologies if you receive duplicate copies of this e-mail].
The Chemistry Working Group of the Scientific Measurement Panel (SciMP) of the Integrated Ocean Drilling Program (IODP) is requesting input from the community regarding the types of geochemical analyses to be conducted "on-site" during IODP expeditions. The term "on-site" reflects analyses performed during the drilling phase of any IODP expedition (analogous to the shipboard analyses of the Ocean Drilling Program) and is inclusive of riser and non-riser platforms as well as Mission Specific Platforms (MSPs). We recognize that analyses performed during drilling with a MSP may not be as extensive as with shipboard drilling.
Therefore, we ask that you complete a short (11 question) questionnaire (in italics below), the purpose of which is to ensure that the correct analyses are performed on all IODP platforms, data quality is high, and safety is not compromised. Please respond to Clive Neal (neal.1@nd.edu), on behalf of the Chemistry Working Group of SciMP. This email is being sent to as many chemists and petrologists that we can track down who have sailed with the ODP, as well as to the participants of the "Geochemical Opportunities for Post-2003 Drilling" workshop held a few years ago.

We value your opinion very much and urge you to reply to these questions and to provide any other comments you wish. Please, please, answer-this is your chance to help influence the new program as it gets off the ground.

Please note that your individual responses will be held in confidence to the Chemistry Working Group only - the feedback we are soliciting is for our committee's purposes only.

Please note that your individual responses will be held in confidence to the Chemistry Working Group only - the feedback we are soliciting is for our committee's purposes only.

Many thanks for your time.

Clive Neal
Urumu Tsunogai
Rick Murray

For ocean drilling, what material(s) and analyses do you feel are important? (check all that apply)

Materials

- Hard rock
- Soft Rock
- Metamorphic
- Water
- Gas
- Extracts

Analyses

- Organic
- Inorganic
- Major
- Trace
- Isotopic
- Petrographic

Please specify the types of analyses not included above that you would like to see performed on-site in order to fully characterize materials that are important to your research.

What types of analyses do you consider are necessary to influence drilling strategy?

In your opinion, what types of analyses are required to ensure safe drilling and core handling?

What other "on-site" analyses would be critical during the drilling phase?

How could "on-site" geochemical analyses be improved upon what was carried out during ODP?

Would you consider using data gathered "on-site" in scientific publications?

If you answered "no" to the question above, what would it take for the "on-site" data to be considered usable by you in scientific publications?

For porewater chemistry, it has been suggested that in addition to the squeezing apparatus there be centrifuging capabilities on-board as well. Some microbiologists have suggested that this may be a preferred porewater extraction technique for soupy unlithified sediments. Do you have any thoughts on this?

There is a possibility of adding quadrupole ICP-MS , with or without a laser-ablation capabilities to the riser and non-riser drill ships. Do you have any strong feelings on this new capability?

Do you have any other thoughts/comments/suggestions?

--

Clive R. Neal
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Dept. Civil Eng. & Geological Sciences
156 Fitzpatrick Hall
University of Notre Dame
Notre Dame, IN 46556
USA
Tel: (574) 631-8328; FAX (574) 631-9236
E-mail: neal.1@nd.edu
http://www.nd.edu/~cneal
http://www.nd.edu/~icpmslab
http://www.nd.edu/~envgeo

DRAFT AGENDA OF THE 1ST ESSAC MEETING IN AMSTERDAM, 14-15 NOVEMBER 2003

ECORD
European Consortium for Ocean Research Drilling

Enclosure 21

List of relevant upcoming meetings (Encl. 21)

2003

SSEPs #1 20-23 November 2003 Boulder, CO, USA

SPPOC #1 5-6 December 2003 San Francisco, CA, USA

ECORD Council, 15-16 December, Paris (with optional ECORD MoU signing ceremony)

PPSP #1 15-17 December 2003 Nagasaki, Japan

SciMP #1 15-18 December 2003 Nagasaki, Japan

SPC #1 15-19 September, 2003 Sapporo, Japan

ODP/IODP Exhibit at the Geological Society of America Meeting 2-5 November 2003, Seattle, WA

ODP/IODP Exhibit at the American Geophysical Union Meeting 3-8 December 2003, San Francisco, CA

Post-2003 Scientific Ocean Drilling Town Meeting 12/8/03 Tentative San Francisco, CA

2004

USSAC 21-23 January 2004, To be announced

ECORD Council, 16 March, Bremen, Germany

SPC/OPCOM/PANCH meeting, 22-26 March in Washington DC, USA

European Ocean-Drilling Community Meeting, 17-19 March 2004, Bremen University, Germany

ESSAC, March-April, To be announced (Bremen as well?)

IODP support Workshop in Greece, Date?