8th Meeting of the ECORD Science Support & Advisory Committee (ESSAC)

11th – 12th May 2007
The Blue Lagoon, Svartsengi, Iceland

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AGENDA

Friday 11th May 2007 **09:30 – 17:30**
Saturday 12th May 2007 **09:00 – 13:00**

1. Introduction

1.1	Welcome and logistics	(MacLeod)
1.2	Discussion and approval of the Agenda	(MacLeod)
1.3	Approval of the 6th ESSAC Meeting minutes	(MacLeod)
1.4	Approval of the 7th ESSAC Meeting minutes	(MacLeod)
1.5	Matters arising from 7th ESSAC Meeting	(MacLeod)
1.6	ESSAC Office news	(MacLeod)
1.7	Principal goals of the meeting	(MacLeod)

2. IODP News

2.1	IODP-MI Management Forum	(Mével)
2.2	Operator news: MSPs (ECORD)	(McInroy)
2.3	Chikyu (Japan) & SODV (USA) Operator news, and IODP Science Advisory Structure panel reports	(Camoin)
2.4	PMO report	(Camoin)
2.5	National Office reports	(ESSAC Delegates)

3. ECORD News

3.1	EMA Report	(Mével)
3.2	ECORD and the European Science Foundation	(MacLeod)
3.3	ECORD Mid-Term Review	(MacLeod)

4. Expedition reports

4.1	Tahiti Sea Level Expedition 310	(Camoin)

5. Workshops

5.1	Campi Flegrei workshop	(Sacchi)
5.2	SealAIX'06	(Camoin)
5.3	Past Workshop reports	(MacLeod)
5.4	Forthcoming workshops	(MacLeod/Erbacher)

6. Staffing

6.1	Nomination for new SAS panel members	(MacLeod)
6.2	Report of staffing of Expedition 313	(McInroy)
6.3	Report on staffing applications for NanTroSEIZE	(MacLeod)
6.4	Report on staffing applications for Equatorial Pacific	(MacLeod)
6.5	Report on upcoming Bering Sea expedition	(MacLeod)

7. Education and Outreach

7.1	ECORD Newsletters #8 (April 2007) & #9 (Oct 2007)	(Mével)
7.2	GIFT/ECORD Teachers' workshop EGU Vienna 2007	(Arnold)
7.3	ECORD Distinguished Lecturer Programme	(MacLeod)
7.4	ECORD Summer Schools	(MacLeod)

8. Next meeting

8.1	ESSAC #9, October 2007	(Camoin)

9. Any Other Business (MacLeod)

List of Appendices

A1.1	ESSAC delegates and alternates
A1.3	Minutes of the 6th ESSAC meeting Cardiff (May 2006) revised
A1.4	Minutes of the 7th ESSAC meeting Naples, November 2006
A1.5	AGI publications report, 2006
A1.6a	ESSAC Science coordinator advertisement, and ESSAC Terms of Reference
A2.1	IODP-MI Management Forum report
A2.3	SAS panel reports
A2.4	Programme Member Office meeting report
A3.2	EuroMARC Management Committee Meeting report: funding summary
A3.3	ECORD Mid-Term Review report
A5.1	Campi Flegrei workshop report title page
A5.2	SealAIX'06 workshop flyer + report
A5.3	Recent IODP-MI and Magellan workshop reports
A5.4	Forthcoming IODP-MI workshops
A6.1a	Current ECORD SAS panel members, and CV of proposed SAS panel replacement
A6.3	Prioritisation of ECORD applicants for NanTroSEIZE expeditions
A6.4	Prioritisation of ECORD applicants for Equatorial Pacific expeditions
A7.1	ECORD Newsletter #8
A7.2	Programme and attendees, ECORD teachers' workshop, EGU Vienna, April 2007
A7.3	ECORD Distinguished Lecturer Programme advertisement
A7.4	ECORD Summer School advertisements, and lists of ECORD Scholarship applications and successful candidates

List of Participants

ESSAC Office

Chris MacLeod (Chair)	Chair, and ESSAC delegate, UK
Elspeth Urquhart	ESSAC Science Coordinator

ESSAC Representatives

Fatima Abrantes	ESSAC delegate Portugal
Eve Arnold	ESSAC delegate Sweden
Bryndís Brandsdóttir (Meeting Host)	ESSAC delegate Iceland
Henk Brinkhuis	ESSAC delegate Netherlands
Hans Brumsack	ESSAC delegate Germany
Gilbert Camoin (Vice-Chair)	ESSAC delegate France
Menchu Comas	ESSAC delegate Spain
Paul Martin Holm	ESSAC delegate Denmark
Nalân Koç	ESSAC alternate Norway
Brian McConnell	ESSAC delegate Ireland
Judith McKenzie	ESSAC delegate Switzerland
Werner Piller	ESSAC delegate Austria
Marco Sacchi	ESSAC delegate Italy
Kari Strand	ESSAC delegate Finland
Ulrich Wortmann	ESSAC representative Canada

Observers/Guests

Chris Franklin	ECORD Council
Gudrun Helgadóttir	ESSAC alternate Iceland
Lucas Lourens	ESSAC alternate Netherlands
Dave McInroy	ESO (BGS)
Catherine Mével	EMA
Raymond Schorno	ECORD Council
Stefan Winkler-Nees	ECORD Council

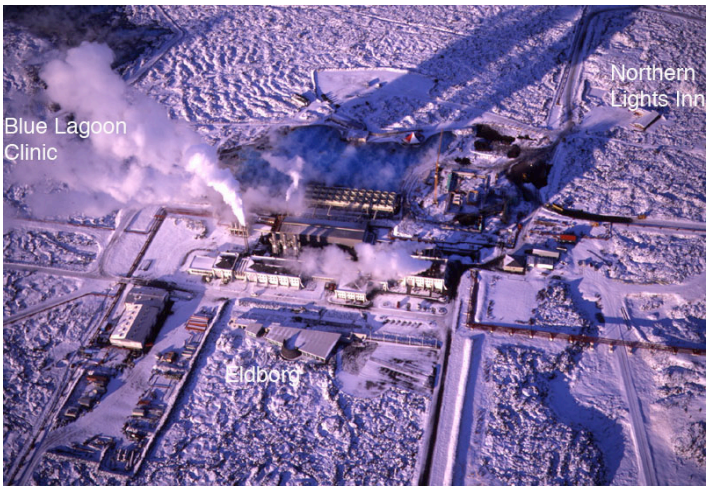
Apologies

Dan Evans	ESO (BGS)
Kathryn Gillis	ESSAC delegate Canada
Patricia Maruéjol	EMA
Rolf Pedersen	ESSAC delegate Norway
Rudy Swennen	ESSAC delegate Belgium

1. Introduction

1.1 Welcome and logistics

The 8th ESSAC meeting will be held at the Eldborg conference centre at the Svartsengi geothermal power plant, north of Grindavik, and location of the famous Blue Lagoon. Accommodation is at either the adjacent Northern Light Inn, or the Blue Lagoon clinic spa complex.



The meeting will run from 09:30 to 17:30 on Friday 11th May 2007, and 09:00 to 13:00 on Saturday 12th May. Coffee and lunches will be provided.

After the meeting closes on Saturday 12th May Bryndís Brandsdóttir will lead a field trip to the Reykjanes peninsula for interested parties,. A bus will leave from the Northern Light Inn at approximately 13:00, and a picnic lunch will be provided. The trip will end up at a restaurant either in Thingvellir or Reykjavik in the early evening. Bryndís has kindly offered to meet the costs of the bus and picnic lunch.

1.2 Discussion and approval of the Agenda

A draft Agenda was circulated to all participants in advance of the meeting. A few changes have been made to this draft since that time. The Committee are asked for any further comments and to approve the revised Agenda.

1.3 Approval of the 6th ESSAC Meeting minutes

At the 7th ESSAC meeting in Naples there was some dispute about the veracity of a few of the items of dialogue reported in the minutes of the 6th ESSAC meeting (May 2006, Cardiff). Because notes from the Cardiff meeting were not available in Naples these matters, although minor, could not be resolved at the time. The 6th ESSAC meeting minutes were not, therefore, formally approved in Naples. Some minor amendments have now been made, to the satisfaction of all parties, and the amended minutes are included in Appendix 1.3. Formal approval from the ESSAC committee is now sought.

1.4 Approval of the 7th ESSAC Meeting minutes

The minutes of the 7th ESSAC meeting, held in Naples on 2nd–3rd November 2006, are included in Appendix 1.4. They were circulated to delegates before this meeting. No changes have yet been made to this version. The Committee are asked for any comments and corrections.

1.5 Matters arising from 7th ESSAC Meeting

1.3 Action Item: *Minutes of 6th ESSAC Meeting will be amended by taking into consideration points to be submitted by Brinkhuis. The revised minutes will then be circulated for approval.*

DONE (Appendix 1.3; awaiting delegates' approval)

1.4 Action Item: *ESSAC to send personalised letters to SAS panel alternates.* ***IN PROGRESS***

1.4 Action Item: *Reports of the ship schedule will be circulated to ESSAC delegates.*

NOT DONE (not available because of uncertainties during last few months; but now see Agenda item 2)

1.4 Action Item: *Delegates to make nominations for EDP 'small country' member.* ***DONE***

3.1 Action Item: *ESSAC to provide MEP with more information.* ***DONE***

3.2 Action item: *ESSAC to seek further contact with EuroMARC to improve communications.*

ATTEMPTED… (see Agenda item 3.3)

4.1 Action Item: *ESSAC Chair to ask ECORD Council for money for co-chief participation in ESSAC meetings and, additionally, for funds to support ESSAC meetings in general.* ***DONE***

5. Action Item: *ESSAC Chair to ask ECORD Council for money to support 'over-quota' ECORD scientists at IODP-MI workshops*. ***DONE***

5.3 Action Item: *ESSAC liaison to Magellan Steering Committee to request that they include named topics in the forthcoming call for proposals, and look favourably on workshop proposals on the subjects of the themes endorsed by SPC.* ***DONE/IN PROGRESS (see Agenda items 3.3 & 5)***

N.B. The specific topics identified by ESSAC members as potential Magellan workshops were in fact listed in the Edinburgh ESSAC meeting Minutes (meeting #5, November 2005). Note that some of these have since been held, variously under IODP-MI or Magellan banners. The topics originally proposed by ESSAC were:

1. Continent-ocean interactions
2. Evaporites and salt tectonics
3. Arctic studies
4. Continental Breakup
5. Extreme Climates
6. Costa Rica Seismogenic Zone

6.1 Action Item: *MacLeod asked the delegates to return all nominations for the EDP and STP panels together with the agreements of the nominees to the ESSAC Office by Monday 13th November 2006. This allows time to circulate the information to all ESSAC delegates and provide them the opportunity to vote on their preferred nominees before submitting the names to the ECORD Council for approval on November 27th 2006.* ***DONE***

6.3 Action Item: *ESSAC will draft a comprehensive letter to the operators to accompany the NanTroSEIZE applications which explains the grouping procedure and also asks about undergraduate training possibilities.*

DONE

7.3 Action Item: *ESSAC delegates should send nominations for the Distinguished Lecturer Programme, together with evidence of the nominee's agreement, to the ESSAC Office no later than Monday 13th November 2006. Voting will be organised as necessary.* ***DONE (see Agenda item 7.3)***

7.6 Action item: *ESSAC Office to get TAMU to provide an extract of ECORD publications during their annual extraction exercise from the AGI/GeoRef database in February 2007.* ***DONE/IN PROGRESS (see Appendix 1.5)***

9. Action item: *MacLeod to raise the issue of rotation schedules of panel members with ECORD Council.* ***DONE***

1.6 ESSAC Office news

The ESSAC Office will relocate from Cardiff to Aix-en-Provence on 1st October 2007, at which time Gilbert Camoin will take over as ESSAC Chair. Preparations for the handover are being made already. An advertisement for the ESSAC Science Coordinator position, deadline 1st July 2007, is currently being publicised (see Appendix 1.6a).

Chris MacLeod will remain on ESSAC as out-going Vice-Chair for a year, and a new incoming Vice-Chair must be appointed by 2008. The appointment must be approved by ECORD Council (see ESSAC Terms of Reference, Appendix 1.6b), and we have received guidance already from them.

1.7 Principal goals of the meeting

Unlike the previous ESSAC meeting in Naples, we do not have a significant staffing exercise to go through, although the NanTroSEIZE and Equatorial Pacific staffing needs to be reviewed. The most significant item to be dealt with at the present meeting is undoubtedly the ECORD Mid-Term Review. ESSAC has been mandated to provide a written response to the Review with regard to its assessment of ESSAC. Under these circumstances, and considering the broader state of the situation in IODP as a whole, it is probably the right time for ESSAC (as a body) and ESSAC delegates (in their role as national representatives) to carry out a broader strategic re-examination of its/their own role within ECORD and IODP. The timing is also appropriate given the pending relocation of the ESSAC Office and rotation of the Chair. Significant input from delegates will be required for these tasks.

2. IODP News

2.1 IODP-MI Management Forum

The IODP Management Forum is a Task Force to the President of IODP-MI, Manik Talwani. It has representation from the Operators, Program Management Offices (PMOs), the SASEC and SPC chairs, and senior managers in IODP-MI. Representatives of the funding agencies may attend meetings as observers. Its purpose is to provide advice to IODP-MI from the stakeholders in IODP. By itself it has no implementing authority, but Management Forum recommendations may get fed into the IODP annual program plan and discussed at IODP-MI Board of Governor level.

The latest Management Forum meeting was held in Nikko, Japan, on 28th-29th March 2007. ECORD representation and input was through Dan Evans (ESO) and, as observer, Catherine Mével (EMA). Unfortunately neither Chris MacLeod (ESSAC Chair) or Gilbert Camoin (Vice-Chair) were able to attend the meeting on behalf of ESSAC (as ECORD PMO representative) and no replacement could be found.

The report of the meeting has been made available, and is reproduced in Appendix 2.1.

Catherine Mével will present a summary of the meeting and its conclusions.

2.2 Operator news: MSPs (ECORD)

A report on Mission-Specific Platform operations and plans will be given by Dave McInroy (BGS) on behalf of the ECORD Science Operator (ESO).

2.3 *Chikyu* (Japan) and SODV (USA) Operator news, and IODP Science Advisory Structure panel reports

CDEX:
The objectives of the Shimokita shakedown cruise of the *Chikyu* (August-October 2006) were to confirm the capability of riser drilling in 1000m water depth, to perform a system integration test (SIT), and to train and familiarize the crew with the systems and equipment. Those objectives were completed successfully, except for some damage to the lower marine riser package (LMRP) during a second emergency disconnect (EDS), which was necessitated when a low pressure weather system resulted in high (>10m) seas. 28 advisors from IODP member countries participated in the shakedown cruise.

The *Chikyu* was then tested during a couple of oversea drilling SITs (ODS): offshore Kenya, where current speeds were high; and off Western Australia, where the objective was to drill a deviated hole.

Concerning the preparation of the NanTroSEIZE expeditions, the stage 1 co-chiefs have been selected, the Scientific Prospectus (SP) had been sent to Texas A&M University (TAMU) for publication, and invitations had been issued for eight stage 2 co-chiefs.

U.S. Implementing Organization (USIO):
The original plan to stretch the *JOIDES Resolution* (JR) could not be implemented with the fixed budget of $115M given recent significant increases in costs. The refit within the existing hull will include :

- Life extension (additional berths min 128)
- Increased accommodation
- New increased science capability (new science lab)
- Enhanced passive heave compensation
- New decks in hold for recreation/storage/offices

The refit will lead to an increase of 27% in deck space on the *U.S. Scientific Ocean Drilling Vessel* (SODV) compared to the *JOIDES Resolution* (JR). The shipyard contract was signed on 9th April 2007. The drillship will be available to the program on 1st January 2008.

The new budget constraints imply that the USIO would have to work with the Operations Task Force (OTF) and Science Planning Committee (SPC) to schedule "simple" expeditions. There will be also increased operational risks because the ship will not be able to carry as many supplies as in the past. For the long term, the USIO will need to work closely with the SAS to evaluate the services offered versus the science that can be delivered, and with the other IOs and the IODP-MI to eliminate duplication of efforts. There will be a need to identify alternative sources of funding and "off-contract" work. The amount of time needing to be spent on off-contract work is unknown at the moment.

IODP Science Advisory panel reports – 9th SPC meeting, 4th-7th March, 2007, Osaka, Japan
Proposal ranking:
15 of the 18 proposals reviewed at the 9th SPC meeting were ranked. The three exceptions were: 555-Full3 (Cretan Margin - proponents' request to allow them to fully analyse recently acquired site survey data and refine site characterisation), 667-Full (NW Australian Shelf Eustasy – completion of proponents' ongoing analysis of industry seismic data to fully characterise drilling sites), and 535-Add2 (Atlantis Bank – too significant an expansion of the scope of Proposal 535-Full5 and changes in scientific objectives).

The SPC forwarded the top twelve of the fifteen ranked proposals in two groups to the Operations Task Force (OTF), for developing schedule options for FY2009 and beyond.

Group I included the top-nine-ranked proposals:

1- 505-Full5 Mariana Convergent Margin
2- 659-Full Newfoundland Rifted Margin
3- 633-Full2 Costa Rica Mud Mounds
4- 552-Full3 Bengal Fan
5- 644-Full2 Mediterranean Outflow
6- 654-Full2 Shatsky Rise Origin
7- 537B-Full4 Costa Rica Seismogenesis Project Phase B
8- 522-Full5 Superfast Spreading Crust
9- 661-Full2 Newfoundland Sediment Drifts

Group II included the next three proposals (tenth through twelfth-ranked).

10- 548-Full2 Chicxulub K-T Impact Crater
11- 612-Full3 Geodynamo
12- 581-Full2 Late Pleistocene Coralgal Banks

If not included in the FY2009-2010 schedules, Group II proposals will be re-reviewed and re-ranked at the next SPC ranking meeting. At its August 2007 meeting, SPC intends to review and prioritise among all the unscheduled Group I proposals remaining at OTF from this and all prior SPC rankings, with input from the OTF as to technical, logistical, and financial feasibility. At that review, the SPC may elect to return any of those proposals to the pool for review and re-ranking at its next ranking meeting.

The three last ranked proposals were not forwarded to the Operations Task Force (OTF) : 618-Full3 East Asia Margin, 584-Full2 TAG II Hydrothermal, and 547-Full4 Oceanic Subsurface Biosphere (OSB).

Clarify status of proposals remaining at OTF:
a. Adjusted FY08 and FY09 schedules:
The SPC approved the update on minor schedule adjustments reported by the OTF for FY2008 *Chikyu* NanTroSEIZE operations and FY2008-2009 Mission Specific Platform (MSP) operations at Great Barrier Reef, and confirmed that these are fully consistent with the August SPC consensus statements approving those programs for the FY2008-2009 schedules.

The SPC accepted the adjustments recommended by the OTF to the FY2008-2009 U.S. Scientific Ocean Drilling Vessel (SODV) science operations schedule in response to National Science Foundation (NSF) budgetary guidance for FY2008 and other logistical factors. After a 1 January 2008 start date to international operations and a short transit, the approved schedule would include the following sequence:

- NanTroSEIZE Stage 1 coring (Proposals 603A-Full2, 603C-Full; subduction inputs and site NT3-01)
- Equatorial Pacific Paleogene Transect I (Proposal 626-Full2)
- Equatorial Pacific Paleogene Transect II, ending with remedial cementing of two Juan de Fuca CORKs installed on Expedition 301
- Bering Sea Pliocene/Pleistocene Paleoceanography (Proposal 477-Full4)
- Spanning the FY transition, a transit to the Southern Oceans with undetermined potential for brief additional science operations
- Canterbury Basin Sea Level (Proposal 600-Full)
- Wilkes Land Paleoceanography (Proposals 478-Full3, 638-APL2)

This adjusted schedule is as close as possible to the previously approved FY2008-2009 schedule given the budgetary and logistical constraints, except that it does not include an initial NanTroSEIZE observatory and the observatory-intensive second Juan de Fuca IODP expedition. Nevertheless, it still presents a strong mix of societally-relevant, highly-rated seismogenic zone, palaeoclimate, and sea level objectives, early enough in Phase II that the results can be expected to have a significant positive impact on renewal of IODP post-2013.

In the event that the NSF, IODP-MI, and USIO cannot identify the resources to achieve the full sequence of FY2008 SODV operations above, the SPC recognizes that the fourth FY2008 expedition (Bering Sea paleoceanography) would need to be deferred, and that a completely different model for FY2009 SODV operations would need to be developed at the June 2007 OTF and August 2007 SPC meetings.

b. Proposals scheduled or recommended for FY2007-2009
Deferred until the August 2007 SPC meeting when all proposals remaining with the OTF will be re-evaluated**.**

c. Proposals available for future consideration by OTF
Deferred until the August 2007 SPC meeting when all proposals remaining with the OTF will be re-evaluated.

2.4 PMO report

A meeting of the Program Management Offices (ESSAC, USAC, J-DESC and Korean national office members) was held on 8th March 2007 in Osaka, Japan, immediately after the Science Planning Committee meeting. Because Chris MacLeod was at sea (UK-funded IODP site survey cruise to the Mid-Atlantic Ridge at 13°N), Gilbert Camoin and Elspeth Urquhart attended on behalf of ESSAC.

Gilbert Camoin will present a report of the meeting.

2.5 National Office reports

At the 7th ESSAC meeting in Naples Menchu Comas suggested that time be set aside at future meetings for the ESSAC delegates to discuss general ESSAC matters in an informal – and unminuted – manner. It was agreed that it would be useful to be able to share experiences of, for example, how best to get information effectively to countries' scientific communities, or of difficulties encountered, and so on. We will try to schedule such a session at an appropriate period at some point during current meeting.

3. ECORD News

3.1 EMA Report

The ECORD Council has met twice since the last ESSAC meeting:
- 27th-28th November 2006, in Bonn
- 27th February 2007, in Brussels ("extraordinary meeting")

For the period 1st April 2007 – 30th September 2007, the ECORD Council Chair will be Raymond Schorno, and vice-chairs Bruno Goffé and Sören Dürr.

John Ludden has been appointed as an ECORD Governor to replace Jörn Thiede, rotating off in June 2007.

ESSAC budget
At its November 2006 meeting, the council approved the budget presented by Chris MacLeod and Chris Franklin (NERC):

General office costs: £131,500 = €193,382
Additional costs:
- €5000 to provide support for ECORD scientists to participate in IODP-MI workshops,
(provided that they have approached their national funding agencies first)
- €18,000 to support the Distinguished Lecture Programme in 2007
- €7500 to support the summer school at Urbino, in summer 2007
- €7500 to support the summer school at the core reporsitory in Bremen, August 2007
- €10,000 to support 10 scholarships annually at a cost of €1000 each

total = €48,000

ESSAC FY07 total budget = €241,382
€63,235 to be supported by NERC as the host country (salary for the teaching assistant)
€178,147 to be supported by ECORD co-mingled funds

ECORD funding situation
For FY07, the ECORD Council approved the POC (platform operating cost) budget increase requested by ESO for the New Jersey Shallow Shelf expedition. An MoU has been signed between ECORD and ICDP, which will participate financially at a level of $500K.

FOR FY08 and beyond, the funding situation is still unclear. ECORD member countries need to increase their financial participation by 60%, to accommodate the increase in the participation unit from $3.5M to $5.6M. Most ECORD countries have not yet made the decision.
An ECORD delegation will meet with the Lead Agencies in Washington DC on 15th May 2007 to discuss the IODP funding situation as a whole.

Funding strategies within FP7
ECORD representatives have met key individual at the European Commission to discuss funding opportunities. ECORDnet ends in November 2007. We will request a six month extension, but this will not provide additional money. Following these discussions, ECORD is planning to submit an "ERAnet+" proposal. This scheme requires us to pool funds to issue calls and the EC may add up to 30% of the pot. To be able to submit such a proposal, it must be included in the work program for 2008. All ECORD members are seeking political support at the national level to make sure it happens.

The Deep Sea Frontier initiative
Following the workshop in Naples, June 2006, a "foresight paper" is now finalized and about to be published by the EC. This intiative resulted in a call for a "coordination action" in the FP7 work program for 2007. Phil Weaver (NOC) has coordinated the proposal, submitted on 2nd May 2007. If it is funded, it will provide a maxiumum of €1.2M over 3 years, esentially to organise workshops to prepare a major proposal during the second half of FP7 (beyond 2010). ECORD is not involved as an organisation, but drilling is an essential tool for all the science which will be discussed. Therefore, ECORD scientists will be involved in the workshops to prepare the future plans.

ECORD review
The ECORD Mid-Term Review report is now finalised and printed (see item 3.3 and Appendix 3.3). The general outcome is very positive. However a few issues have been identified by the review committee. The council is willing to consider these recommendations very seriously. It has mandated a sub-group composed of S. Dürr, R. Schorno, C. Franklin, C. Mével, D. Evans and C. MacLeod to prepare a written response.

ECORD response to the Green paper published by the EC
"Towards a future maritime policy for the Union: a European vision for the oceans and seas"
The Green Paper, prepared by the EC, is now published and all relevant bodies are asked for comments. The Marine Board has initiated a process to coordinate a response to the Green Paper. ECORD has offered to be involved. A long document has been already prepared by the Marine Board, and a short version will be circulated for comments. The council feels it is important to take advantage of this opportunity. The council has tasked a sub-group to prepare a written answer to the Green Paper. The Green paper will be launched at the Eurocean 2007 meeting on 22nd June 2007 in Aberdeen. It will be important for ECORD to be represented.

Aurora Borealis
The Council supports the *Aurora Borealis* project in principle. It is now on the ESFRI list. But there is no financial commitment at this stage, and the ECORD Council is no in the position to make any commitment anyway. The Council considers that *Aurora Borealis* could potentially be used by ESO to drill in the polar regions. As a result, ECORD will be involved in a "coordination action" proposal submitted by the Polar Board to the EC this May.

Outreach activities
The ECORD Newsletter #8 is published (see item 7.1 and Appendix 7.1).

EMA organised the IODP booth at EGU, in coordination with IODP-MI. The joint IODP-ICDP Townhall meeting on April 17th gathered about 150 people.

EMA plans to publish a "glossy brochure" to advertise the accomplishments of ECORD within IODP. We will need ESSAC input for this task.

3.2 ECORD and the European Science Foundation

Dealings with the European Science Foundation (ESF) have been the bane of ECORD and ESSAC's collective lives (and probably vice versa) since the Magellan (workshop) and EuroMARC (collaborative site survey) schemes were instigated in about 2004/2005. Communication and information flow has proved extremely difficult for a number of reasons, and the original intention that ESSAC would provide strategic guidance and input into these programmes has never really materialised. To attempt to put this right, ECORD and ESF signed a memorandum of understanding in September 2006 with the aim of promoting better communications between ESSAC and the Magellan and EuroMARC programmes. It was agreed that formal two-way liaisons be established between ESSAC and the Magellan Steering Committee, and ESSAC and the EuroMARC Scientific Committee.

Magellan
Some liaison, in effect, had always been present on the Magellan Steering Committee, in that eight members of the latter (Abrantes, Arnold, Camoin, Holm, McKenzie, Pedersen, Piller, Strand) were also ESSAC delegates. Nevertheless, a specialist liaison from the Steering Committee, Teresa Bingham-Müller, was invited to attend the ESSAC#7 meeting in Naples in November 2006, and Chris MacLeod (ESSAC Chair) to the January 2007 Magellan Steering Committee meeting in Zürich. Unfortunately, and coincidentally, neither was able to attend their respective meetings in person because of illness. However, Bingham-Müller contributed a report to the ESSAC meeting (see Appendix 1.4) and MacLeod was given the opportunity – and was able – to give an opinion on behalf of ESSAC on the proposals that were being evaluated at the Zürich meeting. Jochen Erbacher has now taken over as Magellan liaison for the current ESSAC meeting in Iceland, and is here in person. All in all, therefore, there has been a substantial improvement in the links between ECORD and ESF with regard to the Magellan workshop programme, to the benefit of all parties.

Current and future workshop plans within the Magellan programme will be discussed under agenda item 5.4.

EuroMARC
Attempts at establishing linkages between ECORD and EuroMARC have proved markedly less successful than with the Magellan programme, the memorandum of understanding notwithstanding. Despite repeated requests by both the ESSAC Chair and ECORD Council to Bernard Avril, coordinator of the EuroMARC programme, ESSAC were not kept informed about EuroMARC activities and were denied the opportunity to attend meetings of either the EuroMARC Review Panel or the EuroMARC Management Committee. ESSAC were therefore unable to offer any strategic input to decisions concerning the pan-European funding of IODP site surveys. Indeed, ESSAC are still unaware even of the constitution of the EuroMARC panels. The only information we have received has come from Rachael James, a

member of the EuroMARC Review Panel and (coincidentally) UK ESSAC alternate member. In a personal capacity she kindly sent us this brief report of the outcomes of the EuroMARC call for proposals:

"EuroMARC (Challenges of Marine Coring Research) is part of the EUROCORES (ESF Collaborative Research) Scheme and is designed to enable European scientists to collaborate on international coring expeditions. A call for Outline Proposals was issued in early 2006; approximately 25 were received and, following review by the EuroMARC Review Panel, 14 of these were invited to submit full proposals. These proposals went to external review, and were the ranked in terms of their scientific excellence by the EuroMARC Review Panel in November 2006.

Shortly after this meeting, representatives from each of the Funding Agencies met in order to communicate whether or not they would contribute to the highest ranked proposals. A report from the UK NERC representative who attended this meeting is included" (reproduced in Appendix 3.2, which shows the funding apportioned to each of the top-rated proposals).

It is unfortunate that Rachael was unable to attend the current ESSAC meeting and explain more of the proposal review and national-level funding process to the Committee. As to the future, it is unclear as to whether another EuroMARC call for proposals will ever be issued, and therefore whether any further effort need be expended in attempting to foster links in the future.

3.3 ECORD Mid-Term Review

Many ECORD countries are currently reviewing and reassessing their contributions to IODP. To assist member organisations in this process, ECORD Council decided to commission an external review of the entire ECORD structure to evaluate, for the consortium members, the benefits of participation in IODP. The Evaluation Committee, chaired by Prof. Peter Styles, first met in June 2006. It conducted visits to the ESSAC Office in Cardiff, as well as ESO, EMA etc. The final report of this ECORD Mid-Term Review was presented to ECORD Council in November 2006 and published in January 2007. It is reproduced in Appendix 3.3.

The report contains a SWOT (Strengths–Weaknesses–Opportunities–Threats) analysis of ESSAC, and makes a number of recommendations. ECORD Council have mandated the ESSAC committee to review these recommendations (see below), and asked the ESSAC Chair to report on our response at the forthcoming (7^{th}-8^{th} June 2007) ECORD Council meeting. In addition, they have requested that the ESSAC Chair form part of a response committee that will write a formal written response to the Mid-Term Review. It is for this reason that several ECORD Council members are attending this ESSAC meeting as observers.

ACTION CHAIR: To mandate ESSAC to discuss the recommendations of the ECORD review committee on ESSAC, and to respond at the next Council meeting in June.

ACTION CHAIR: To organise a written response to the ECORD review report. The response committee will consist of S. Dürr, R. Schorno, C. Franklin, C. Mével, D. Evans, C. MacLeod. The response committee will attend the ESSAC meeting in Iceland, 11^{th}-12^{th} May 2007.*

**This committee is likely now to include S. Winkler-Nees in place of S. Dürr, and G. Camoin in addition.*

As regards ESSAC, the ECORD Mid-Term Review focuses more on the functioning of the ESSAC Office than it does on the performance of the ESSAC committee. The review committee did not have enough time to, for example, evaluate how well ESSAC as a committee fulfils the tasks laid out in its Terms of Reference (Appendix 1.6).

In light of the above, and with the forthcoming relocation of the ESSAC Office and rotation of the Chair, we suggest here that now might be an appropriate time to conduct, or start to conduct, a critical self-evaluation of ESSAC. This should be over and above the external assessment of the Mid-Term Review, and (at least at this stage) be for our own internal consumption only. What do we do well and (in particular) what do we do less well? Topics might include (but not be restricted to) for example: staffing; education & outreach; efficiency of communication to our scientific communities; (two-way) information flow on a more general level; ESSAC's ability to contribute strategic advice to ECORD and/or IODP; ESSAC/ESO interactions, etc. The eventual aim of this exercise is to try to improve the effectiveness of ESSAC and, by so doing, increase the effectiveness of ECORD's participation in IODP as a whole. Input from the delegates as to how we conduct this internal review, and how we report it, is welcomed. This review – which must be separate from our response to the ECORD Mid-Term Review report – may be completed this meeting, or (more likely) be the start of an on-going process that involves continued input afterwards.

4. Expedition reports

4.1 Tahiti Sea Level Expedition 310

At the 7th ESSAC meeting in Naples delegates requested that co-chief or senior ECORD scientists from recent IODP expeditions be invited to make presentations to ESSAC, following the requirement laid out in the Terms of Reference (Appendix 1.6). The ESSAC Chair was mandated to request funds for this from ECORD Council and he did so, successfully, as part of a funding package that also included support for ESSAC meeting costs. These had previously had to be borne by the meeting host and attendees.

Because there have been no recent IODP expeditions since the end of 2005, the end of phase 1 of IODP, the decision was taken not to invite any external co-chief scientists to the 8th ESSAC meeting. Once IODP operations have resumed, later this year, the plan to invite external speakers will be implemented (probably for the May 2008 meeting). However, because Gilbert Camoin, who was co-chief of Expedition 310, will be present at the present meeting anyway, he will give a presentation on the operations and scientific results of IODP Expedition 310, Tahiti Sea Level. Because this was a Mission-Specific Platform (MSP) operation, and because the Great Barrier Reef follow-up MSP expedition is now being planned by ESO, it is appropriate for ESSAC to review how Expedition 310 was implemented. The lack of a formal link between ESO and ESSAC was identified in the ECORD Mid-Term Review as a possible weakness in the current ECORD structure, and ESSAC should explore whether closer ties between the two organisations would have aided Expedition 310 in any way, and hence expeditions in the future.

5. Workshops

5.1 Campi Flegrei workshop

This workshop, entitled "Drilling through an active caldera, offshore Campi Flegrei, Eastern Tyrrhenian Margin' was organised by Marco Sacchi, and held in Naples on 13th-15th November 2006. It was funded via the ESF Magellan programme and ICDP. The written report of this workshop is posted on the ESSAC web site; the title page is reproduced in Appendix 5.1. Marco will present an oral report on the results of the workshop.

5.2 SealAIX'06

This workshop, entitled "Sea level changes: records, processes, and modelling" was organised by Gilbert Camoin, and was held in Aix-en-Provence on 25th-29th September 2006. The conference flyer is reproduced in Appendix 5.2. Gilbert will give a short oral report on the results of the workshop.

5.3 Past Workshop reports

Following the policy agreed at the last ESSAC meeting (see Appendix 1.4), the ESSAC Office is endeavouring to keep track of all IODP-related workshops via the ESSAC web site. Although we do not yet have final reports from a number of the recent workshops, we have links to the source web sites in each case, and are updating the ESSAC site regularly.

In Appendix 5.3 we include short reports from the following workshops:

- *Climate–Tectonic Drilling in the Asian Marginal Seas* [Kochi, June 2006]
- *Mission Moho* [Portland, Sept. 2006; IODP-MI]
- *Investigating Continental Break-Up and Sedimentary Basin Formation* [Pontresina, Sept. 2006; IODP-MI]
- *Scientific Drilling of the Chicxulub Impact Crater* [Potsdam, Sept. 2006; IODP-MI]
- *Assessment of Geo-Hazards from Submarine Slides* [Barcelona, Oct. 2006; ESF Magellan]
- *Capturing a Salt Giant* [Hamburg, Oct. 2006; ESF Magellan]

We thank Heather Stewart, the UKIODP Science Coordinator, for permission to reproduce the Climate–Tectonic Drilling, Continental Break-Up and Chicxulub reports from the UKIODP Newsletter. Note that reports of the Climate–Tectonic Drilling and Submarine Slides workshops are also included in ECORD Newsletter #8 in Appendix

7.1. No report is yet available for the IODP-MI sponsored workshop "Exploring Subseafloor Life with the Integrated Ocean Drilling Program" [Vancouver, Oct. 2006].

5.4 Forthcoming workshops

IODP-MI sponsored workshops
Preparations are well advanced for the following workshops (see Appendix 5.4):

- *Large Igneous Provinces* [Coleraine, 21st-26th July 2007]
- *Addressing Geological Hazards Through Ocean Drilling* [Portland, 26th-30th August 2007]

The ESSAC Office have been negotiating closely with IODP-MI workshop organiser Kelly Kryc to coordinate invitations and funding of ECORD scientists at these workshops. IODP-MI will only fund a certain number of ECORD scientists using co-mingled funds but, following our successful request to ECORD Council for a budget to support the participation of over-quota ECORD scientists (see minutes of the 7th ESSAC meeting: Appendix 1.4, and agenda item 3.1), ESSAC now have a budget (€10,000) to support some ECORD scientists directly. The ESSAC Office propose to use half of this money to fund three scientists (at least) at the Large Igneous Provinces workshop, and the rest to support a (currently unknown number) at the Geological Hazards workshop. Organisation of this latter workshop is ongoing.

For the Large Igneous Provinces workshop, the ESSAC Office has been working closely with Kelly Kryc, the ECORD national offices from the UK, France and Germany, and with Jochen Erbacher on behalf of the Magellan programme, to maximise the number of ECORD scientists we can support. The workshop organisers wished to invite 17 ECORD scientists (in addition to the 6 ECORD-based workshop committee members), and we are hoping that all can be funded by one or other of the above sources. The Magellan Steering Committee are thanked for offering to support some scientists (for both of these IODP-MI workshops) through their Short-Visit Grant scheme; likewise the UK, France and Germany national offices for offering to support some of their scientists.

IODP-MI Topical Symposium
SASEC has instigated the above scheme as a new annual activity, to be supported by IODP-MI. The inaugural Topical Symposium will be entitled "North Atlantic and Arctic climate variability", organised by Gerold Wefer, and will be held in Bremen from 15th-16th August 2007. Details are given on the ESSAC web site. In addition to the symposium itself, a long-term review of IODP expeditions within the context of the Environmental Change theme of the IODP Initial Science Plan will be conducted. The ECORD-sponsored summer school "Palaeoceanography" will be held in Bremen at the same time (13th-24th August 2007; see agenda item 7.4). SASEC plan the 2008 Topical Symposium to be on the subject of the ocean crust, but little detailed planning has yet been carried out.

ESF-Magellan sponsored workshops
Jochen Erbacher will present a summary of the outcome of the January 2007 Magellan Steering Committee meeting, and introduce the successful workshop proposals. Forthcoming Magellan-sponsored workshops are:

- *Exploring Mud Mound Systems and Mud Volcanoes* [Rome, 10th-13th May 2007; convenor: Silvia Spezzaferri]
- *Marine Impacts and Environmental Consequences* [Oslo, 10th-13th September 2007; convenor: Henning Dypvik]
- *Southern African Climates (SAFARI)* [Kiel, 19th-21st September 2007; convenor: Ian Hall]

Other workshops
JOI/USSSP are convening a workshop entitled "Drilling to Decipher Long-Term Sea-Level Changes and Effects", to be held in Salt Lake City from 8th-10th October 2007. More information is available on workshop web site: http://www.usssp-iodp.org/Science_Support/Workshops/sealevel.html

Future workshop plans

SASEC have invited full proposals for workshops on the topics "Extreme Climates and abrupt climate change during the Cretaceous and Paleogene" and "High- to ultra-high resolution sedimentary records", for potential funding by IODP-MI for 2008.

No public call for workshop proposals has been issued by the ESF Magellan programme. A 15th May 2007 deadline had been expected. ESSAC had requested that this call should include some of the named topics it had identified previously at its Edinburgh meeting (see Appendix 1.4).

6. Staffing

6.1 Nomination for new SAS panel members

A list of current ECORD Science Advisory Structure panel members is included in Appendix 6.1. According to IODP-MI Sapporo office's schedule, replacements are now needed for the following positions:

Science Steering & Evaluation Panel (SSEP): A German replacement is needed for Rüdiger Stein (first meeting to be November 2007). IODP Germany nominate Dr. Kai-Uwe Hinrichs, from Bremen University. His CV is included in Appendix 6.1.

Site Survey Panel (SSP): A British replacement is needed for Roger Searle (first meeting to be February 2008). Advice as to the area of expertise required by the panel was sought from Roger Searle (former Chair) and the current chair, Dale Sawyer. UK IODP nominate Dr. Neil Mitchell, from the University of Manchester.

Scientific Technology Panel (STP): A French replacement is needed for Christophe Basile (first meeting to be January 2008). Advice as to the area of expertise required by the panel has been sought from the STP Chair, Mike Lovell.

In each of the above cases the outgoing delegate was from one of the three large ECORD nations. Because the replacement should normally come from that same country, the request for nominations went straight to the ESSAC delegate/national office of that country. ESSAC have always previously abided by the national nominations in such cases, although they are reviewed by the Committee. Nominations are forwarded from ESSAC for formal approval by ECORD Council. The CVs of the nominees are included in Appendix 6.1.

6.2 Report of staffing of Expedition 313

A report on the staffing plan for the New Jersey MSP Expedition 313 will be presented by Dave McInroy.

6.3 Report on staffing applications for NanTroSEIZE

Staffing for what was originally five expeditions (2 on the SODV, 3 on *Chikyu*) had been fairly well advanced, and some invitations issued, before the decision was made to merge the two SODV expeditions into one. Those initially invited on the SODV expeditions therefore had to have their invitations rescinded, which was unfortunate. A new list of invitations is being prepared by the USIO, and these are promised in time for the meeting. A provisional list of the ECORD invitees for the two *Chikyu* expeditions is also expected. A summary list of the original 84 applicants, together with the star rating given these applicants by ESSAC at the Naples meeting, is given in Appendix 6.3.

6.4 Report on staffing applications for Equatorial Pacific

Staffing for the two Equatorial Pacific expeditions is also in progress, and once again the USIO has promised to provide their initial suggested invitations for the Committee to consider at the meeting. The prioritised list of ECORD applicants is given in Appendix 6.4. This prioritisation was arrived at after e-mail consultation following the last ESSAC meeting.

6.5 Report on upcoming Bering Sea expedition

The USIO originally announced an 8th May 2007 deadline for applications for the Bering Sea expedition, and 15th June 2007 as the date by which they had to have received the prioritised list of applications from ESSAC. Because of the continued uncertainty and eventual revision to the ship schedule, the call for applications was postponed by the USIO. Dates for the next call have not yet been issued.

7. Education and Outreach

7.1 ECORD Newsletters #8 (April 2007) & #9 (Oct 2007)

ECORD Newsletter #8 was published in April 2007, just in time for the European Geosciences Union (EGU) meeting in Vienna. It is reproduced in Appendix 7.1. Patricia Maruéjol reminds the Committee that the next issue is due in October 2007.

7.2 GIFT/ECORD Teachers' workshop EGU Vienna 2007

Eve Arnold reports that ECORD sponsored a 1-day teachers' workshop "Exploring the ocean floor with the Integrated Ocean Drilling Program" during the 2007 EGU meeting in Vienna. Seventy teachers from 22 different countries registered for the ECORD workshop, which was organised in partnership with the annual EGU Geophysical Information For Teachers (GIFT) symposium. The GIFT theme for 2007 "Geoscience in the City", focused on natural hazards, and the following ECORD IODP workshop continued on that theme by presenting current ocean drilling scientific results and future science plans concerning sea level change, slope stability, earthquakes, volcanoes and life in extreme environments in addition to presenting the IODP drilling fleet. The teachers also received an ECORD "goodie bag" including posters and CDs for use in their classrooms as well as IODP literature for future reference. ECORD would like to thank all of the speakers and teachers for their contributions to the workshop as well as the EMA office and JAMSTEC for providing material for the teachers. The complete IODP EGU workshop volume can be downloaded at: www.ecord.org/edu/education.html. A summary of the programme and attendees is given in Appendix 7.2.

7.3 ECORD Distinguished Lecturer Programme

In response to our request to establish an ECORD Distinguished Lecturer Programme (DLP), ECORD Council has given us €18,000 to establish a programme in 2007. Support for subsequent years is likely to be forthcoming if the initial year's programme is successful. ECORD Council agreed with our suggestion of appointing three Distinguished Lecturers, one for each of the themes of the IODP Initial Science Plan. It was agreed that we should broadly follow the system adopted by the US in the USSSP Distinguished Lecturer Series. Nominations should be solicited for lecturers, and once chosen their names should be publicised, and institutions invited to host the lectures. Each lecturer would be expected to give about six lectures, more if they are willing and funds permit. It was agreed that European institutions outside of the ECORD consortium would be encouraged to apply to host lectures. The ESSAC Office will pay the travel expenses of the lecturers.

At the Naples meeting and shortly afterwards, the ESSAC committee were asked to suggest names for possible Distinguished Lecturers for the inaugural 2007 programme. The ESSAC Office also circulated an advertisement widely around the ECORD scientific community. Ten nominations were received. After a call for volunteers to review the nominations, a sub-committee of ESSAC (MacLeod, Camoin & Brinkhuis) was established. In early December 2006 they chose the following candidates as the Distinguished Lecturers for 2007:

Deep biosphere and sub-seafloor ocean – Judy McKenzie (Zürich)
Environmental change, processes and effects – Paul Wilson (Southampton)
Solid Earth cycles and geodynamics – Benoît Ildefonse (Montpellier)

The ESSAC Office then advertised the DLP via our normal channels (see Appendix 7.3).

Benoît Ildefonse gave the inaugural ECORD DLP lecture to the Canadian IODP workshop in Montréal in February 2007 (see article in the ECORD Newsletter in Appendix 7.1).

Uptake of the scheme by institutions has so far been quite slow, though it is now starting to pick up. Assistance in further publicising the scheme by ESSAC delegates would be welcomed. Rather than restricting the lectures to the calendar year 2007, it will probably be more sensible to continue with the current lecturers until Easter 2008.

7.4 ECORD Summer Schools

At the 7th ESSAC meeting in Naples the Committee discussed at length plans for organising summer schools for young scientists on the themes of the IODP Initial Science Plan. ESSAC eventually mandated the ESSAC Chair to request that ECORD Council provide funding to support the Urbino Summer School in Palaeoclimatology (USSP) entitled "Past global change reconstruction and modelling techniques", organised by Henk Brinkhuis and Simone Galeotti.

Following the indication by ECORD Council (in June 2006) that they might be prepared to invest up to €75K per year to support educational activities in the broad sense (i.e. including a DLP, workshop participant support etc.), we requested capital support for the USSP of €15K per year for the next three years, and suggested that a number (10-25?) of outstanding young scientists be awarded scholarships to support their own participation costs at the summer school.

The request met a mixed response from ECORD Council at their November 2006 meeting. At their June 2006 meeting they had suggested we think about organising a summer school at the Bremen core repository, in which cores could be described and scanned by the summer school participants as if they were on a 'virtual ship', replicating much of the work done on board *JOIDES Resolution*. ESSAC had considered this idea but felt that it overlapped too closely with the existing and very successful Urbino school, and didn't therefore pursue it further. At that stage there were no volunteers prepared to organise such a school.

At the November 2006 ECORD Council meeting, Gerold Wefer, attending as a SASEC liaison, informed them of the IODP-MI Topical Symposium (see item 5.4) that is to be held in Bremen in August 2007. He offered to have his people at the core repository organise a 'virtual ship' type summer school in association with the Topical Symposium, very much as Council had originally envisaged. As a result, ECORD Council therefore rejected ESSAC's initial proposal that they fund the USSP in the manner proposed. It was clear that they preferred to support an entirely new summer school rather than part-fund an existing one.

However, after extensive discussion, ECORD Council did agree a compromise, and have funded a package of summer school activities as follows:

€7500 capital support for the USSP *for one year only*
€7500 capital support for the Bremen summer school
10 x €1000 Scholarships for outstanding young scientists, to subsidise their attendance at either one or both of the Urbino and Bremen summer schools.

These would be administered by the ESSAC Office. The ECORD Scholarship scheme would also be open to European scientists from non-ECORD countries.

Council agreed that ESSAC should publicise a call for proposals for summer schools for 2008, and that the ESSAC Chair should present a proposal for such a school at the June 2007 ECORD Council meeting. They also urged us to encourage proposals for summer schools on topics other than just the Environmental Change theme of the IODP Initial Science Plan. It is planned that the award of the ten ECORD Scholarships be a recurrent scheme, to allow students to attend whichever summer schools receive ECORD approval each summer.

The ECORD Scholarship scheme was advertised widely. Forty-eight applications plus letters of recommendation were received by the 25th February 2007 deadline (Appendix 7.4). A sub-committee of ESSAC (Camoin, Swennen, McKenzie, Urquhart) selected the best ten. They are listed in Appendix 7.4, and in the ECORD#8 Newsletter (Appendix 7.1). Subsequently, some of the national offices have decided to fund additional members from their countries out of the remaining thirty-eight applicants.

8. Next meeting

8.1 ESSAC #9, October 2007

9. Any Other Business

Appendix 1.1: ESSAC delegates and alternates

Country	Delegate	Alternate
Austria	Werner Piller *werner.piller@uni-graz.at*	Michael Wagreich *michael.wagreich@univie.ac.at*
Belgium	Rudy Swennen *rudy.swennen@geo.kuleuven.ac.be*	pending
Canada	Kathryn Gillis *kgillis@uvic.ca*	Dominique Weis *dweis@eos.ubc.ca*
Denmark	Paul Martin Holm *paulmh@geol.ku.dk*	Paul Knutz *knutz@geol.ku.dk*
Finland	Kari Strand *kari.strand@oulu.fi*	Annakaisa Korja *annakaisa.korja@seismo.helsinki.fi*
France (Vice-Chair)	Gilbert Camoin *gcamoin@arbois.cerege.fr*	Benoit Ildefonse *benoit.ildefonse@dstu.univ-montp2.fr*
Germany	Hans Brumsack *brumsack@icbm.de*	Jochen Erbacher *jochen.erbacher@bgr.de*
Iceland	Bryndís Brandsdóttir *bryndis@raunvis.hi.is*	Gudrun Helgadóttir *gudrun@hafro.is*
Ireland	Brian McConnell *brian.mcconnell@gsi.ie*	David Hardy *david.hardy@gsi.ie*
Italy	Marco Sacchi *marco.sacchi@iamc.cnr.it*	Elisabetta Erba *elisabetta.erba@unimi.it*
Netherlands	Henk Brinkhuis *h.brinkhuis@bio.uu.nl*	Lucas Lourens *lourens@geo.uu.nl*
Norway	Rolf Pedersen *rolf.pedersen@geo.uib.no*	Nalân Koç *nalan.koc@npolar.no*
Portugal	Fatima Abrantes *fabrantes@pro.softhome.net*	Luis Filipe Menezes *lmp@geo.ua.pt*
Spain	Menchu Comas *mcomas@ugr.es*	Victor Diaz del Rio *diazdelrio@ma.ieo.es*
Sweden	Eve Arnold *emarnold@geo.su.se*	pending
Switzerland	Judith McKenzie *judy.mckenzie@erdw.ethz.ch*	Helmut Weissert *helmut.weissert@erdw.ethz.ch*
United Kingdom (Chair)	Chris MacLeod *macleod@cardiff.ac.uk*	Rachael James *r.h.james@open.ac.uk*

Appendix 1.3: Amended minutes of 6th ESSAC Meeting

6th ESSAC Meeting

5th – 6th May 2006
National Museum of Wales, Cardiff

List of Participants

ESSAC Office

Chris MacLeod	ESSAC chair
Julian Pearce	ESSAC acting chair
Federica Lenci	ESSAC Science Coordinator

ESSAC Representatives

Fatima Abrantes	ESSAC delegate Portugal
Eve Arnold	ESSAC delegate Sweden
Henk Brinkhuis	ESSAC delegate Netherlands
Gilbert Camoin	ESSAC delegate France/ESSAC vice-chair
Menchu Comas	ESSAC delegate Spain
Michael Enachescu	ESSAC acting alternate Canada
David Hardy	ESSAC alternate Ireland
Benoit Ildefonse	ESSAC alternate France
Rachel H. James	ESSAC alternate United Kingdom
Hermann Kudrass	ESSAC alternate Germany
Judith McKenzie	ESSAC delegate Switzerland
Rolf Birger Pedersen	ESSAC delegate Norway
Werner Piller	ESSAC delegate Austria
Marco Sacchi	ESSAC delegate Italy
Kari Strand	ESSAC delegate Finland

Observers

Helen Bell	NERC
Teresa Bingham-Müller	ECORD-Net, Swiss National Science Foundation
Dan Evans	ESO Science Manager
Chris Franklin	NERC
Patricia Maruéjol	EMA scientific officer
Catherine Mével	EMA Director
Federica Tamburini	ECORD-Net, Swiss IODP Science Coordinator

Apologies

Bryndis Brandsdottir	ESSAC delegate Iceland
Paul Martin Holm	ESSAC delegate Denmark
Rudy Swennen	ESSAC delegate Belgium

MINUTES OF THE 6TH ESSAC MEETING, MAY 2006, CARDIFF

1. Introduction

1.1 Welcome and logistics

Pearce and MacLeod welcomed delegates to the meeting and noted domestic arrangements

1.2 Agenda

Pearce outlined the agenda for meeting, highlighting staffing, long-range planning, workshops, outreach and the ECORD review.

Brinkhuis raised the issue that IODP media policy needs to be discussed. Pearce noted that it will be included under item 5.

1.3 Approval of the 5th ESSAC Meeting minutes

The minutes of the 5th ESSAC Meeting were approved.

Lenci reported that Brandsdóttir asked to amend the title of her proposed workshop theme from 'ACEXII' to 'Arctic studies'.

1.4 5th ESSAC Meeting minutes (Edinburgh): Matters Arising

Pearce presented the list of matters arising from the 5th meeting:

- Update on SAS representatives: ECORD Council approved changes.
- Changes in SPPOC now irrelevant as SPPOC to be replaced by SASEC.
- New Jersey Shallow Shelf likely to sail early summer 2007. Evans to elaborate under later item.
- Co-chief scientists. Four ECORD members have been invited: Stephen Hesselbo, Heiko Pälike for Equatorial Pacific, and Achim Kopf (Germany) and Siegfried Lallement (France) for NanTroSEIZE.
- Mission Concept has been approved by IODP-MI Board of Governors.
- Aurora Borealis proposal – to be followed up under later item.
- Magellan Workshops. Deep Biosphere Workshop held successfully in Switzerland. McKenzie to update under later item. Hazards workshops to be arranged by ESF.
- Database and website. More information under later item.

1.5 ESSAC Chair

Pearce explains that he will step down on 1 September 2006, and MacLeod will resume role as Chair. This is by agreement within the office and UK-IODP. MacLeod will handle ESSAC input into the ECORD review. MacLeod requests that ESSAC delegates contact essac@cardiff.ac.uk, rather than the individuals involved, to optimise communication during the transfer period.

Federica Lenci will leave in July for Australia. The science coordinator's job will be advertised, information to be circulated at EuroForum. Only 15 months are left on the contract, while the Office remains in Cardiff. Ideally, an overseas person would be appointed, although the priority is getting somebody in post quickly.

ESSAC accepts the plan for MacLeod to resume duties, and extends thanks to Federica.

1.6 Goals of the Meeting.

Pearce outlines the goals of the meeting as listed in the Agenda Book.

2. Staffing

2.1 New Jersey Shallow Shelf staffing summary

MacLeod explained that there was some confusion over ship- and shore-based applications, a problem peculiar to MSPs. Definitions have now been clarified.

MacLeod informed delegates that there were 24 applications for (nominally) 8 berths. He described the evaluation process whereby, following ESSAC input, candidates were each given a 'star' rating based on experience and national balance before forwarding to ESO. Eight individuals were given the highest star rating: 2 UK, 2 France, 2 German and 2 other nationalities.

Brinkhuis commented that shore-based work is ideal training for graduate students. Ideally a student programme would be put in place to allow experience to be gained through shore-based work. Ildefonse noted that a clear demarcation would be needed to distinguish between such students on a programme and the actual invited Leg scientists. Evans (for ESO) agreed that, if no samples are involved, then a student programme could be a good idea. It would, however, be something to organise with Bremen, rather than ESO.

Evans described the proposed staffing for New Jersey Margin MSP. He noted the need – as ever – to balance expertise. ESO needs 6 (2 Japan - 2 US - 2 ECORD) sedimentologists, but a very large number have applied. Evans informed ESSAC of the possible staffing for each of the needed areas (petrophysics, stratigraphic correlation etc.). He noted the shortage of Japanese applicants and that this may release further berths. The US might actually fund 9, possibly 10, berths if places are free. The issue of bartering of places was discussed: Franklin stressed a need to coordinate with the US and Japan Program Management Offices (PMOs) and Mével stressed the need for a long-term balance of quotas.

Evans predicted that the staffing ratios based on present application would be: 6 Japan (includes 1 Chinese and 1 Korean), 9 US and 9 ECORD. However, how many of these eventually sail is unknown at this time. There might be need to re-advertise for more applicants if particular area of expertise is lacking. ESSAC delegates may be contacted if there is this need. The tendering process is ongoing: the contract can be signed as soon as suitable platform found, as funds are available.

Regarding balance within ECORD, Evans explained that every effort is made to satisfy scientific needs, but national balance needs to be maintained in the long term. However, MacLeod showed the Table revealing that imbalances are getting significant with some countries well over quota and contributing a high proportion of the new applicants. Because of the expertise issue (in particular) for Expedition 313 it is unlikely that ideal country quotas can always be maintained. The ESSAC Office will continue to monitor national balance and attempt to maintain quotas as closely as possible during forthcoming staffing exercises.

Pearce suggested that Mével should contact small countries with over-representation to get them to increase their membership contribution.

Action: ESSAC Office to send Mével the staffing figures.

Action: Mével to contact countries that are over-represented and, thus, are candidates to increase subscription.

MacLeod added that the US operator has asked ESSAC to commence staffing for two non-riser expeditions (Equatorial Pacific and NanTroSEIZE). This call will go out to ESSAC delegates soon, with TAMU wishing to start staffing by 1 August 2006.

Action: ESSAC Office to publicise staffing calls for these expeditions in ECORD countries once approval has been granted by IODP-MI.

Lenci presented to the Committee the confidential pages of the ESSAC website which can be accessed through the 'more' drop-down menu. These pages collate staffing information, applications, statistics etc. and can be reached via a username and password which were given to delegates in confidence.

2.2 Replacement of SPPOC (SASEC)

MacLeod explained that IODP-MI BoG has decided to replace SPPOC with SASEC (Science Advisory Structure Executive Committee). SASEC will include two representatives from Japan, the US and ECORD. These representatives are to be nominated by national programmes. IODP-MI BoG is expecting big names not necessarily involved in IODP.

McKenzie commented that, as a former member of SPPOC, she did not think that the disbanding of SPPOC was handled well. Mével explained that SPPOC was disbanded because of a lack of suitable Japanese representatives. The aims of SASEC are long range review and to give blessing to SAS decisions.

Pearce pointed out that ECORD Council requires advice. The first-order question is whether (1) to choose from existing SPPOC members, or (2) to choose new people for SASEC. The SPPOC members are presently:

Mike Bickle, UK
Judith McKenzie, Switzerland
Hermann Kudrass, Germany (due to be replaced by Hans Brumsack)
Serge Berné, France

In his absence, Pearce read out an e-mail from Brumsack: he requests that a German should be involved, as UK has the ESSAC Office and France has EMA. Delegates from the countries involved confirmed that Bickle, Brumsack and Berné would be willing to be considered.
McKenzie felt that, since she officially had only one more meeting, she had already served her term on SPPOC.

Mével put the alternative view, based upon informal discussions with IODP-MI members, that SASEC should perhaps comprise scientists with international recognition and a broad view, not necessarily directly involved in IODP. Of these, Gerold Wefer was put forward by Kudrass and McKenzie, and Bo Barker Joergensen (Bremen) by McKenzie. Enrique Banda was proposed by Comas. Camoin also suggested Edouard Bard as a further, or alternative, French candidate.

MacLeod asked Kudrass to give the ESSAC Office 1-2 names of German candidates, and invited other ESSAC delegates to do the same. The ESSAC office would need a CV and the individual's permission. A prioritised list could then be drawn up for ECORD Council to submit to IODP-MI. However, the stated IODP-MI deadline is 15 May 2006.

Pearce suggested that national delegates properly consider the proposed SASEC delegates from ECORD and that we are being unnecessarily rushed by IODP-MI to meet an arbitrary 15 May deadline. We need more input from IODP-MI about SASEC, and then need time for ESSAC to put names to ECORD Council. So a delay beyond 15 May deadline is essential if the choice is to be thought through properly.

Action: ESSAC delegates to consider suitable candidates, get their permission and inform them that the first meeting is 12-13 July, and get names and CVs to ESSAC Office by 1 June.

Action: ESSAC Office to collate all proposed names and circulate (with CVs) to ESSAC delegates. ESSAC delegates then prioritise the list, marking four preferred candidates with a spread of scientific expertise. It is sensible for each country to propose only one representative.

Action: ESSAC to ask ECORD Council to approve the four names on 8-9 June and pass its decision to IODP-MI immediately thereafter.

2.3 SAS Representatives

MacLeod and Lenci summarized the present staffing status of the SAS panels.

For SPC

- Brumsack to be replaced by Behrmann in October 2006.
- Ildefonse to be replaced by Gilbert Camoin after August 2006.
- MacLeod to rotate after August 2007 meeting when ESSAC Chair is handed over (new ESSAC Chair should be an SPC member).

SSEP

- Erzinger to be replaced by Kopf in May 07.
- Teagle and Thurow to be replaced after May and Nov 06 respectively. The decision needs to be made soon, in order to go to ECORD Council.

STP

- Villinger to be replaced by Brueckmann in July 07.

IIS-PPG

- Doust to be replaced after first meeting by Ralf Stevens of WHOI.
- This PPG doesn't have to be run on strict quotas. David Roberts and Richard Davies (UK), John Hogg (Canada) and Didier Hubert Drapeau (France) are proposed.
- Any new names by 1 June.

EPSP

- Already short of 1 small country member: a name needed by ESSAC Office. This is a very important panel as it gives the go-ahead for drilling. Michael Enachescu, Memorial University of Newfoundland volunteered to do it if no alternative could be found.
- Philipe Lapointe (Total, Fr) to replace Mascle Dec 06.
- Kudrass suggests that Strack will continue on the panel in the meantime until a replacement is found.

Action: Small country delegates to find a suitable person to sit on EPSP and contact ESSAC Office.

SSP

- Gilles Lericolais of Ifremer to replace Gutscher (Fr) immediately.
- Need replacement for Carlota Escutia (Sp) after July 06. How about Holger Lykke-Andersen of Denmark?
- Neben (Ger) to be replaced by Gaedicke in Apr 07.

Action: Small country delegates to find a suitable person to sit on SSP and contact ESSAC Office.

EDP

- Already one small country representative short.
- Wolgemuth to replace Sperber (Ger) after June 06.
- John Thorogood (UK) expressed an interest. Could potentially fill 4th slot and then replace Peter Schultheiss in June 07.
- EDP needs more experts in borehole stability.

Action: Small country delegates to find a suitable person to sit on EDP and contact the ESSAC Office.

A summary table of SAS representatives, balance of representation compared to membership contribution was shown. ESSAC delegates noted over- and under-representation.

2.4 Co-chief Assignments

MacLeod reported that nominations requested by IODP-MI for proposals were forwarded to the OTF in March 2006. ECORD SPC members feel strongly that proponents should always be included in list of possible co-chiefs. ESSAC should, as a general policy, add names in addition to those already put forward to OTF by SPC. The operator makes the ultimate decision on the Co-chief assignments.

3. Long-range Planning

3.1 SPC Executive Summary

MacLeod reported that the last meeting (in Florida, March 2006) was attended by himself, Ildefonse and Pedersen amongst current ESSAC attendees (also Brumsack). As MacLeod and Pedersen were conflicted for the some of the planned discussion at SPC, Pearce attended as a third, non-conflicted voting member for that part of the meeting.

NSF have chosen to refit JOIDES Resolution as new IODP non-riser vessel. It will be a $115M re-build, including addition of larger and improved laboratory and improved section. A new name will be given to the ship, with operations scheduled to resume in August 2007. The JR is currently under contract (NSF and Indian Government) to drill gas hydrates off India. Following that, the vessel will go into dry dock and re-build will take place.

Chikyu is undergoing sea trials, with a scheduled start of scientific operations in September 2007 with NanTroSEIZE Riserless Drilling. In 2008, Chikyu will undergo testing and maintenance, followed by more NanTroSEIZE Riserless Drilling.

IODP-MI Workshops
MacLeod listed the planned IODP-MI sponsored workshops. ESSAC delegates commented that these were arranged without any liaison with Europe, which ESSAC finds to be very disappointing given that they use co-mingled funds. Unilateral decisions were made by IODP-MI and, even if equivalent workshops are already planned in Europe, no attempt at linkage has been made. The ESSAC Office has attempted to put organisers of similarly themed workshops in contact with one another. Additionally, the ESSAC Office has now forged links with Kelly Kryc, who is in charge of IODP-MI workshops, and she now keeps ESSAC in the loop with workshop plans.

Action: ESSAC Office will maintain oversight of these workshops, with the intention of ensuring coordination - though this will depend on developing good links with Chairs and Steering Committees of workshops.

Comas argued that having parallel workshops organised by US and ECORD makes no sense: they should be fully integrated. EMA/ECORD need to ensure that Europeans are involved in these. McKenzie, however, noted that it is also important for ECORD to hold its own, small, specialist workshops, and feed the outcomes into the IODP-MI organised events. MacLeod agreed and emphasised that such ECORD workshops should ideally be held before IODP-MI workshops. He commented that it was regrettable that, because of the ESF/Magellan issues and consequent delays to some planned European workshops (agenda item 4.2), this was unlikely to be possible in most instances.

MacLeod explained that a 7:7:3 ratio is imposed on workshop attendance as workshops use co-mingled funds. ECORD members on SPC protested strongly at this, as it means a significant restriction on our scientific input. It was agreed with IODP-MI that more ECORD scientists can attend if they are funded from elsewhere (e.g. national programmes). Ildefonse asked whether there is anything in the MoU related to workshops: if not, why 7:7:3 ratio? Mével explained that everything, all representation, is based on financial contributions and enforced by the Lead Agencies. Franklin requested that ESSAC send a strong message to Council on this issue of workshop representation.

Action: ESSAC Office to ensure that ECORD Council is advised on the wish to have greater ECORD representation at IODP Workshops than the quota might dictate.

Mission Concept
MacLeod explained that SPC spent a great deal of time at last meeting discussing, and eventually accepting, this concept. IODP-MI's idea is that we need to develop and support more strategic 'super-proposals' so as to ensure that the goals set out in the Initial Science Plan are fulfilled.

Proposal ranking
18 proposals were forwarded from SSEPs for presentation and review by SPC. Of these, 17 were ranked (Chicxulub, MSP proposal 548, was not considered as it is awaiting site survey data).

Of the ranked proposals, the top 6 were forwarded to OTF permanently (they will sit in a 'holding pen' until they can be scheduled). Proposals ranked 7 to 13 were forwarded to OFT on a one-time basis for potential scheduling at March 2006 OFT meeting.

Lowly ranked proposals that hang around in system often get forwarded to OTF simply to pass them on, to get rid of them. There is no mechanism for dumping poor full proposals at present. Proposal 547-Full4, Oceanic Subsurface Biosphere is a good example of this. Camoin reported that SSEP proposed that most lowly ranked proposals should be kicked back from SPC to SSEP and proponents asked to re-work their submissions, otherwise the proposal should be dismissed. This was put to SPC, but there have been no further developments.

McKenzie commented on the paucity of biosphere proposals. Pearce pointed out that, although he supports more microbiology expeditions, in fact the top ranked is 677-Full, Mid-Atlantic Ridge Microbiology, a good proposal that is well written and organised and went through system in 1.5 years. MacLeod added that microbiology is part of most proposals in SPC.

MacLeod then described the tentative schedule for non-riser expeditions scheduled for FY07-FY09 (OTF March 2006). They are currently being scoped and costed by USIO, and final approval is needed from IODP-MI. Pearce added that it was decided at the Kyoto meeting that, in 2009, the non-riser vessel will continue into Southern and Indian Oceans; understanding Asian Monsoon will then become an increasingly important focus of IODP. The current plan for FY07-FY09 is to start with the Pacific Equatorial Age Transect-1. Ildefonse (OTF member) noted that the provisional schedule approved by SPC (ESSAC Agenda Book p.12 and Appendix 4 item 15, p.45) has already been modified: the Costa Rica Seismogenesis Phase 1 is now not being considered as the subsequent expedition.

McKenzie requested as much advance notice needed of dates as possible, to ensure full and appropriate staffing levels. MacLeod reminded the Committee that TAMU has asked for applications for Pacific Equatorial and NanTroSEIZE by 1 August 2006.

3.2 Management Forum Executive Summary

Pearce reported that, following the Frascati meeting, a second Management Forum Executive meeting was held in Salt Lake City at the end of March. Five topics were discussed:

Culture
How can our Japanese delegates integrate more fully into the various IODP meetings? Should there be 'Committee Training'? IODP-MI should stress the different operational procedures needed by the three different platforms. This is particularly important for CDEX and ESO.

Ildefonse noted that SSEPs already attended to these cultural differences by breaking into smaller groups where the Japanese felt more comfortable. Also ECORD is used to cultural differences, as it comprises 17 nations: maybe ECORD can help 'educate' the US representatives.

Educational outreach
The Management Forum concluded that a better integration of outreach is needed. For example, Chikyu has been branded in the press as solely Japanese, rather than part of the international programme. In addition, E&O activities need to be targeted to raise awareness amongst professional communities. IODP-MI may fund someone to collate all IODP-related information and publish on web: this would make information easily accessible to teachers. Better relationships with media need to be built, for example by having a list of media-savvy scientists that can be contacted by media.

Mével said that the key was identifying our priority audience, given our limited funds.

Funding and Industry relations
The Management Forum has decided to explore the possibility that someone from industry could communicate with oil and gas companies with the aim of getting them involved. IODP-MI seems to be willing to pay for someone from industry to forge this liaison. This person would essentially be a fund raiser.

Action: ESSAC delegates should pass any names on to the ESSAC Office, which will in turn pass them to IODP-MI.

MacLeod noted that UK IODP has its own Industry Liaison Panel, Chaired by Richard Davies of Durham. UK-IODP is holding a Workshop on 27 June 2006 in London.

Mission Implementation Plan
The 'final' version of this plan was approved in principle and passed on to IMI BoG for ratification.

Workshops
The Management Forum agreed that workshops and missions can broaden the scientific constituency of IODP. Workshops could be a strategic tool to develop the program, the converse of ESF's bottom-up approach.

3.3 **Missions: Implications for ESSAC**

Pearce explained that Missions have finally been accepted for implementation by IODP-MI Board of Governors, after the concept being first discussed at the Frascati Management Forum. The concept now has a formal definition.

Key points to come out of the Missions concept are:

- For the first year, SSEP will make recommendations to SPC for Missions. SPC will review the SSEP recommendations, designate Missions and request SPPOC/SASEC approval.
- For subsequent years, there will be an Open Call for Mission proposals.
- Once a Mission is approved, IODP-MI will create and provide support for a Mission team (currently envisaged as 8-12 individuals) with the remit to advance the planning.

Further details are on page 50 of the Agenda book.

An important question is whether ESSAC needs to do anything to influence choice of Missions or makeup of Mission Teams? Delegates asked how many Missions will there be? Mével explained that there are likely to be 2-3 in the system at any one time.

MacLeod noted that, in e-mail correspondence with the Chair of SPC following the March 06 SPC meeting, he had been informed that IODP-MI envisaged that Mission Teams should be populated in the 7:7:3:1 quota ratio (or 2:2:1:1, both including China). This was apparently because Mission Teams were to be treated the same as other IODP planning groups (DPGs and PPGs), which SPPOC had previously decreed were to have membership quotas (in that case 2:2:1:1). Apparently this was based upon text in section V of the NSF-MEXT Memorandum.

MacLeod had protested strongly on behalf of ECORD that application of quotas was a de facto attempt to limit the *intellectual* involvement of ECORD in IODP science, and stated that ECORD would oppose these proposed measures at the highest possible level. ESSAC supported this view.

MacLeod and Ildefonse further noted that Mission Teams will also have to include IOs and various technical advisors based on expertise, making nationality quotas difficult or impossible to implement. Technical advisors could potentially comprise a large proportion of the 8-12 individuals, leaving no more than a few places for scientists. This might very well mean that no more than, at most, one ECORD scientist would be allowed to be involved in any particular Mission. ESSAC finds this nonsensical and unacceptable.

Consensus: ESSAC Office to raise the issue at ECORD Council and IODP Council. ESSAC believes that application of a quota system for Mission Team membership would be detrimental to IODP science, and resists any attempt to limit by fixed quota the intellectual contribution of ECORD scientists to IODP.

Pearce explained that ESSAC could influence choice of Missions initially through SSEP (which will look at proposals in the system, that could be grouped together into a Mission) and then through the various workshops planned. Fortunately the proposed workshops fall within ECORD's scientific goals. Brinkhuis added that the subject of Extreme Climates should be included, and Ildefonse proposed Collision Tectonics in the Mediterranean. McKenzie suggested a 'Mission Arctic' proposal might be appropriate.

Delegates agreed that it was essential that the program fulfils the Initial Science Plan and that Missions should allow a strategic and top down approach that involved the community.

Consensus: ESSAC supports the Mission concept, but believes that the scientific excellence of Missions and the implementation of the science would be impaired if IODP-MI strictly adheres to a 7:7:3:1 or 2:2:1:1 or quota.

3.4 European infrastructures: Aurora Borealis

Arnold explained the history of the Aurora Borealis (AB) proposal. Presently, it is on the ESFRI list of opportunities, one of only 23 items on the list published in March 2005. ECORD/ESSAC must consider the possibility that EU financing of the Aurora Borealis may preclude or reduce any chance of EU financial or organisational support of other IODP MSPs in the future. At this point, ECORD is passively implying IODP endorsement of the AB project when the proposal could possibly work against ECORD efforts to continue as the third partner of IODP.

Could the AB allow us to become a full third partner? It could, but it might not necessarily serve our scientific purposes. There is no scientific advantage of having AB versus a series of MSPs. Except for the fact that the AB would allow site survey capacity and ready access to the Arctic, which is lacking at present and would also give ECORD a dedicated platform.

Evans noted that IODP does not have a requirement that there will be 3-4 months of Arctic drilling time annually for the next ten years, as claimed in the ESFRI proposal. If there were more Arctic drilling proposed, ESO would be required to go out to tender, and AB might not necessarily fit the bill financially or scientifically.

Brinkhuis sees virtues of both MSPs and AB. The European Marine Board is very much in favour of the AB, and it may actually already be a done deal. He reported that the Marine Board was thinking about stationing the POLARSTERN in South Africa for Southern Ocean duties, and utilising the new AB for general marine cruises, including drilling expeditions in the Arctic and Nordic Seas.

Mével pointed out that, if we have AB, we can use it as MSP when needed, though this might be not affordable. MacLeod commented that we need to separate the needs of ECORD/IODP from the needs of the European Marine community as a whole. If money was no option, then AB would be fully supported by all, but there are other issues to be considered. It is completely wrong that IODP would likely use AB 3-4 months per year. At present there are very few polar proposals in the IODP system. Instead it is more likely a threat to ECORD if AB goes ahead, as a large amount of money would be diverted by the EU away from ECORD/IODP.

Kudrass reminded delegates that AB is a child of ECORD. It was first discussed as a way for ECORD to have its own vessel. It was taken on by the Polar Board and Marine Board of ESF, which succeeded in bringing AB onto ESFRI list. It would be good to have a European flagship, which AB could be. It would, however, have to be fully supported by all ECORD nations. Comas also noted that it would be a good thing for Europe to have its own infrastructure.

Franklin explained that science is funded by national agencies. It is useful to have a permanent platform to put against Chikyu and JR as a bargaining tool. In terms of funding, ECORD is unlikely to be able to run AB all year, given the limited funding available.

Brinkhuis informed the delegates that the Marine Board had a meeting a month ago, where it was suggested that the AB would be a general purpose ship for marine research in general but that it would also have the potential to be used as a drilling vessel. So actually it could be a MSP vehicle, which ECORD could rent if it proved to be the most appropriate platform after tendering.

MacLeod observed that there are two separate sets of interests. ESSAC's remit is to see if ECORD IODP interests are best served by such a vessel. AB could be a big threat to the existence (i.e. funding) of ECORD. AB cannot accomplish all MSP tasks, although would be very useful to have ready access to a ship able to drill in Arctic and carry out site surveys. Evans added that Europe cannot state a commitment to Arctic science, as this is defined by SAS. It may be that no Arctic proposal will come through for quite some time, unless a Mission is set up. Thus the statement, point 5 on page 66, is incorrect, in terms of 3-4 months of Arctic drilling per year for ten years.

Kudrass retorted that it is important to state that it is important to drill further in the Arctic. The fact that there are no proposals in the system does not mean that they will not be submitted if the capability is clearly there. Abrantes emphasised that ESSAC must focus on the importance of the ship in terms of science. It is ECORD Council's job to consider the financial limitations.

As there were pros and cons to this Pearce suggested presenting ECORD with a SWOT (Strengths, Opportunities, Weaknesses, Threats) analysis. After discussion, delegates decided that the subcommittee assigned to consider AB plus others interested would draw up a motion summarising the positive aspects of AB but also noting the negatives.

"ESSAC recognises that ECORD has performed frontier breaking MSP operations that have contributed significantly to achieving the goals of the IODP Initial Science Plan. ESSAC is determined that ECORD continue these MSP operations world-wide and thus maintain our obligations to IODP.

ESSAC notes that the tectonic history, palaeoceanography and climatic evolution of the Arctic region are major scientific themes of global importance, and are of special significance to many European nations. As a consequence, ESSAC supports the plan to construct a dedicated icebreaker with drilling capacity for year-round research and site-survey deployment in the Arctic and Southern oceans. The Aurora Borealis project has the potential to enhance significantly the scope of IODP scientific capabilities and could strengthen the European position within IODP, provided that it does not jeopardise ECORD's abilities to undertake global MSP operations."

This statement was approved by consensus.

4. Workshops

4.1 IODP Workshops

These were dealt with in the SPC report.

4.2 Magellan workshops

Pearce summarized the problems that the ESSAC office had encountered with the workshop funding. Three workshops were approved by ESSAC#5 and then supported for funding by ECORD Council: EuroForum, Hazards 1 (Spain) and Hazards 2 (Italy). However some ECORD countries had already given workshop funding to ESF.

Both ESSAC and ECORD Council were meant to be integral to the workshop planning, but neither Council nor ESSAC Office were told about the meeting or invited to it. So, we had organised a workshop series only to find that the series could not be implemented.

There was a resulting delay to EuroForum funding, and a delay to Hazards workshops, but the Naples workshop will go ahead funded by Italian agencies and non-ESF funds.

McKenzie felt that asking ESF to organise these produced misunderstandings that could have been avoided if Council had passed them directly to ESSAC to organise. Mével explained that ESF was chosen because funding through this route can allow extra pockets of funding to be found. Lenci commented that Bernard Avril of ESF had actually agreed to Council terms for workshops.

Pearce asked how the change was made for Magellan series to be ESSAC-led to ESF-led? Franklin explained that this originated from an older proposal which included both EuroMARC and the Magellan Series that Council had asked ESF to help with this. This proposal was subsequently split into two. The Council's understanding was that ESSAC would have a strategic input into workshop series. There was communication breakdown because Council believed that Bernard Avril would take the ECORD motion back to ESF. In addition, Council took the Arctic Climate conference to be the first of the series, a decision not accepted by ESF. It should have been formally put to ESF the guidelines, but it did not. The Chair of ESSAC should have been the Chair of the workshop series. The ECORD Council Chair should also have been involved.

Pearce explained that, although this was 'water under the bridge' now, there were continuing concerns within the ESSAC Office about the Magellan Workshops. There is no strategic element to the workshops, unlike other IODP workshops, yet the strategic value of workshops was stressed at the Management Forum in Salt Lake City: driving the program, synthesising successful expeditions etc. There is no coordination with other IODP workshops. There is no communication link between ESF and ESSAC Office, which has the greatest knowledge of international workshop activities. In addition, only some nations contribute to Magellan; thus, if workshops are important for strategy, then we have a problem that not all ECORD countries contribute to the Magellan series. This potentially divides the community.

Franklin responded that ECORD Council did not realise that ESF would apply its 'A la Carte' mechanism. Council should have talked to ESF about setting up the new mechanism. The hope was that more countries outside would become involved, but in fact the opposite had occurred.

Pearce asked delegates whether they thought ESSAC should have the opportunity to use workshops as a strategic tool or whether it should be purely a bottom up mechanism for funding workshops. Without a strategic component, it may be difficult to further progress IODP goals. He suggested that ESSAC delegates sitting on the ESF Committee could maybe represent the needs of ECORD.

Franklin responded that the problem is that the ESSAC Office is not involved. Instead, ESSAC delegates that also sit on the ESF Magellan Committee could form a sub-group/strategy group, reporting back and acting on behalf of ESSAC. Delegates need to promote ESSAC's strategic ideas to the community, and ensure that suitable proposals are submitted to the Open Call.

Delegates on the ESF Committee explained that funding for workshops and short visits were decided in February 2006 for this calendar year. The 'short visits' allowed money for EuroForum. There is an open call for workshop ideas with a deadline of 19 May 2006, and the next Committee meeting will be February 2007. The ESF Magellan programme will run for five years with enough money for 2-3 workshops per year. The maximum amount of money ESF will allow per workshop is 20,000 Euros.

James proposed that, at each ESSAC meeting, there should be a discussion to decide on pertinent workshop themes, to feed back to the ESF A la Carte programme. Franklin pointed out ESSAC has already decided on strategic workshop themes, and these must be entered into ESF call. Lenci suggested that ESSAC should stimulate the community through website on preferred themes, and have scientists submit proposals to their open call.

Of the two hazards workshops originally organised by the ESSAC Office, Comas explained that she would not be a proponent of Collision hazard workshop. However, Spain will submit the Slides hazard workshop proposal into Open Call.

For EuroMARC, James (who was a member of the committee) explained that a call had gone out for full proposals to be submitted by 26 June with moderating panel to meet in November. ESSAC members may be asked to review submissions.

4.3 ESSAC Deep Biosphere Workshop outcomes

McKenzie informed delegates that the workshop on 'Exploring the Deep Biosphere with Scientific Ocean Drilling' was held successfully in Warth, Switzerland, 26-29 January 2006. It included the ECORD-net geomicrobiology report from Swiss WP leaders. 28 delegates from across ECORD attended, including Eric Allen, from USA, an expert on genomics, and Fumio Inagaki from JAMSTEC.

The principal recommendation was that, to make a significant impact, there should be one dedicated Expedition per year, rather than just tagging microbiology onto Expeditions. Specific recommendations were:

1. More microbiologists involved in SAS
2. A Standing Committee on microbiology (in Europe?)
3. More flexible logistics for expeditions conducive to microbiologists
4. Shipboard sampling on dedicated deep biosphere legs
5. *In situ* experiments in borehole labs
6. Portable microbiology lab

Examples of dedicated deep biosphere expeditions could be:

1. East Mediterranean sapropels
2. Great Australian Bight
3. Moroccan margins
4. Guymas Basin
5. Greenland Sea, slow spreading ridge
6. How deep is deep biosphere, S Pacific gyre
7. How old: Somali Basin
8. How hot: East Pacific Rise
9. Black Sea
10. MSP, Walvis Bay, Tahiti, *in situ* experiments.

Two of the above (Great Australian Bight and Moroccan margins) have already been submitted to IODP as proposals. It was a great success with a very 'European' group. A formal written report is forthcoming.

ESSAC delegates agreed that these European workshops are useful way of developing ECORD ideas and ideally then feeding into IODP-MI led workshops.

4.4 ESF Magellan Call

McKenzie alerted delegates to the Call on the ESF web site at www.esf.com (19 May 2006 deadline).

Reference was made to the decisions made at the 5th ESSAC meeting about topics and how ESF promised to implement these.

Extract from ESSAC 5 Minutes

"Pearce reminds ESSAC that, as endorsed by the ESF Program, three workshops can be planned each year. For 2006, in addition to the upcoming Biosphere Workshop, there are two new mature proposals related to Geohazards, which is the theme identified by ECORD at their last meeting as being of principal strategic importance.
Workshop Proposals
Scientific Ocean Drilling behind the Assessment of Geo-hazards from Submarine Slides
Geohazards in Collision Zones and their Human Impacts: Challenges for IODP drilling

Pearce asks the ESSAC Community for additional Workshops to be considered for the Magellan Workshop series 2007. Suggestions made by the ESSAC Committee include:

- Continent-ocean interactions
- Evaporites and salt tectonics
- Arctic studies
- Continental Breakup
- Extreme Climates
- Costa Rica Seismogenic Zone

Pearce will propose those potential themes to the ECORD Council. The themes will be then discussed at the next ESSAC meeting and, if approved, a call for application might be subsequently posted on the ESSAC website.

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5. Outreach

5.1 Expansion of educational activities

Arnold explained that there is an IODP-MI E&O task force. This committee is composed of operators, public relations and scientists. IODP-MI is mainly concerned with outreach, and ECORD cannot expect financing or significant support for specific educational activities. Much of this needs to be implemented at a national level, because of differences in language, school curriculum etc. The possible initiatives listed in the Agenda Book were then discussed in turn.

Teachers at sea. The problem lies with funding, as travel and subsistence (and berth?) costs are significant. There is no ECORD financing for this, and apparently no ESF mechanism, so support would need to be borne by national agencies.

Teacher workshops. Some ECORD funds of about 10,000 Euros are available for teacher and instructor expenses for one workshop. An EGU GIFT workshop, held at the Spring EGU and organised by Carlo Laj, invites 70 teachers from across Europe to attend 2.5 day meeting of speakers including scientists, other teachers, programme managers, education professionals. EGU pays for T&S for teachers and invited speakers, and travel stipend for teachers. Past workshops have been:

2007 – Large urban areas;
2006 – The polar regions;
2005 – The history of the earth;
2004 – The Oceans.

It might be possible to run an IODP session after/before the GIFT workshop, and Arnold would like permission to pursue this.

ESSAC encourages Arnold to investigate the possibility of holding a teachers workshop at EGU.

Educational website. If scientists and teachers were willing to generate materials (photos, movies, short scientific summaries, lesson and activity plans etc) at no cost, then this could be assembled for a website. IODP and TAMU already do this and IODP-MI is willing to provide web support for 3 months, as a pilot study, to set up an improved site. This idea is much broader and would integrate some materials. ESSAC needs to ensure that materials of interest to Europe are sent for inclusion.

Summer schools for university students. This is fairly costly, as student travel and lodging expenses, instructor costs, teaching materials etc need to be covered. Arnold and Pedersen noted that NorForsk (Nordic consortium) provides funds for Nordic and Baltic States. Here, university students are invited for a summer school (lasting days to a month) where some aspect of marine geoscience is addressed. Delegates asked whether Brussels has a funding mechanism, but

that was not clear. Pearce noted that InterRidge has an educational programme for post-graduates, which is hugely successful. perhaps ECORD/EMA should consider this?

ESSAC delegates agreed that Pearce would raise issue of possible funding with ECORD Council, the delegates would all look to their national agencies, and EMA would look to the EU.

Distinguished Lecturer series. This comprises a selected group of IODP scientists willing to travel around Europe and present the most recent results in ocean research drilling. Expenses involve travel and lodging costs and someone to coordinate the advertisement/application process. An estimate is £600 for each talk, and each university expected to host speaker. ESSAC should request funding from ECORD Council for this purpose. Mével and Pearce explained that this came up at Management Forum, and IODP-MI were willing to put some support to this. But the 7:7:3 quota would apply. Sacchi noted that Italy organized an IODP-themed tour last year that was a great success. McKenzie proposed that, to confer prestige, there should be one lecturer at any time with that lecturer be given a title: for example the 'Nick Shackleton Distinguished Lecturer/Lecture Series' might be an appropriate choice.

Actions: Delegates to provide ESSAC Office with names of people willing to participate in such a lecturer series. ESSAC Office to put the list to IODP-MI. ESSAC Office to follow up on possible logistics.

Educational material. The old ODP CDs such as 'Mountains to Monsoon' are very popular in the classroom. ECORD Council and IODP-MI could be approached for funds to support this. In producing the Ocean Drilling DVD in 2006, Brinkhuis has collected together a large quantity of material. He informed the delegates that NWO has put 20,000 Euro into production of this DVD over past 3 years, and another 10,000 Euro has been sought as well.

Delegates considered whether these activities be developed, and whether they could be proposed as a package to ECORD Council for funding.

Action: Pearce to ask ECORD Council whether these and related initiatives should always be funded by individual nations, or whether they wish to co-mingle funds for the purpose.

5.2 ESSAC Database: mailing-list rules, ECORD publications

Lenci will discuss this in more detail with EMA. The database is only partially populated at present and this needs to be extended.

Action: The ESSAC Office to circulate the ESSAC mailing list to ESSAC delegates for checking.

5.3 ESSAC web-site

Lenci invited ESSAC to comment on the website. Delegates were asked to send any suggestions to the ESSAC Office as soon as possible. Delegates suggested putting administrative information on mailing list subscribers under the password protected part of site. Ildefonse explained that there was some confusion over which information should to be circulated by delegates within their countries and should be circulated by ESSAC Office. ESSAC agreed that all general information should be sent to everyone at all times. Lenci explained that, for the ESSAC Office to send e-mails to large groups of people, a professional mailer will be required.

Action: The ESSAC Office to ensure it makes clear in e-mail communications whether message has gone to ESSAC delegates only or to entire master mailing list (i.e. ECORD science community).

5.4 ECORD Newsletter #6

Maruéjol informed delegates that Newsletter #6 has been distributed widely, including sending copies to CDEX and IODP-MI. The next Newsletter will be released in mid-October 2006. The ESSAC Office is responsible for the ESSAC pages, with a deadline of 15 September for content. The Newsletters are posted and are then downloadable from ECORD and ESSAC websites.

5.5 ECORD-net Geomicrobiology database updates

Bingham-Müller explained that there was a program to build up geomicrobiology database under ECORD-net's Swiss-led Workpackage 1. Geomicrobiology Discovery Database. She and Tamburini attended the Deep Biosphere workshop and took from it ideas for inventory, content and concept design for a metadata base.

In the short term, the goal is to compile a 'discovery database' from existing databases giving appropriate links for European scientists. In the long term, the goal is a digital database including numerical data. It will also include other data from drilling programmes such as IDDP, ICDP. A metadata base plan has been devised in terms of content concept, technical aspects, data users and data owners.

Current databases that deal with microbiology are varied but some are limited to shipboard data and survey data (Janus). Navigation is difficult: one cannot search by ocean, and microbial data are often not linked to geological data. Protecting data ownership through restricted access is an issue.

Tamburini described the style and content of the searchable database in its present form. The next step is to inform IODP-MI of existence of the database as it is important to ensure its compatibility with other IODP systems.

ESSAC congratulated Bingham-Müller and Tamburini on their excellent product and looks forward to further developments.

6. ECORD Review

MacLeod noted that ECORD Council requested a review of ECORD's contribution to IODP, will report back to Council in November 2006.

Mével explained that the Initial meeting of ECORD representatives with the Evaluation Committee to be held in Paris, 22 June 2006. The review panel will talk to all ECORD bodies (EMA, ESSAC, ESO), and ask what information will be required for review. The panel is composed of experienced geoscientists from European surveys and universities.

7. Meetings

7.1 Upcoming meetings

MacLeod presented the list of meetings presently scheduled for 2006.

Lenci reported that the EuroForum currently had 143 registrants. However, only 8 people have registered to use ESF funding route for T&S costs. The deadline will be kept open until end of EuroForum. MacLeod commented upon the very differing levels of attendance from different member nations at the EuroForum. He particularly thanked the German and Swiss ESSAC delegates for their efforts in encouraging so many of their countrymen to attend, and noted with regret that this hadn't extended to all ECORD nations.

Kudrass questioned whether the EuroForum is the best way to bring community together. Pearce replied that this would be assessed after the conference.

7.2 Date and Place of the Next ESSAC Meeting

MacLeod noted that the next two ESSAC meeting will be approximately November 2006 and May 2007.

Action: Delegates asked to contact ESSAC Office if they are willing to host the next ESSAC meetings.

8. Any Other Business

Federica Lenci's position will be advertised at the EuroForum and subsequently.

9. Meeting with SAS Representatives

A large subset of ESSAC delegates met SAS representatives over lunch during the first day of the EuroForum for a short meeting chaired by Pearce. The group addressed the issue of the present lack of communication between ESSAC and the SAS representatives: there are no reports from SAS representatives to ESSAC and no advice from ESSAC to SAS representatives on strategy.

After some informal (unminuted) discussion, there was consensus that SAS representatives would be invited to attend selected ESSAC meetings to present reports. Whether present or not, SAS representatives would provide brief written reports (one report per panel) for the ESSAC web site and for discussion at the ESSAC meeting. ESSAC will in turn advise ESSAC delegates when the Agenda Book and Minutes are posted on the web and highlight items of relevance.

The meeting also discussed, at Kudrass's request, the EuroForum and its future. This will be addressed at the next ESSAC meeting, but the ESSAC Office emphasised that any further meeting should learn from the Cardiff meeting which was limited in size by financial issues out of the control of the organisers. Most important is to establish funds well ahead of the meeting to ensure more participants from nations other than the host nation.

Appendix 1.3: Minutes of the 7th ESSAC Meeting

7th ESSAC Meeting

2nd – 3rd November 2006
Federico II University, Naples, Italy

List of Participants

ESSAC Office

Chris MacLeod	ESSAC Chair, and ESSAC Delegate, UK
Elspeth Urquhart	ESSAC Science Coordinator

ESSAC Representatives

Fatima Abrantes	ESSAC Delegate, Portugal
Eve Arnold	ESSAC Delegate, Sweden
Bryndis Brandsdóttir	ESSAC Delegate, Iceland
Henk Brinkhuis	ESSAC Delegate, Netherlands
Hans Brumsack	ESSAC Delegate, Germany
Gilbert Camoin (Vice-Chair)	ESSAC Delegate, France
Menchu Comas	ESSAC Delegate, Spain
Elisabetta Erba	ESSAC Alternate, Italy
Jochen Erbacher	ESSAC Alternate, Germany
David Hardy	ESSAC Alternate, Ireland
Paul Martin Holm	ESSAC Delegate, Denmark
Benoît Ildefonse	ESSAC Alternate, France
Kikki Kleiven	ESSAC Representative, Norway
Werner Piller	ESSAC Delegate, Austria
Marco Sacchi (Meeting Host)	ESSAC Delegate, Italy
Kari Strand	ESSAC Delegate, Finland
Helmut Weissert	ESSAC Alternate, Switzerland

Observers/Guests

Patricia Maruéjol	EMA Scientific Officer
David McInroy	ESO (BGS)

Apologies

Teresa Bingham-Müller	ESF
Dan Evans	ESO (BGS)
Kathy Gillis	ESSAC Delegate, Canada
Rachael James	ESSAC Alternate, UK
Nalan Koç	ESSAC Alternate, Norway
Brian McConnell	ESSAC Delegate, Ireland
Judith McKenzie	ESSAC Delegate, Switzerland
Catherine Mével	EMA
Rolf Pedersen	ESSAC Delegate, Norway
Ursula Röhl	ESO (Bremen)
Alan Stevenson	ESO (BGS)
Rudy Swennen	ESSAC Delegate, Belgium
Dominique Weis	ESSAC Alternate, Canada

7th ESSAC MEETING: DRAFT MINUTES

1. Introduction

1.1 Welcome and Logistics

Introduction, logistics and domestic arrangements and a round of self-introductions was followed by an explanation by MacLeod of voting entitlements. Although neither the official Delegate (Pedersen) nor the official Alternate (Koç) from Norway was present, the Committee accepted Kleiven as an official Norwegian representative and accorded her full voting rights for the duration of the meeting. There were no delegates, alternates or any other representatives from Belgium and Canada, meaning that there were only 15 voting members present. MacLeod nevertheless emphasised that he hoped that all business could be achieved by consensus and that voting should not be necessary.

1.2 Discussion and approval of agenda.

The agenda was approved by consensus.

1.3 Approval of 6th ESSAC Minutes.

Brinkhuis would like to amend some of the points recorded in the minutes which he regards as inaccurate. MacLeod said he would however accommodate these points and asked Brinkhuis to produce written amendment for Friday morning (3rd Nov) including particularly his interest in Summer Schools.

MacLeod noted that the nomination of Warner Brückmann as a member of the STP panel had been omitted but since then his nomination had been included in the report to ECORD Council in August. ECORD Council approved the nomination and Brückmann is now formerly a member of the STP panel from July 2007.

Action Item: Minutes of 6th ESSAC Meeting will be amended by taking into consideration points to be submitted by Brinkhuis. The revised minutes will then be circulated for approval.

1.4 Matters Arising from 6th ESSAC Meeting.

- MacLeod referred to the list of action items on pages 7 and 8 of the agenda book and noted that the first item which had previously been outstanding regarding the sending of personalised letters to SAS panel members had now been completed. MacLeod summarized the contents of the letters and templates are included in the agenda book in Appendix 2. Erba requested that alternates should also receive similar letters and MacLeod agreed.

Action Item: ESSAC to send personalised letters to SAS panel alternates.

- Brumsack requested that reports of the ship schedule should be circulated to delegates with special reference for example to the proposed schedule for Atlantic and Mediterranean tracks. He feels that this region is of particular importance to the European scientific community. Information on the ship track schedule is of major importance for future planning.

Action Item: Reports of the ship schedule will be circulated to ESSAC delegates.

- MacLeod assured the meeting that the issue of even more effective dissemination of items important to Europe was being addressed. Further information on IODP future planning would be

discussed under item 2.4 and details could be found under this heading in the agenda book. In addition all SAS panel members have been asked to produce written reports summarising respective meetings attended.
- Science Advisory Structure (SAS) panel members have all been approved by ECORD Council.

- Engineering and Development Panel (EDP) MacLeod highlighted the outstanding issue regarding problems in finding small country members. Currently there are two people on this panel from the UK but one of these is due to rotate off. MacLeod asked for nominations

Action Item: Delegates to make nominations for EDP 'small country' member.

- Site Survey Panel (SSP) Holger Lykke-Andersen from Denmark has been approved as a member from February 2007 and is a 'small country' representative.

Workshops
MacLeod briefly mentioned the issues of workshop members and mission teams. These issues would be discussed later in Agenda Item 5.
Summer Schools
A budget of €50K per annum for a programme of Summer Schools has been provisionally agreed by ECORD Council . MacLeod proposed that as the mechanism was now in place that ESSAC should come up with a financial plan to be discussed at tomorrow's meeting.
Distinguished Lecturer Programme
It is proposed that ECORD should support a 'Distinguished Lecturer' programme and ECORD Council have approved this idea subject to production of a detailed plan. This will be discussed further during item 7.3.
Action Items from 6th ESSAC Meeting
MacLeod reported that most of the action items arising from the 6th ESSAC Meeting had been addressed.

1.5 ESSAC Office news
There has been a change in Science Coordinator with Elspeth Urquhart replacing Federica Lenci in August 2006. Federica has relocated to Australia. Julian Pearce, the acting ESSAC Chair who stood in for MacLeod during his recent illness has now stepped down and is no longer playing any active role in ESSAC affairs.

1.6 Principal goals of the meeting
MacLeod itemised four major items in this section:

1. Nominate appropriate new ECORD SAS representatives**:** There are three SAS panel positions to fill and nominees must be offered to ECORD Council for approval at their next meeting in Bonn on 27th November 2006.
2. Review and group applications for NanTroSEIZE expeditions: This is a major item to be discussed during this meeting and could prove to be a difficult task owing to the complexity of the Program. Applicants for the expedition must be prioritized and the list submitted to the US and Japan by the beginning of next week. There will be a first staffing meeting at College Station on Monday 6th November 2006.
3. Derive an action plan for ECORD summer school 2007
4. Agree a plan for the ECORD Distinguished Lecturer Programme.

2. IODP News

2.1 Operator news: SODV (USA)

The refit of the *JOIDES Resolution* is under re-evaluation as shipyard costs have risen dramatically during the last few months. Originally it was planned that the ship would go into a yard in Asia, probably Singapore, and have an extended, 10m long, section inserted mid-ship to provide extra laboratory and accommodation facilities. Because of rising shipyard costs there is now a budget shortfall of tens of millions of US dollars. The issue has recently been discussed in the press and a copy of the *Science* article in question was circulated amongst the delegates during the meeting. MacLeod suggested that these financial issues may mean that the preparation of the SODV will not be complete for the planned expedition in November 2007 and consequently there would be serious implications for planned schedules.

2.2 Operator news: - *Chikyu* (Japan)

The ship has recently finished sea trials and the riser operation has been tested. The plan to drill to 2200 mbsf. had not been achieved but a successful riser hole had been drilled to 647 mbsf. The ship will now continue with the trial programme off Kenya and NW Australia, now in collaboration with industry. The aim is to use riser drilling to a depth of 4500 mbsf. in water depths of up to 2500 m. MacLeod noted that the availability of industry support for these trials was welcome. The scientific expeditions using *Chikyu* are scheduled to begin in September 2007.

Ildefonse suggested that delegates should subscribe to the free *Chikyu Hakken* online newsletter to receive updated bulletins on the ship's progress. He also reported that the ship had experienced problems with the Blow-Out-Preventor (BOP) during a recent trial. The BOP had been left on the seafloor and a damage evaluation exercise was now in progress but as yet there had been neither reports of their findings nor any predictions about delays to operations.

2.3 Operator news: MSPs (ECORD)

McInroy reported on ESO activities. He commented on the four *Nature* articles, the paper by Stein and the Japanese contribution to *Diatom Research* all of which have been published. The Scientific Results for Expedition 310, (Tahiti Sea-Level) are in the final review process and publication of the Expedition Report is expected in March 2007. The planning for Expedition 313 (New Jersey Shallow Shelf) is advanced and the proposed rig belongs to the contractor DOSECC, although the contract has not yet actually been signed. Three major issues need to be resolved before the contract is signed - a geotechnical survey is needed that will satisfy insurance for post-Katrina regulations and hazard survey (magnetometer); permits regarding MMS and coastguard approval need to be obtained; confirmation of platform availability is needed. A few problems are envisaged due to the lift-barge (jack-up) nature of the platform regarding space for the mobile laboratory containers and accommodation space. The logistics of the expedition are still being finalized regarding issues such as visas. Slim-line open hole logging is proposed as Logging-While-Drilling (LWD) is not suitable for the specific requirements of this expedition. The onshore science party is planned for January 2008 and the staffing is almost complete (9 Europe, 10 USA, 6 Japan, 1 Korea, 1 China).

Future Expeditions:

Great Barrier Reef (Proposal #519) – The site survey is planned for Nov-Dec 2007 when there will be a suitable weather window. This could be delayed to the same weather window in 2008 but hopefully not delayed until 2009. A meeting with the Great Barrier Reef Marine Park Authority is scheduled for January 2007.

New England Hydrogeology (Proposal #637) – This planned Expedition still requires a site survey and resolution of various technical issues. IODP-MI is forming a scoping group.

Engineering Development:
IOs are to create their own engineering development road maps. Developments will be compared and possibly acted upon by IODP. ESO's contribution is the development of the through-pipe camera successfully used in Tahiti. A feasibility study for ESO's through-pipe camera has been given the go-ahead by the Science Planning Committee (SPC).

Other ESO Developments:
- Visual Core Description meeting was held at TAMU in September 2006.
- ESO is working with IODP-MI and the other IOs to standardise data entry and nomenclature across the three individual database systems used by the IOs.
- There is an idea to complete web based tutorials for invited and potential scientists before onshore and shipboard operations begin. This will be a comprehensive guide to pre-, syn- and post-expedition activities.

McInroy then invited questions. Brinkhuis asked about confirmation of the expected platform for the New Jersey Shallow Shelf Expedition, i.e. would a change of platform result in a change in the science party. McInroy replied that there would not be an overall change in participants although there may be changes to the platform party.

Brumsack raised the issue of participants being invited onto an expedition and subsequently becoming "uninvited", as happened in the case of New Jersey. Brumsack requested better liaison between all parties involved and stressed that this situation must not happen again. McInroy assured the delegates that he would take back their comments to ESO.

MacLeod commented that the inability to predict the exact timing of MSP expeditions complicated the staffing issues. Brumsack suggested that potential participants should be warned that they may not be required if the schedule is changed. McInroy agreed to also take this issue back to ESO to ensure optimal methods are in place for keeping applicants informed of any developments in the expedition planning process.

2.4 IODP Science Advisory Structure panel reports
MacLeod presented a summary report from the SPC meeting in Bergen in August 2006.

Mission Proposals
IODP is instigating a new super-proposals plan under the title 'Missions' on themes from the global science plan. These Missions or large scale multi-expedition proposals should run in parallel to normal schedules. It is an updated "Complex Drilling Proposal" (CDP) idea and SPC have recommended that CDPs be abandoned. The Mission plan has already been reviewed by most of the SAS panels. Details of the concept and implementation plan are included in Appendix 4 of the ESSAC 7 Agenda.

The first call for these Mission Proposals is for the 1st April 2007 deadline. Essentially there is no material difference between CDPs and Mission Proposals. Each proposal must have been arrived at after consultation amongst a group of scientists in a particular field. Ideally workshops should lead to a mission proposal, although this is not a requirement.

Recently approved 2008 schedules

FY08 ship schedule - *Chikyu*

NanTroSEIZE ('*Chikyu*–1'): Logging-While Drilling Transect	*Sept—Oct 2007*
NanTroSEIZE ('*Chikyu*–2'): Mega-Splay Riser Pilot Hole	*Nov—Dec 2007*

NanTroSEIZE (‘*Chikyu*–3’): Thrust Faults	*Jan—Feb 2008*
Maintenance	*Mar—May 2008*
NanTroSEIZE (Stage 2): Mega-Splay Riser	*June 2008—TBD*

FY08 ship schedule – SODV (approved by SPC)

Equatorial Pacific Transect 1	*Nov—Dec 2007*
NanTroSEIZE (‘USIO–1’): Subduction Inputs	*Jan—Feb 2008*
NanTroSEIZE (‘USIO–2’): Kumano Basin Observatory	*Mar—Apr 2008*
Bering Sea	*May—Jun 2008*
Juan de Fuca Hydrogeology 2 (Expedition 301 follow-up)	*Jul—Aug 2008*
Equatorial Pacific Transect 2	*Sept—Oct 2008*

MacLeod discussed the approved ship schedules for 2008 (also documented in the ESSAC 7 Agenda). He highlighted the fact that the possible consequence of a delay to the upcoming refit of the SODV for more than 2-3 weeks would be the rescheduling of the Equatorial Pacific Transect 1 to Sept-Oct 2008, and the postponement of Equatorial Transect 2 to FY09-10. SPC had advised that a 2 or 3 week delay could be accommodated. A delay of more than 3 weeks would mean that sites such as the Bering Sea would shift out of the weather window. Equatorial Pacific Transect 1 could be postponed, taking the Equatorial Transect 2 time slot and so on. However nothing has been decided at this juncture. Staffing of the expeditions is going ahead though and the scientific community must be informed as soon as plans are definite.

Ildefonse announced that he plans to tell people now that the schedule is subject to uncertainties and not wait to tell them later. MacLeod agreed that potential participants should be kept casually informed but he advised against publishing this on the web sites for the moment.

SODV scheduling beyond FY08:

SPC desire to schedule drilling of the Canterbury Basin (New Zealand) and Wilkes Land (Antarctica) to start at the end of 2008 following the completion of the Equatorial Pacific transects. However, potential shallow gas has been identified in some of the Canterbury Basin sites. This complicates the situation, as the scientific objectives of the proposal are severely jeopardised if even only one of the sites were deemed unsafe to drill with the SODV. A hazards survey has been commissioned, and if results show that any sites cannot be drilled by non-riser drilling then the whole Canterbury Basin expedition should be postponed. In this case the Wilkes Land expedition may likely also be postponed because the huge transit time to the southern oceans means that it is not cost effective to drill only one expedition.

The long term ship track was also discussed during the SPC meeting. Although the panel has long wished to schedule a programme of drilling in the Indian Ocean, at the present stage there are not sufficient mature proposals in the system to warrant an Indian Ocean programme for the SODV in FY09-10. However, *Chikyu* could potentially transit to the Indian Ocean and drill some of the proposals that are ready in this time frame. SPC finally decided that the SODV should return to the Pacific in 2009-2010, approving a preliminary plan in which the SODV follows a clockwise path around the Pacific Ocean during this period. It follows that the ship could potentially pass through the Panama Canal and into the Atlantic in about 2010. It is now highly unlikely that any Mediterranean drilling, or drilling in ECORD territorial waters, will take place on any faster timescale.

MacLeod suggested that scientific committees should be informed that proposal pressure is the only way to influence ship schedule in the next few years. Ildefonse suggested that proposals should be submitted by April 2007. MacLeod agreed and noted that this deadline does not apply to MSP proposals.

3. ECORD News

3.1 EMA Report

MacLeod presented a report sent by Catherine Mével (see Item 3.1 of the agenda book).

In 2007 a planned increase in operational activity, such that 3 platforms may be operating simultaneously, will result in inceased costs of SOCs and POCs. ECORD currently contributes 3 participation units and Japan and US each contribute 7 units. Each unit will increase from $3.5 million to $5.6 million. EMA intends to maintain our contribution at the current number of participation units, and increased funding is therefore required. ECORD Council is currently exploring national and European Commission routes for extra funding and the ECORD Evaluation Committee is due to present an interim report to Council in Nov 2006. The final report is due by end of the year and will be used by members of ECORD Council to seek national funds. ESSAC delegates too have an important role to play in conveying a positive message to national funding agencies.

MacLeod said he was hoping for a positive report at the ECORD Council meeting at the end of November and asked ESSAC delegates to pressure funding agencies and to present a positive image of ECORD. He emphasised that this is a critical phase as many countries' commitment is due to expire. MacLeod reminded the meeting that ECORD received no money from EC Framework 6 funding and only a small amount of funding from ECORDnet. Negative signals for funding from EC Framework 7 have been received and ECORD Council have therefore initiated a collaborative programme involving ECORD, HERMES, ESONET, IMAGES and EuroMargin to submit a mega proposal – "Deep Sea Floor Frontier Initiative"

Brinkhuis asked why signals from EC Framework 7 are negative. Ildefonse suggested that it is because as Framework 7 progresses there are fewer projects. MacLeod recounted a visit from an MEP to Cardiff University whom he lobbied for funding. The MEP asked Chris for more information and this is an issue that needs addressing forthwith. Ildefonse agreed that we need to start now for later stages and he urged political lobbying.

Action item: ESSAC to provide MEP with more information

MacLeod reported that ECORD Council and ESF have signed a Memorandum of Understanding (MOU) to facilitate communication with regard to Magellan and EuroMARC programmes. In summary this MOU states that:

〈*The Magellan Steering Committee and the EuroMARC Management Committee are the decision-making body, responsible for the management of, respectively, the ESF Research Networking Programme Magellan Workshop Series, and the EUROCORES Programme EuroMARC*

〈*In order to ensure maximal synergy and optimal integration of the future activities in Magellan and in IODP, ESSAC is invited to nominate a member in an advisory capacity to the Magellan*

Steering Committee; reciprocally, the ESF Magellan Steering Committee is invited to nominate a member in an advisory capacity to ESSAC

〈*In order to ensure maximal synergy and optimal integration of the future activities in EuroMARC and in IODP, ESSAC is invited to nominate a member in an advisory capacity to the EuroMARC Scientific Committee (when formed); reciprocally, the EuroMARC Scientific Committee (when formed) is invited to nominate a member in an advisory capacity to ESSAC*

MacLeod reported that he himself had been identified as the ESSAC member who would act in an advisory capacity to the Magellan Steering Committee and Teresa Bingham-Müller would act in a reciprocal advisory capacity to ESSAC on behalf of ESF. MacLeod also reported that, as of yet, similar arrangements were not yet in place with regard to the EuroMARC Scientific Committee.

3.1.2 Report submitted 12th December 2006 by Teresa Bingham-Müller

Magellan Workshop Programme information for the ESSAC meeting Naples

The ESF Magellan Workshop Series Programme was established to serve as a mechanism to stimulate and nurture the process of developing new and innovative science proposals to support European leadership in the planning of marine drilling expeditions and execute European proposals for use of drilling platforms and hence ensure the effective exploitation of research opportunities.

The Magellan Workshop Programme began with the first Steering Committee meeting in February 2006. The second Steering Committee will be held in Zürich Switzerland on Jan. 12 2007. Chris MacLeod Chair of ESSAC and Marcel Kullin Vice Chair of ECORD Council have been invited to attend this meeting.

A formal agreement in the form of a Memorandum of Understanding was signed between ESF and the ECORD Council Chair Marcel Kullin on 28th September 2006.

The first call for proposals, which closed on May 19 2006, resulted in the submission of six excellent workshop proposals. The following three workshops were selected to fund for 2006. All three workshops have successfully taken place.

1. Workshop on "Capturing a salt giant" 13-15 October 2006 - Hamburg, Germany
Convenor: Professor Christian Hübscher

2. Workshop on "Scientific Ocean Drilling behind the assessment of geo-hazard from submarine slides" 25-27 October 2006 - Barcelona, Spain
Convenor: Dr. Angelo Camerlenghi

3. Workshop on "Drilling through an active caldera, offshore Campi Flegrei, Eastern Tyrrhénian margin" 13-15 November 2006 - Naples, Italy
Convenor: Dr. Marco Sacchi

In addition Magellan Workshop Series provided funding for a number of Short Visit Grants for the "IODP Drilling Proposal Writing Workshop" within the EuroForum 2006, Cardiff, UK, 8-9 May 2006.

The second call for proposal applications closed on 15 November 2006. The Executive Steering Committee and a number of external reviewers are reviewing the following 8 proposals.

1. Exploring Escarpment Mud Mound Systems and Mud Volcanoes with new European Strategies for sustainable mid-depth coring, submitted by Silvia Spezzaferri

2. Marine Impacts and Environmental Consequences, submitted by Henning Dypvik

3. Evolution of the Ocean Silica Cycle and Biosiliceous Organisms, submitted by David Lazarus

4. Paleoproductivity dynamics and marine-terrestrial linkages during past regional and global climatic changes, submitted by Oscar Enrique Romero,

5. Drilling for Seismic Hazard in European Geosystems, submitted by Maria Ask

6. Climate-Tectonic Drilling in Southeast Asian Marine Basins, submitted by Volkhard Spiess

7. SAFARI, submitted by Ian Hall

8. Past Extreme Climates, submitted by Henk Brinkhuis

It is anticipated that the ranking and funding decisions will be announced on 15th January 2007 at latest. The next Call will be announced on 15th May 2007.

3.2 EuroMARC

MacLeod explained that the EuroMARC programme was established to facilitate pan-European marine coring research, especially with regard to IODP site surveys. At present Europe is disadvantaged with respect to the US because the level of funding that individual ECORD nations, especially the smaller countries, can commit to such activities is not normally sufficient to run a site survey cruise. A mechanism that would allow national funds within Europe to be pooled to run such site surveys jointly would, in theory, greatly increase ECORD's ability to contribute to the site survey requirements of IODP proposals.

In response to the recent proposal call for EuroMARC (with a deadline of 25 June 2006) twenty six outline proposals and fourteen full proposals were submitted. The Review Panel will meet on 10th Nov 2006, make recommendations to the Management Committee and the final decisions will publicised in early January 2007.

ESSAC is supposed to provide strategic input to the EuroMARC programme. However, it has never been allowed to do so. MacLeod referred the committee to the ESF and ECORD MoU regarding EuroMARC and the Magellan Workshops (discussed in the EMA report earlier), which specifically agreed that two-way liaison with EuroMARC should occur. In order to effect this, and to seek information about the EuroMARC planning and evaluation process, the ESSAC Office repeatedly contacted Bernard Avril at ESF. No response was received.

ESSAC remains unaware of the constitution of the EuroMARC Review Panel and Management Committee, except that Rachael James (UK ESSAC Alternate) has been asked to serve on the former (though not in her capacity as a member of ESSAC). The next meeting of ESF is on 10th

November 2006, and so it is unlikely that ESSAC will be able to be represented formally. It was agreed that more information was required regarding the management of EuroMARC. Brinkhuis asked who would be a source of information. MacLeod said he would raise the matter at ECORD Council.

Action item: ESSAC to seek further contact with EuroMARC to improve communications.

Liaison with EuroMARC is still needed. The situation with the Magellan Steering Committee is somewhat better. Teresa Bingham-Müller had been invited to the present ESSAC meeting and had intended to be here, but had had to cancel at the last minute because of illness. MacLeod has been invited to the next meeting of the Magellan committee in January 2007. It was noted, however, that some 8 ESSAC delegates were also members of the Magellan Steering Committee, and they should already be acting on ESSAC's behalf in ensuring our strategic input to Magellan was made.

4. Expedition Reports

4.1 Policy for future ESSAC Meetings

MacLeod reminded the meeting that ESSAC are obliged in the Terms of Reference to include reports from completed IODP expeditions in its meeting agendas. This has previously been overlooked and the issue should now be addressed. MacLeod considered that it was unrealistic to invite co-chiefs to give presentations as ESSAC has no budget for their expenses. MacLeod said he thought it was not acceptable to ask national offices for funds to invite the co-chiefs to present and suggested that one solution may be to task individual ESSAC delegates to act as watchdogs and give brief (15-20 minute) reports to Committee for future expeditions. These tasks to be apportioned fairly by the ESSAC Chair and the purpose of presentations would be primarily to inform ESSAC members about what is going on operationally.

MacLeod continued by reporting that the SPC have 15 minute reports from of expeditions from the relevant co-chiefs but in his opinion these are not particularly informative. MacLeod suggested that a more cost effective way of maintaining ESSAC's info. on expedition reports would be for one of the ESSAC delegates to prepare a report and present it in 15 minutes during the ESSAC meeting. MacLeod asked for comments.

Ildefonse thought it was a good idea and also thought that the IODP Preliminary reports are good both for self-evaluation and/or this exercise.

Brinkhuis did not think it was a good idea although he appreciated the rationale and stated that he preferred to hear the real scenario from the actual co-chief.

MacLeod said that ESSAC did not have a sufficient budget to invite co-chiefs to give a 15 minute report. Ildefonse said that he also enjoyed not only these talks but also the discussions afterwards although he does appreciate the cost implications. MacLeod also pointed out the differences in motive, i.e. IODP and SPC need justification of IODP funds whilst ESSAC wants only the information.

Brumsack suggested a compromise in that only European co-chiefs should present their expedition reports at ESSAC meetings.

Camoin state that France has no budget to invite co-chiefs.

Brumsack stated that funding was no problem for Germany. MacLeod noted the disparity between the funding abilities of different countries.

Erba thought it was good for co-chiefs to present the reports themselves.

MacLeod suggested that the respective national offices should be approached for the funding of co-chiefs presentation visits.

Camoin thought that delegates should take all opportunities to be informed.

Abrantes suggested that one of the European scientists on the expedition could give the presentation.

Ildefonse said ESSAC could not invite people or demand that they attend without paying their expenses.

MacLeod concluded that ECORD should be asked for funding for this kind of activity adding that it would be a step towards Pan European funding. However he added that ECORD Council are wary of this type of commitment and prefer the proportional funding model. MacLeod asked the delegates for approval of this suggestion to ask ECORD Council.

Brinkhuis said he would second this and there were no objections to the idea. Brinkhuis also mentioned the example of the ACEX report which later transpired to be significantly different from the co-chiefs report. This example illustrates the fact that it essential to have first-hand accounts of the expeditions.

Ildefonse agreed with Brinkhuis regarding ACEX. Ildefonse then commented that France were struggling on their budget and if there was any surplus money he would rather use it to disseminate IODP information at AGU and EGU than use it to invite co-chief presentations.

Camoin thought that the budget needed to be increased before ESSAC could invite presentations at their meetings.

MacLeod reported that there was not even a budget for ESSAC meetings and that member nations had to be relied on to host these events.

It was concluded that MacLeod should ask ECORD Council for a budget for this activity and if this was not approved or if the co-chiefs were unable to attend then ESSAC would still go ahead with the watchdog idea, i.e. ESSAC members should themselves prepare brief reports on each expedition. The purpose of these presentations is primarily to inform ESSAC members about what is going on operationally.

Action Item: ESSAC Chair to ask ECORD Council for money for co-chief participation in ESSAC meetings and, additionally, for funds to support ESSAC meetings in general

5. Workshops

As mentioned at the previous ESSAC meeting, there had been the threat that invitations to ECORD scientists to attend IODP-MI workshops would be restricted by the 7:7:3:1 quota – i.e. that ECORD

could only participate at a level of 3/18ths). The same restriction had been suggested for participation in Mission Teams. ESSAC had requested that the matter be raised at IODP Council in July 2006. Mével informed us (in her EMA report) that IODP Council had affirmed that the 3/18ths quota applied to financial support (from co-mingled funds) for scientists attending IODP-MI workshops (and Mission Teams) rather than restricting the number of invitations. IODP Council confirmed that invitations would not be made on the basis of nationality but purely on merit. If ECORD wished to have a greater proportion of its scientists participating in such activities it could do so but would have to provide financial support for the individuals concerned.

Action Item: ESSAC Chair to ask ECORD Council for money to support 'over-quota' ECORD scientists at IODP-MI workshops

5.1 Reports from recent workshops

The report by Judy McKenzie for the January workshop, *Exploring the Deep Biosphere with Scientific Ocean Drilling* is posted on the web. Workshops recently attended by ESSAC delegates included *Mission Mohole* in Portland, Oregon, attended by MacLeod and Ildefonse and *Submarine Slides* in Barcelona attended by Comas. MacLeod asked if anyone else had attended any workshops and there was no response.

Comas reported on the *Submarine Slides* workshop. She concluded by stating that the organisers were planning to write a Mission proposal on the topic of the workshop, for the 1st April 2007 deadline. MacLeod asked whether they were aware of the specific requirements that had to be met in a Mission proposal, and cautioned that they needed to be aware that Mission proposals had to be more than just a collection of proposals on a related theme. There needed to be a single overarching first-order objective, and individual components that would not succeed in the IODP proposal system individually. If the individual components could stand alone, and one was not directly contingent upon another, then it would probably be better to submit the proposals separately rather than under a Mission umbrella. Because IODP plan only to approve one or possibly two Missions at any one time, and a Mission would inevitably run for many years, the *Submarine Slides* proponents would potentially face more competition by going down the Mission route than by simply submitting a number of conventional proposals.

Ildefonse added that other essential aspects of a Mission proposal included consideration of the public interest and societal relevance of the science, and that outreach needed to have been demonstrated in advance. He went on to say that it was necessary to involve people from the beginning to ensure that all the required technology was available, and asked if there had been discussions at the *Submarine Slides* workshop specifically about the technological issues that would be needed for the planned expeditions.

MacLeod summarised by saying that, despite the now-published guidelines, in fact no-one had any real idea as to what to expect until the first round of Mission proposals had been submitted and reviewed. Having himself been involved in one of the working groups (on SPC) who developed the Mission concept, he offered to provide advice to anyone requiring help with Mission proposal submission.

Ildefonse then gave a presentation about the *Mission Moho* workshop.

MacLeod used the *Mission Moho* workshop as an example of why the new Mission concept was instigated by IODP-MI, and was necessary to have in addition to the normal proposal system. To

drill to the Moho would require sustained allocation of resources over a long period of time, require development of new technologies, on too large a scale to be readily approved by the SSEP/SPC 'bottom-up' proposal system.

Ildefonse asked about the constitution of the Mission Team, and whether the leaders should be people who are also involved in the individual proposals, or whether they would be deemed to have a conflict of interest. Extensive discussion had ensued at the Oregon meeting but no consensus was reached. Ildefonse asked ESSAC for their comments.

Erba commented that it would be difficult to find people who had the time, commitment and expertise but who were not directly involved in the proposal already. Ildefonse agreed that the idea was good in theory but difficult in practice. Erba thought that there may be potential candidates amongst the reviewers, which might therefore constitute a conflict of interest. Sacchi suggested that an internal mechanism which fulfils the requirements should be sought. Ildefonse used the example of the Continental Breakup workshop as one where the group are very proactive and have already identified names for the authors of a Mission proposal.

MacLeod commented that the Mission umbrella does add an extra level of complexity and emphasised once again that the Mission route might not always be the best one. He put forward the question of what would happen if one individual component were to receive a poor review or be immature (e.g. lacking site survey etc.), and whether that would jeopardise the Mission proposal as a whole. He noted that Susan Humphris (erstwhile Chair of SPPOC, and responsible for the Mission Plan) had been asked at the *Mission Moho* meeting how many proposals she envisaged constituting an individual Mission, to which she responded that she thought it would be of the order of 5 or 6, although this was (deliberately) not fixed.

Ildefonse suggested that 'shopping lists" were not desirable and that focus was needed. Erba asked how it would work if only one proposal under the umbrella was good. Ildefonse thought that the components would be evaluated individually although good proposals could be delayed or even fail because of its involvement in a mission program. Missions could be terminated at any time by SPC.

MacLeod concluded the discussion by suggesting that anyone interested in Mission proposal submission should read the Mission Plan as it is now very detailed.

5.2 Policy regarding receipt and dissemination of workshop reports

MacLeod reported that there had been complaints in IODP days that the reports of planning groups or workshops had never been properly disseminated or publicised. MacLeod proposed that ESSAC should do what it could to aid the dissemination of formal workshop reports by requesting them from the organisers and IODP-MI and posting them on the ESSAC website.

Ildefonse noted that there should be less of problem in obtaining reports from the workshops funded by IODP-MI as production of such reports is a requirement of funding. The Magellan programme has similar requirements for the workshops it funded.

5.3 Future Workshops

It was agreed that the ESSAC–Magellan link was still not functioning optimally. ESSAC had not been informed of the results of the previous funding round nor what had been submitted for the

current round [*N.B. Teresa Bingham-Müller's report in section 3.1.2 was not received until after the ESSAC meeting in Naples*]. For example, ESSAC was unaware of Magellan's support for the Hübscher salt workshop.

Brumsack further commented that one workshop that had been funded by Magellan, on the Mona impact crater, was linked to an IODP proposal that had been very poorly received by the SSEP and was unlikely ever to be drilled by IODP. He was very critical of the Magellan Steering Committee for having funded this workshop proposal, cited this as an example of why ESSAC, and the ECORD scientists on the SSEP and SPC, needed to have input to Magellan Steering Committee deliberations. Erbacher responded by saying that the Steering Committee could only judge the proposals in front of it and rely upon the proposal reviews, even if they didn't feel they were in full possession of the facts. MacLeod noted that one of the prime responsibilities of the ESSAC members who also sit on the Magellan Steering Committee is to inform themselves of the broader strategic importance of the topics (and, in particular, of the status of the associated IODP drilling proposals)

Brinkhuis noted that ESSAC had identified six specific topics that it thought would be suitable subjects for Magellan workshop support. He said that these were listed in the Minutes of the 4th ESSAC meeting in Graz (in Spring 2005). However, the Minutes of that meeting were not available, and the Committee were unable to remember all of the topics by name. Piller asked why these six topics, previously been agreed by ESSAC, had not been forwarded specifically to Magellan. MacLeod asked why the ESSAC members-in-common that sat on the Magellan Steering Committee had not communicated the topics to Magellan itself.

After extensive discussion it was agreed that, after consulting the earlier Minutes to see exactly what had been said, the ESSAC-Magellan liaison (MacLeod) should request that the Magellan Steering Committee include those specific topics in its next Call for Proposals (deadline 15th May 2007). It was suggested they may wish to include a form of words for the Call along the lines of: "Applications on any topic covered by the IODP Initial Science Plan will be considered, but those on subjects X, Y and Z are particularly welcomed".

MacLeod informed the ESSAC that the SSEP and SPC had given their endorsement to two topics that IODP-MI had indicated they were unable to commit to funding at the present time. These were 'Ultra-high Resolution of Palaeoclimate' and 'Extreme Climates and Abrupt Climate Change during the Cretaceous and Palaeogene'. SPC had urged the relevant national organisations of each of the main IODP members – i.e. Magellan, in the case of ECORD – to consider whether they could support workshops on these themes instead. Erba noted that the Arctic Palaeogene and Cretaceous are already included in other proposals currently in the system.

MacLeod informed the Committee that IODP-MI had not yet announced either the number of subject of the workshops it would support in FY07 and beyond. It was thought that IODP-MI were planning to support no more than 1-2 workshops per year from now on. It was known that workshops on the themes of 'Geohazards' and 'Large Igneous Provinces' were actively being considered by SASEC for 2007 but these had not yet been formally approved.

Action Item: ESSAC liaison to Magellan Steering Committee to request that they include named topics in the forthcoming call for proposals, and look favourably on workshop proposals on the subjects of the themes endorsed by SPC

Erbacher commented that although ESSAC was free to make such a request, the Magellan Steering Committee still has to abide by ESF rules, and that the Magellan programme was not exclusively tied to IODP.

The specific topics identified by ESSAC members as potential Magellan workshops were in fact listed in the Edinburgh ESSAC meeting Minutes (meeting #5, November 2005). Note that some of these have since been held, variously under IODP-MI or Magellan banners. The topics originally proposed by ESSAC were:

1. *Continent-ocean interactions*
2. *Evaporites and salt tectonics*
3. *Arctic studies*
4. *Continental Breakup*
5. *Extreme Climates*
6. *Costa Rica Seismogenic Zone*

In further discussion of future workshops, Sacchi outlined the programme for the forthcoming Campi Flegrei combined ESF Magellan and ICDP Workshop in Naples on 13 -15th November 2006. Two of the main topics to be addressed at the workshop are i) a discussion on the state and nurturing of the IODP volcanic margins theme; and, ii) new ideas for new IODP proposals relating to the volcanic mantle issue. Sacchi explained that this was to be a joint meeting supported by co-mingled funds. The ICDP workshop would be linked to an ICDP proposal. Brinkhuis asked about funding allocation. Sacchi replied that ICDP have provided $30k, and Magellan and CNR have each provided some additional funds.

Brinkhuis asked how many people were involved. Sacchi replied that there were 20 invited speakers and 30-40 participants. Brinkhuis asked how these participants were being funded and Sacchi replied that there was ESF money for ESF participants and ICDP money for ICDP participants. Brinkhuis asked if it was joined with another workshop for economic reasons and Sacchi confirmed that this was the case. Brinkhuis commented that €11.7k was close to the maximum that Magellan would commit to an individual workshop. MacLeod asked if €20k was the maximum. Brinkhuis thought that €20k would fund 20 people. Brinkhuis questioned how much funding had been required for the workshop in Barcelona and Comas said that it had been more expensive.

Ildefonse calculated that 100 participants would cost €100,000 and perhaps only even support 80 fully involved participants. Erbacher was able to provide the exact budget figures numbers and reported that the usual funding level was €18k plus €6k from ESF making a total of €24k.

Erbacher gave a summary of upcoming workshops and MacLeod asked him to provide a report for inclusion in the minutes. Erbacher agreed. (see section 3.1.2 herein, provided by Teresa Bingham-Müller).

MacLeod suggested that potential themes for future Magellan workshops should be discussed over dinner, reminding delegates about the lists and nominations needed for the Agenda items for meeting the following day. He closed the first day of the meeting at 17:30.

Friday November 2nd 2006

6. Staffing

6.1 Nominations for new SAS panel members

SAS representative replacements:

Science Planning Committee (SPC)
A replacement on the SPC panel is needed for MacLeod after August 2007. As MacLeod will be at sea during the next SPC meeting in March 2007 it would be sensible for the new member to attend this earlier meeting. The steering committee have proposed Hugh Jenkyns who has considerable past experience with DSDP and ODP and has previously served on PCOM. Other, and less experienced applicants who were considered would be conflicted on proposals. Involvement in a proposal excludes the proponent from a large part of the SPC meetings. MacLeod asked if there were any objections and stated that silence would be considered as acceptance. There were no objections and so Hugh Jenkyns will replace MacLeod as SPC panel representative commencing with the next SPC meeting in March 2007.

Engineering Development Panel (EDP)
A replacement on the EDP panel from June 2007 is required, preferably from a "small country". Abrantes said she had an idea for a nominee but she would like to consult them first. MacLeod agreed but stated that we must have the name as soon as possible as they need to be approved by ECORD Council on November 27th. Strand said he also had a nominee but was in the same situation as Abrantes in that he should consult the person first. Strand asked what sort of qualifications would be needed. MacLeod thought the representative needed to be from a generally technical background, not necessarily an engineer but operational rather than scientific, e.g. borehole stability. Arnold suggested Daniel Ask who is a borehole scientist working for an energy company in Sweden. His projects include the study of rock mechanics regarding the potential storage of nuclear waste.

Ildefonse reported that the Chair of EDP, Peter Flemings, had stressed that one important area of expertise required on the panel was that of borehole stability. It was decided that the three delegates would approach their nominees and report back to ESSAC. If there was more than one acceptance then ESSAC would vote and the remaining candidates would be offered the role(s) of permanent alternates. MacLeod thanked the delegates for their efforts in this nomination process.

Scientific Technology Panel (STP)
A new panel member, preferably from a small country is needed from December 2006.
MacLeod quoted from STP Chair Mike Lovell as to the required profile of the new member: "the areas we lack expertise in are as follows: biochemistry and microbiology, chemical oceanography, sedimentary and organic geochemistry, tectonics and application of geophysics, sedimentology and (to a lesser extent) databasing... What we are already strong on is micropalaeontology, igneous, observatories and downhole logging"

Silvia Spezzaferri wishes to stand as a member of STP, but her expertise (micropalaeontology and palaeo-environment) is not one required by the panel. MacLeod therefore asked the Committee if they could come up with the names of additional candidates. If one or more came forward then the ESSAC delegates would vote for their preferred candidate. Kleiven thought that she could provide the name of a suitable candidate but she would need to approach them first. Weissert reiterated that Judy McKenzie strongly recommends that Spezzaferri remain as a permanent alternate if she is not

selected as the standing delegate. Camoin suggested that there may also a resource pool in the sedimentology or microbiology units at Zürich. Weissert will investigate this avenue for potential candidates.

MacLeod reported that Doug Schmitt (Canada), who is currently a permanent alternate on STP had been approached and asked whether he wished to be considered as a candidate for the ECORD small country delegate position on STP. He declined the invitation but indicated that he wished to continue as a permanent alternate.

Action Item: MacLeod asked the delegates to return all nominations for the EDP and STP panels together with the agreements of the nominees to the ESSAC Office by Monday 13th November 2006. This allows time to circulate the information to all ESSAC delegates and provide them the opportunity to vote on their preferred nominees before submitting the names to the ECORD Council for approval on November 27th 2006.

6.2 Report on final staffing of Expedition 313 (New Jersey MSP)

MacLeod showed the tabled applications for this expedition including the star rankings given to each applicant. All applications, whatever their star rating, had been forwarded to the Operator (here ESO). He noted that Heimhofer was suggested by the co-chiefs although he didn't initially apply. MacLeod then explained that the staffing process was iterative, and that the star rating was indicative rather than prescriptive. He gave the example of McCarthy, who was only allocated one star because Canada are so far over-quota, but who had unique and essential expertise. On behalf of ESSAC MacLeod had agreed to the request from the co-chiefs and Operator that McCarthy be invited on the expedition, as selecting the best science party is always paramount. MacLeod said he intended to follow the same format for the NanTroSEIZE staffing. Brinkhuis asked for an explanation as to the significance of the stars in the ranking column. MacLeod explained that these were only a guideline for the Operators. Brinkhuis asked about the criteria used to select the co-chiefs for this expedition. MacLeod replied that he had no details but that co-chiefs are selected from a list of nominees forwarded to the operators by SPC. Although some of the nominees are drawn from the proponents, not all are usually put forward, and more names are provided by the SPC members. The Operator is responsible for selecting the co-chiefs from this list. MacLeod commented that he was uncomfortable with this system, because it acted as a disincentive to proposal proponents if they had no guarantee of even being considered for the co-chief position.

Ildefonse added that allocation of co-chiefs is strictly controlled by the quota agreed in the IODP MoU, and hence that the number of ECORD co-chiefs is 3/17ths of the total. MacLeod concurred but said that he had been informed that, as for normal scientific berths, ECORD actually have 1/3 of the co-chiefs. He had checked the co-chief allocations for the IODP expeditions to date and this 1/3 figure is correct.

Ildefonse thought it would be unusual to have a co-chief who is unaware of the science. Brumsack thought that the final decisions about co-chiefs should be approved again by SPC after the Operator's selection process. He also commented that ECORD nominees do not have to be from Europe, e.g. US members of SPC can nominate Europeans and vice versa. MacLeod agreed and pointed out that ESSAC should be prepared to act quickly when nominations were sought, as the window of opportunity for suggesting names was small. MacLeod also pointed out that in IODP the intellectual property rights, or ownership of the proposal, do not stay with the proponents as is the case with conventional national level grant proposals.

6.3 Review of NanTroSEIZE applications, and grouping of nominees

MacLeod informed delegates that 84 applications had been received for the five NanTroSEIZE expeditions on *Chikyu* and the SODV. He reviewed ESSAC's normal evaluation process, whereby ESSAC evaluated the ECORD candidates and gave each a 'star' rating based on experience and national balance, before forwarding all the applications on to the Operators (in this case the US and Japan).

The 84 ECORD applications are from the following countries: Austria 0; Italy 18; Belgium 1; The Netherlands 1; Canada 1; Norway 1; Denmark 0; Portugal 4; Finland 2; Spain 2; France 18; Sweden 2; Germany 14; Switzerland 3; Iceland 0; UK 16; Ireland 1.

ESSAC needs to group the applications according to national- and ECORD-level strategic priorities, and ECORD internal quotas, and then forward the applications to the relevant Implementing Organisations (USIO & CDEX). The IOs, together with the NanTroSEIZE Project Management Team and expedition co-chiefs, will make final choices based upon scientific expertise and ESSAC grouping.

With the agreement of the Committee, MacLeod determined that, as with previous staffing exercises, a priority grouping (High, Medium, Low; or else 3-star, 2-star, 1-star and 0-star) should be assigned to each application, taking into account the quotas based upon financial contribution. This equates to (on average) 2 France, 2 Germany, 2 UK, + 2 small country berths per expedition.

The full applications (with CVs) were sent to each ESSAC national delegate prior to the meeting, and are also available for inspection at the meeting. ESSAC delegates should therefore have already reviewed applications from their own country (at least) in advance of the meeting.

MacLeod referred the delegates to Appendix 8 which describes the five NanTroSEIZE expeditions and summarised their task of grouping the applicants into categories before forwarding to the Operators and co-chiefs for selection. At this stage the Operators have to consider the Japanese, US and Chinese and Korean applicants.

Brumsack asked how many berths were available on *Chikyu*. MacLeod answered that we have to base the science party on an allocation of 24 berths. MacLeod informed the delegates that the first staffing meeting for the two SODV NanTroSEIZE expeditions would take place in College Station on Monday 6th November, and therefore ESSAC needed to send off the details as soon as possible.

Erbacher stated that some applications were only suitable for one of the expeditions and could be highly recommended for this but not recommended at all for the other expeditions. MacLeod agreed that this might be the case for some candidates but stated that the staffing exercise would become impossibly complicated if ESSAC were to attempt to assign different priority groupings to an individual candidate for each of the five expeditions. Not all candidates had indicated which expedition they were interested in. It was agreed that ESSAC would simply prioritise the ECORD candidates once, regardless of expedition, and would leave it up to the Operators which candidates they felt most suitable for each expedition. It was felt that the Operators, co-chiefs and project management team would appreciate being given the flexibility.

MacLeod then summarised the applications from each country. Whereas the number of applications from the big three countries (UK, France and Germany) were roughly in proportion to their financial contribution, the range of interest from the small countries varied widely. The number of

applicants per country varied from 0 to18, and this did not correlate at all with their individual financial contributions. This demonstrates a marked imbalance between political interest/financial capacity and active scientific interest from country to country. Some countries – ESSAC representatives and/or national offices – are clearly more effective in motivating their scientific communities than others. MacLeod suggested that the Committee discusses motivation methods later in the meeting. He then explained the chart on page 17 of the Agenda Book which relates to staffing/quotas. France Germany and the UK are allocated 25% of the berths each and the remaining 25% are allocated to the remaining countries. The number of berths to which each country is entitled, taking account of staffing up to and including Expedition 313, is calculated for each individual country.

Referring to the chart, Brumsack raised the issue of Expeditions 307 and 308 being under-subscribed and the fact that Germany provided scientists to fill these positions. He asked if this was recorded and whether it would now count against Germany's allocation quota. MacLeod answered that this had indeed been recorded and that it would not count against Germany's quota. Italy was also in this same position.

Brinkhuis asked who the participant for the Netherlands was on Expedition 310. Ildefonse answered that it was Claus Velver from Amsterdam. Brinkhuis then asked who the participant for the Netherlands was on Expedition 308 and the answer is Valentina Zampetti.

Weissert stated that country allocations were complicated because scientists, particularly Ph.D. students, are transient and move from one country to another. Ildefonse agreed but said this was a common phenomenon. Before sending a student on an expedition a guarantee would be needed that work will be done on the samples after the expedition. It would be preferable to have the support of a geographically stable person or laboratory. Reference was made to the French applicant for NanTroSEIZE currently based in Santa Cruz, US. The case of a scientist who has applied both as a US participant and an Italian participant was also discussed. The USAC Chair, Holly Given, had suggested that the Italian/US application should be considered as being from ECORD as the person will soon return to a position in Italy. McInroy questioned whether it was fair to prioritise scientists on the basis of their laboratory support, as this works against the younger, not yet established scientists. MacLeod and others expressed their sympathy with this view, but MacLeod was of the opinion that it was best that the young scientists have a mentor or guarantor in their laboratory. Arnold supported this view. Kleiven asked if they were referring to lack of experience or lack of scientific ambition. MacLeod reported that more students had applied than was normal and the task for ESSAC was to distinguish the 'geotourists' from the scientists who would be most likely to make a useful scientific contribution to the expeditions. Ildefonse also supported the view that students without adequate laboratory support should not be selected as these expeditions are not training exercises.

Arnold stated that Sweden had been very co-operative with regard to transient students, citing an instance in which a student moving from Sweden to Southampton UK had been counted as a Swedish applicant. However, she said that in future such an applicant would be counted as a UK scientist. MacLeod noted that usual practice was for scientists to count against the country that supported them during the cruise and for their post-cruise research.

Ildefonse opined that, despite ECORD having more applications that either the US or Japan, the number of applicants from ECORD is way too low. He explained that the new director of CNRS was not impressed by the French application numbers. Camoin asked about the applications from the US and Japan. Arnold reported that the situation was much the same as Europe. The time

schedule is the major problem with six months notice not being long enough. The lack of definite cruise dates was also likely to be a factor in deterring people from making applications.

MacLeod returned to the question of motivation within the ESSAC delegates' own countries. He considered that mass emails emanating from the ESSAC Office were not effective enough and asked for ideas on other possible strategies that could be employed: e.g. flyers, direct phone calls etc. He conceded that NanTroSEIZE is a special case but in general more effort must be put into outreach activities. Camoin agreed with the point about the overly short notice of time schedules and cited Tahiti and New Jersey as examples. Ildefonse also thought that more effort should be put into seeking applicants of the right calibre. If the application rate remains at these low levels there will be serious implications for survival of the program in the next few years. Camoin said that only the three MSP expeditions plus two North Atlantic expeditions had had enough ECORD applications in his opinion. Weissert suggested that the program is not succeeding in contacting the young communities. Brinkhuis suggested that there would be many more applicants from the Netherlands if the country's available quota of berths was higher. Ildefonse countered that all potential applicants from the Netherlands should apply regardless of the quota. MacLeod stated that the quotas are for guidance only and essentially the program needs more money at Council level and more berths at ESSAC level.

MacLeod referred to the Agenda appendices where a summary of applications is included in Appendix 9 and the applicants' web form data are included in Appendix 10. The full CVs and reference letters are not included in the agenda appendices but are available for download or viewing on the password protected pages of the ESSAC web site. MacLeod discussed how he proposed to organize the methodology of the grouping of applicants and suggested that the delegates first sort the applications into groups and then that all the applications should be forwarded to the operators. He asked the delegates for their opinions on how much flexibility should be allowed to the operators in their selection. At Arnold's suggestion it was decided to leave this question until the respective delegates had given their countries' reports.

MacLeod proceeded to ask each country in turn for their appraisal of their own applicants. A lengthy but constructive discussion ensued, making reference to the intra-ECORD quota balance when necessary.

McInroy suggested that the initial web form filled in by the applicants should clearly state that letters of support are required. The web form currently gives instructions for uploading additional documents but does not classify them as mandatory.

Brinkhuis thought there should be a plan to accommodate undergraduate trainees. MacLeod said that he would forward this request to the Operators and said that he knew of other interested parties. He thought it was possible to sail such trainees if vacancies occurred in the staffing party. Ildefonse said that there was an undergraduate programme in the US but it is financially driven therefore making this a question for ECORD Council. MacLeod had no objections to a trainee programme as long as it is over and above ECORD's science quota.

MacLeod then commented about the wonderful level of interest from Italy (with 18 participants), adding that there is clearly more interest from the science community than from the funding agency. The problem is for Italy's funding agencies to achieve a higher funding level as Italian applicants are well qualified but hampered by Italy's low quota of berths.

Ildefonse asked for clarification of procedure, i.e. will all the applicants with stars be forwarded to the operators. MacLeod answered that all the application would be forwarded.

MacLeod totalled the grouping allocations following the discussions and announced that there are 30 high priority applicants (3-star), 18 middle priority applicants (2-star), 14 low priority applicants (1-star), 19 unclassified (zero star), and 3 applicants who wish to be shore-based only. All 84 applications would now be forwarded to the operators with the ESSAC grouping recommendations.

Ildefonse suggested that ESSAC write a consensus letter to accompany the list. MacLeod agreed that a comprehensive letter should accompany the applications. ESSAC will draft a letter explaining the procedure and also ask about undergraduate training possibilities. This will be sent to the operators. MacLeod does not propose to circulate a copy of the letter to ESSAC unless there are changes to be made to the iterative process as discussed today. Delegates gave the ESSAC Chair authority to proceed in this manner.

Action Item: ESSAC will draft a comprehensive letter to the operators to accompany the NanTroSEIZE applications which explains the grouping procedure and also asks about undergraduate training possibilities.

6.4 Call for applications for Equatorial Pacific expeditions

USIO are promoting two Equatorial Pacific expeditions and have released a call for both with a simultaneous deadline for applications of 18th December 2006. The expedition dates are provisionally Nov-Dec 2007 and Nov-Dec 2008. This call does not allow much time for applicants especially as the second expedition Equatorial Pacific 2 is two years ahead and there are the additional problems associated with the SODV2 proposed refit. MacLeod commented that the early call may result in fewer applicants and suspects that based on New Jersey experience that USIO will reopen the call at a later date. He recommends that applicants should be informed that the schedule is due to change. Ildefonse was in favour of advising all applicants at this stage that the ship schedule can be changed. He suggests that candidates apply now regardless of this fact as they have the option to withdraw at a later stage if necessary, i.e. if the final dates are unsuitable. Their applications would be more a 'statement of interest' rather than a commitment. Arnold thought that if the ship went into the shipyard before the end of December then the present schedule could be maintained. She advised against making a formal announcement that the schedule may change. Ildefonse agreed that care would be taken when discussing this issue with potential applicants. MacLeod was in favour of a carefully crafted announcement on the ESSAC web site. A date for forwarding the applications to the operators has not been advised yet but if it is sooner than the next ESSAC meeting in May 2007 then a similar prioritization exercise as to the one performed here today will be conducted by email. Ildefonse asked how many of the meeting attendees would be going to AGU in San Francisco in December. There were very few positive responses so Ildefonse suggested that everyone asked their colleagues who were attending AGU to promote the Equatorial Pacific Expeditions on their behalf. It was agreed that although no official announcements could be made regarding any possible rescheduling or delay to the proposed Equatorial Pacific Expeditions that potential participants should be advised informally that there may be delays. Participants should be encouraged to apply even if they are unsure of their future status in 2 years time.

6.5 Reflection upon best practice for future calls for applications

MacLeod made the general point that one of the main roles for ESSAC delegates is to go out and solicit nominations for expeditions, not just forward mass e-mails. There is a specific need for delegates to go out into their own communities, give talks and presentations and in addition to

target national bodies such as geological societies, research councils and their newsletters etc. Probably different strategies are needed in different countries and for different audiences. Delegates should adopt a salesperson role.

Camoin suggested advertising country quotas in newsletters, society publications and EOS. Erbacher commented that only personal contact works in the end and that he thought 'small group' meetings were effective.

MacLeod suggested pooling PowerPoint presentations for people to give talks. The ESSAC Office would like to collate a pool of such presentations for general distribution. He asked delegates for their approval.

Ildefonse commented that there were already some on the IODP website and added that ESSAC should post these presentations on the password restricted pages of the website. He thought that some of the presentations should not be publicly available for download. MacLeod agreed to provide supporting information as to which material can or cannot be published.

Arnold said that the Swedish NSF would include calls for applications and suggested that all delegates do the same for their own countries. MacLeod agreed saying that all calls should be tailored for the specific country as funding procedures differ between countries. Weissert argued for a pool of Pan-European funding for scientists, but it is clear that the politics is not yet there for this to happen in the short to medium term. MacLeod noted with regret that the status quo was that not only scientific merit but one's home country plays a significant factor in affecting one's chances of being invited on an IODP expedition.

Brinkhuis suggested that online information about the Chikyu, e.g. life on board etc. would be helpful. Ildefonse said he would suggest this idea to Nancy Light. Arnold said she would contact Japanese colleagues and ask if they could provide material along these lines.

Ildefonse suggested that the website should include an information section for school children and be available both in English and in French. MacLeod thought ESSAC should cater for different audiences e.g. the general community at large and the scientific community. He suggested that there might be an open part of the website and a restricted section. MacLeod went on to say that ESSAC's primary outreach task is to get more applicants. He considered email floods as being sometimes self-defeating and stressed the fact that more effort from individual ESSAC delegates is required.

Ildefonse replied saying that emails alone are not enough but that they are a necessary step. Ildefonse's mode of working is to first send out general emails and then to email target individuals by name. He is building up a network in France of people in different disciplines. Ildefonse added that he appreciated the cultural and political differences between countries but that ESSAC should focus on how help can be given at a European level. Help such as this would be particularly useful for small countries.

7. Education and Outreach

7.1 ECORD Newsletter #7 (October 2006), and #8 (April 2007)

Maruéjol gave a report on the latest ECORD Newsletter, ECORD Newsletter No. 7. She commented that at the moment there is no precise mailing list of newsletters to ESSAC delegates

for distribution but that she would send each delegate their own copy. If the delegates required additional supplies for distribution then they should contact her directly. She added that she welcomed contributions for the next newsletter (no. 8). This is due for publication in March 2007 but contributions would be welcome until the end of January 2007. A report from Kopf and/or Lallemant about life onboard *Chikyu* had been solicited and would be especially welcome.

MacLeod asked Maruéjol if she could please also send the newsletter to all ECORD SAS panel members routinely from now on.

7.2 GIFT/ECORD teachers' conference (EGU Vienna 2007)

Arnold outlined her plans for the next GIFT (Geophysical Information For Teachers) workshop on 16th – 18th April during the 2007 EGU meeting in Vienna. She showed programmes from the previous two years. The workshop is scheduled for 2.5 days and the planned speakers for this year will give presentations on the theme 'Geoscience and the Cities – Natural Hazards'. Arnold showed the planned speakers list and gave examples of the various types of proposed exhibits of natural hazards in cities, including the Coliseum in Rome, earthquakes in Istanbul and Rome, flooding in France and atmospheres re Milagros. The focus of the workshop would be on the work of high level scientists and on natural hazards from the IODP viewpoint. She asked for volunteers to give talks on natural hazards. Topics relating to the Arctic regions are not included as these have been the subject of focus during past meetings. Camoin suggested Hesselbo for a talk on hazards relating to the New Jersey Shallow Shelf Expedition and McKenzie for a talk on the deep biosphere.

Arnold will send out application calls for teachers. There is a budget of €10K provided by ECORD-net for teacher support. The EU allocates €400 per person for travel and accommodation. Registration to the whole of the EGU meeting (normally €350) is waived for invited speakers of the GIFT workshops. There will be a single application for both the GIFT and the IODP workshops. Attendance usually consists of c. 70 teachers from Europe. Both AGU and EGU are represented on the committee which allows Americans to attend. Japanese participants will also be invited. Arnold will reproduce the current CD produced by Brinkhuis and distribute them at the meeting. Camoin offered copies of the recent television documentary produced about the Tahiti Expedition. Arnold asked Camoin if he still had contact with teachers on Tahiti and if he thought they should be invited to the meeting. Camoin replied that he still maintained good contacts with these teachers but that he considered it uneconomical to invite them to EGU. Ildefonse recommended Kopf as an invited speaker and also thought a Japanese speaker should be invited. Erbacher recommended Behrmann as an invited speaker. Ildefonse was keen that the topic "Ocean Crust" should be included in the workshop programme. Arnold stated that there were 7 hours of programming and that simple and clear talks were required for a mixed audience. Sacchi asked Arnold if she had contacted Camerlenghi as a contributor to the workshop and Arnold confirmed that she had. Sacchi also suggested that she contact Emanuel Lodolo from OGS and Arnold agreed. MacLeod formally thanked Arnold for her efforts.

7.3 ECORD Distinguished Lecturer Programme

MacLeod introduced the issues of Summer Schools and a Distinguished Lecturer Programme (DLP) by recounting that Pearce had volunteered to organise such programmes during an ECORD Council meeting earlier this year. The Council agreed to a budget of the order of €75k per annum for outreach activities providing that ESSAC first produce a detailed plan together with costing for Council approval.

As regards a DLP, ECORD Council would like a plan plus budget in time for their meeting on 27 Nov 2006. The DLP could be based on the model of the US Distinguished Lecturer Series (DLS) which is run by USSSP. The US advertise for nominations of speakers and also request self-nominations. Once the lecturers have been selected the universities bid to host the talks. MacLeod emphasized that this would be good publicity for ECORD and may influence both potential expedition applicants and funding agencies.

MacLeod asked the meeting for their opinions and specifically whether ESSAC should follow the USSSP model and whether the programme should be advertised widely or whether specific people should be invited to apply. Arnold commented that in the US programme speakers are usually contacted by networks. MacLeod reported that this year there are seven lecturers in the US programme and asked if ESSAC could support as many as seven or should there be a trial year with only one speaker? Additionally should the speaker concentrate their lecture on an IODP theme? MacLeod invited opinions.

Erbacher suggested a trial year of one or two talks. MacLeod asked if the series should be assigned a name, for example the "Shackleton Lecture Series". MacLeod suggested that ESSAC aim for three lecturers one on each of the three principal IODP themes plus each giving a general introduction to IODP provided by ECORD/ESSAC. The was a broad consensus on this being the correct scale.

MacLeod asked if the meeting would like to nominate speakers during this meeting or if they would like time to consider. Camoin suggested that nominees should be forwarded to the ESSAC Office after the meeting but within 10 days, i.e. by 13th November 2006. This would give time to prepare the case to present to ECORD Council at their next meeting on 27th November 2006. Brinkhuis asked if a 45 minute talk about IODP in general was required. MacLeod thought that a 15 minute common introduction to IODP should be followed by a case study on one theme. Arnold commented that the US lecturers commonly provided two talks per each university visit and that these were targeted at two different audiences, i.e. a non-specialist general public audience and a faculty level audience. Ildefonse volunteered himself for nomination and offered a talk at three different levels. It was agreed that self-nomination for speakers is acceptable and ESSAC will otherwise advertise via the web site and mailing lists for nominations, and/or approach individuals that delegates identify. A deadline of 13th November was agreed for ESSAC members to submit names to the ESSAC Office for the 2007 DLP. ESSAC would then select 3 lecturers for the first year of the programme.

MacLeod suggested that individual universities should also be able to choose the number and level of talks required thus avoiding micromanagement by ECORD. He suggested that the talks need general introduction to IODP and ECORD (in particular), they should be about 45 minutes in total length and should develop from the general introduction into detailed science on a particular theme. Alternatively it would also be feasible to give two different talks – one more general, with more about IODP in general, perhaps to general science audience, and then a more detailed research-based talk.

Ildefonse then instigated a discussion on the composition of the budget. This budget will need to be flexible as precise costs per lecture will be variable. MacLeod suggested approaching ECORD Council to ask for a block grant to ESSAC.

Brinkhuis suggested that the budget allowance would depend on the travel track. He thought an initial figure would be about €600-700 per talk which should then be adjusted accordingly.

MacLeod responded that ECORD Council had appeared content with a baseline figure of €1000 per talk, and he intended to use this for planning purposes hereafter to be on the safe side.

Action Item: ESSAC delegates should send nominations for the Distinguished Lecturer Programme, together with evidence of the nominee's agreement, to the ESSAC Office no later than Monday 13th November 2006. Voting will be organised as necessary.

MacLeod summarised by saying that once the DLP programme is approved by ECORD Council and fully organised the ESSAC Office will publicise the series. The USSSP model will be followed in general and a variety of advertising platforms will be used. Suggestions from delegates regarding advertising issues are welcome and ESSAC especially wish to include as targets those universities which have had little or no involvement with the Ocean Drilling Programs in the past.

7.4 ECORD Summer Schools

MacLeod reiterated that ECORD Council have agreed to fund a Summer School Programme to the extent of (the order of) €50k per annum, providing ESSAC supply them with an acceptable plan and budget at their November 2006 meeting. He mentioned the suggestion made by some ECORD Council members who were in favour of the idea of recreating a 'virtual ship' at the Bremen core repository, with attendees making a variety of observations and measurements on sediment cores from a particular section, exactly as if they were onboard *JOIDES Resolution*, with the aim of extracting time-series data they could interpret in terms of palaeo-environmental change.

MacLeod commented that he had no personal experience of Summer School programmes and therefore needed advice from the delegates. Brinkhuis said that he ran a similar programme every year in Urbino and MacLeod invited him to discuss this project.

Brinkhuis briefly outlined the programme saying that it was of 2.5 weeks duration and the cost per person at the moment is c. €550 for students or €900 for academics and industry. The deadline for applications is 15 March 2007. Past schools have accommodated ~50 students/yr but there is probably capacity for up to 75 students. Organisation of the study course is facilitated by a network of contacts which includes the hotel owner. Students consider topics such as proxies, stable isotopes, events, fossils etc. The students do both practical and literature exercises and the staff involve them in predictions as to what they should have found and discussions about 'why not' if they don't find anything. Brinkhuis said he could easily tailor the programme to an IODP focus and he could integrate activities with Ursula Röhl if the Bremen Core repository were to be used. Themes planned for the 2007 Summer School are sapropels and the carbon cycle.

Weissert reported that he, Erba, Brumsack and others currently also contribute to a similar but smaller operation (~1 week timescale) on Mesozoic palaeoceanography. The costs for that programme are €15k all inclusive.

MacLeod summarised the consensus view of the Committee that there was no point in starting again with the Bremen idea in competition with existing programmes such as Brinkhuis's, if the latter could be adapted to IODP.

A discussion ensued and it was concluded that Erba and Brinkhuis could potentially both offer Summer School proposals. MacLeod also noted that he and Ildefonse could potentially run a Summer School on the topic "Ocean Floor" in Oman during the cooler months some time in the future.

Brinkhuis suggested that ECORD should contribute to student scholarships and the expenses for speakers at the Summer Schools. MacLeod thought the former in particular was a possibility.

MacLeod concluded by saying that he intends to present ECORD Council an 'à la carte' menu of the ideas discussed here for supporting Summer Schools via the administration of ESSAC. He would present as many detailed proposals as potential convenors wished to submit. Such proposals are therefore required as soon as possible. Brinkhuis commented that existing sponsors for the Urbino School each pay €10k. MacLeod asked for written outline proposals, with costings, from Brinkhuis and Weissert/Erba. The aim is to have a sustainable funding programme and the ECORD banner needs to be prominent.

Arnold approved of the idea of rotating concepts. She suggested that maybe an annual deadline for organising Summer Schools would be a good idea. She envisaged operating on a smaller scale than the example given by Brinkhuis but stressed that a known deadline was essential. MacLeod asked how much lead time would be needed. Weissert though 10 months to 1 year would be sufficient. MacLeod suggested that the deadline be set before one of the ESSAC meetings and suggested an April or May 2007 deadline for a Summer School in 2008. Brinkhuis stated that if a Summer School was required in 2007 in Urbino their organising committee would need to know by March 2007 or as early as possible if they are to get a grant from IODP. MacLeod answered that if the committee decides that the best procedure for 2007 is to use the adapted Urbino programme he will ask ECORD Council at their meeting in November to fund it. In subsequent years then May could be the deadline.

Brandsdóttir reported that Iceland run a similar programme with NSF sponsorship and that NSF would be willing to sponsor an appropriate summer school in Iceland if it were connected to deep drilling and it would be even better if it had an IODP link. Brandsdóttir has discussed the idea recently with Margaret Leinen who suggested that ECORD should be approached. MacLeod asked Brandsdóttir when she thought the project could take place and it was thought that it could occur in 2008. MacLeod commented that ECORD could potentially sponsor more than one Summer School at a time and asked Brandsdóttir to submit a summary in writing. Brandsdóttir agreed to do this for next year.

Brinkhuis asked which nationalities ECORD would support, i.e. would this be restricted to ECORD scientists.

MacLeod suggested that if Erba wanted ECORD Council support in 2007 she needed to submit the proposal very soon. Alternatively she should apply for 2008 funding by May 2007.

7.5 IODP promotional materials

Brinkhuis showed the IODP DVD he has recently completed which summarizes IODP. He gave copied to the meeting members and said that he could provide more if required and that the material is copyright free. It will soon be streamed on the internet. MacLeod asked if ESSAC could post it their web site. Maruéjol pointed out that it will be on the ECORD website. MacLeod formally thanked Brinkhuis for the production of the DVD and the contribution that this has made to Education and Outreach.

7.6 Information handling in ECORD: what is the role of ESSAC?

What is the main role of ESSAC? MacLeod referred delegates to the Terms of Reference (Appendix 13) and asked for comments. He also asked for comments on the ESSAC web site and explained how it was run. In general the delegates are satisfied with the web site. Erbacher said that he found no problems with the site. Ildefonse commented that it functioned as it was supposed to, i.e. it provided information. He further suggested that the current web designer/web maintenance contractor had done an excellent job but that ideally this should be done in-house. Advances in web authoring technology now make it much easier to maintain the web site in-house, or possibly provide training for Maruéjol to become the webmaster.

Although there is potential for dramatic improvements to the web site the general agreement is that a major review of how the ESSAC web site is run should only be attempted when the ESSAC Office moves from Cardiff to Aix-en Provence next year. Camoin will discuss issues and plans for the web site with Maruéjol.

Ildefonse suggested the dragon logo should be discarded as the ESSAC Office is not location specific and therefore should not have a logo which is identified with a particular location. It was decided to the keep the ESSAC@Cardiff logo until the office moves to Aix-en-Provence, then design and adopt a non-generic permanent logo. MacLeod asked for clarification on whether and/or when they should change the web maintenance contract. Camoin would like to leave the issue for the moment and revisit it at the next ESSAC meeting.

With regard to information handling MacLeod suggested that there could perhaps be two different protected areas of ESSAC web site. One protected area for example could be used to post information for US & Japanese IOs to pick up ECORD Expedition applicants' details; and it may be that such an area is also suitable for ECORD DLP participants to access ppt resources for their presentation. A second and more exclusive protected area would still be needed to post other CVs, application statistics and other confidential information as with the current password protected area.

MacLeod reported that there had been recent discussions between EMA, ECORD Council and ESSAC regarding the material content of the website with special reference to databases and publication records. The publications database already exists at TAMU and is designed to include all DSDP, ODP and IODP publications. This database can be searched by co-chiefs, scientists online at will. Once a year, probably in February, TAMU will do detailed searches so that the statistics can be generated and then included in reports to the funding agencies. MacLeod stated that it is too much work for ESSAC to recreate a database. It was an ECORD-net task and Norway and Portugal have been tasked with this. Abrantes plans to establish the status of progress regarding activities for WP1 of ECORD-net with Portuguese leadership (José Monteiro). Maruéjol agreed that the database was an ECORD-net deliverable relating to publications, expedition participants etc. It is thought necessary as part of the EMA justification of activities to the funding agencies.

Action item: ESSAC Office to get TAMU to provide an extract of ECORD publications during their annual extraction exercise from the AGI/GeoRef database in February 2007

Ildefonse said that as there was already a publication tool it did not need doing again. If reports have to be written and statistic are needed then TAMU will help to generate them. Ildefonse has already done this for IODP France and TAMU were very helpful in getting appropriate search keys. Ildefonse will give copy of these keys to ESSAC. He further suggested that that ESSAC should ask EMA to be specific in their requests for data. TAMU used co-mingled funds to create and maintain their databases so ECORD has already paid for this facility. MacLeod offered to host any material

for WP1 but refused to allow use of ESSAC resources to carry out the tasks of WP1. It was generally agreed that it is folly to create an ESSAC publications database that reproduces an existing one (the AGI database of DSDP/ODP/IODP publications), which is now directly linked to ESSAC site.

It was agreed that Urquhart, Maruéjol and Bernal-Carrera would ascertain requirements regarding the overall ESSAC responsibilities for database aspects of ECORD.

8. Next ESSAC Meeting

8.1 ESSAC Meeting #8, May 2007

MacLeod announced that Brandsdóttir had generously agreed to host the next meeting in Iceland and invited her to outline the logistics. Brandsdóttir explained that after May 15th it was possible to host the meeting in the university in Reykjavik. Otherwise it was possible to host the meeting in another location near to a geothermal plant 30km from Reykjavik at any time from the beginning of May onwards. This latter location would be relatively less expensive. Brandsdóttir added that it would be possible to coincide the ESSAC meeting with the Arctic Holocene Climate meeting which was to be held from 3rd–5th May 2007. Brinkhuis said that he wouldn't be able to attend at this time and would prefer the meeting to be in the second week of May. MacLeod reported that he had received a request from Gillis (Canada) to hold the meeting at some time during the first two weeks of May and that he would like to accommodate everyone's timetables if possible. It was provisionally agreed that the meeting would run for 1.5 days, possibly 2 and would be scheduled during a weekend, e.g. Friday–Sunday. The delegates preferred the idea of a weekend meeting time to minimise flight costs. Brandsdóttir pointed out that most flights into Iceland arrive in the late afternoon, so suggests a full first meeting day and half second day rather than other way round. Brandsdóttir will email ESSAC members with more details in the near future.

9. Any other business

Panel Rotation Schedules

MacLeod pointed out that according to the Terms of Reference ESSAC members should rotate every three years. MacLeod himself is standing down from SPC and ESSAC in 2007/8. He commented however that rotation schedules are not so easy in practice. Each country should consider their own positions and review them every three years. Ideally at least one-third of the panel should rotate off every year. Arnold asked if ECORD Council should be informed and MacLeod answered that this is happening slowly. There is a need for corporate memory and originally it was suggested that the Chair should be for 3 years. This has now been reduced to two years. EMA is the one permanent office base. MacLeod said he would raise the rotation issue with ECORD Council and see if they wished to comment. He also mentioned that there is no obligation that a delegate's alternate automatically becomes a member when the delegate rotates off. This decision is up to each member country.

Action item: MacLeod to raise the issue of rotation schedules of panel members with ECORD Council.

Comas requested that a ten-minute summary of their own activities be given by each country and that these summaries should be included as an agenda item. Ildefonse supported this idea. MacLeod agreed to a five- or ten-minute summary from each country but agreed with the suggestion of Comas that it should not be included in the Minutes unless there is a consensus to note specific action items or recommendations. The item will be called "National Reports" and the goal will be to

share problems and solutions in achieving our main IODP goals. One to two hours maximum will be scheduled for this issue during the next meeting. Sometimes one country can assist another via personal networks.

MacLeod formally thanked Marco Sacchi and Patricia Sclafani for hosting such a well organized meeting.

Meeting closed at 16:15 on 3rd November 2006.

Appendix 1.4: Management Forum report

MANAGEMENT FORUM REPORT,
NIKKO, JAPAN
March 28-29, 2007

PARTICIPANTS

Asahiko Taira	CDEX
Dan Evans	ESO
Steve Bohlen	USIO
Noriyuki Suzuki	J-DESC
Christina Ravelo	USAC
Keir Becker	SPC
Susan Humphris	SASEC
Tom Janecek	IODP-MI
Hans Christian Larsen	IODP-MI
Yoichiro Otsuka	IODP-MI
Manik Talwani	IODP-MI

Observers

Catherine Mevel	ECORD
Kazuya Shukuri	MEXT
Pinxian Wang	China

1. PREFACE

The Management Forum members, as noted in the list of participants are drawn from the various IODP entities. The purpose of the forum is to consider IODP issues from a common point of view that represents all the entities rather than the individual point of view of each entity. The forum acts as an advisory Task Force to the IODP-MI president. Opinions are expressed at the forum meeting and recommendations are made. However, the forum by itself has no implementing authority; the implementation is carried out by way of the Annual Program Plan after it has been approved by the Science Advisory Structure (SAS, the IODP-MI Board of Governors' and the Lead Agencies). In the interest of transparency, this report will be placed on the IODP website as are all IODP-MI Task Force reports.

2. INTRODUCTION

The availability of two drilling platforms, in addition to MSP operations, as of January 2008, presents IODP with an unprecedented opportunity for ocean scientific drilling. The scientific community continues to be heavily involved in both submitting proposals to address high priority science objectives, and in providing advice to the program through the Science Advisory Structure. Consequently, the Management Forum undertook the task of articulating the Vision and Mission for the IODP program to best describe the critical elements and attributes of the program.

At the same time, costs for operations and maintenance of drilling platforms have risen significantly, and it has become clear that funding is not adequate to carry out year-round operations of either the riser or the riserless vessel.

A major objective of this Management Forum was to consider ways of dealing with the fiscal reality and ways to increase funding. The Forum considered (i) finding increasing efficiencies to optimize operations within the current IODP system, (ii) examining services to identify those that

are non-essential, and (iii) ways to seek external funding. An important consideration was that any external funding arrangements not impact the integrity of the IODP program.

While the fiscal reality will be challenging over the next few years, the opportunities presented by the combination of drilling platforms and their integrated use will allow IODP to address scientific objectives both at the cutting edge of seafloor exploration and of significant societal relevance. This report represents the discussions and thoughts of the Management Forum – any decision to implement any of the recommendations requires considerable more analyses and discussion.

3. IODP VISION AND MISSION

The Management Forum articulated the following IODP Mission and Vision:

Vision:

Through scientific ocean drilling, IODP explores the vast world under the ocean to solve the mysteries of Earth as a living and dynamic planet.

Mission:

- IODP deploys state-of-the-art ocean drilling technologies as the essential tool of discovery.
- IODP unifies the international research community to explore Earth as a system.
- IODP advances future research and discovery through dissemination of data and samples from global archives.
- IODP provides scientific context for global awareness of geohazards and environmental change.

4. STRATEGIC DIRECTIONS

4.1 Scientific Prioritization

With limited funding and a limited number of drilling legs available, prioritization of the scientific objectives of IODP becomes increasingly important. Such a prioritization represents a departure from the *Initial Science Plan* that identifies themes and initiatives with no prioritization. As a consequence, the Management Forum delineated a set of recommendations for consideration by the Science Advisory Structure.

Prioritization of IODP Science

- The scientific objectives of IODP should be prioritized and published in a revised *IODP Science Plan* currently planned by SASEC.
- Given that the timetable for a revised *IODP Science Plan* is currently that it be completed by the end of 2008, this prioritization should be completed and go into effect as soon as possible.
- SASEC should take the lead on this process, with input from the SAS and from a few, carefully

chosen, individuals external to the program.

Selection of IODP Science

- IODP should drill the high priority science as defined by the revised *IODP Science Plan*.
- IODP should include projects at the cutting edge of exploratory science, and projects that may have societal benefit.
- When there are shortfalls in IODP operating funds, selecting IODP programs with the objective of maximizing IODP platform operating time is important, but cannot be the primary priority.

Proposal Process

- The prioritization should guide submission of new proposals and repackaging of old proposals, although the proposal process should be kept open with no restriction as to topic.
- The SSEP should apply more stringent criteria to selection or rejection of submitted proposals early in the process. Selection (or rejection) should be based on the realistic likelihood that the idea and the proposal represent a viable, and high priority, drilling project that will ultimately result in drilling expedition(s).

Externally Funded Projects

- There is a range of possible IODP collaborations with other organizations, so arrangements have to be negotiated on an individual basis.
- The boundary condition for collaboration is that the basic attributes and policies of IODP should be followed.
- There needs to be some flexibility in scheduling in order to attract external funds.

4.2 Optimizing Use of Reduced Budgets

The current funding scenario is insufficient to provide the transformative science that IODP must accomplish to be considered successful. Hence ways to increase efficiencies and reduce costs need to be considered.

Increased Efficiencies

One way to increase funds available for platform operations is to increase efficiency within the IODP program. IODP consists of many entities including the Funding Agencies, the CMO, the Implementing Organizations, the Science Advisory Structure and the Program Member offices, which must act in concert to conduct the sea-going operations that define program. This complex infrastructure was created based on the assumption of full year operations; since that is unlikely, it needs to be re-evaluated based on realistic estimates of ship time availability.

The over-riding question is "Are these organizations optimally-defined and staffed to conduct the business at hand?" Are there overlaps or redundancies in the system that could be eliminated without affecting the quality of science obtained by the program? If so, what are these overlaps/redundancies and how can they be eliminated?

The Management Forum recommends that the following areas should be examined with respect to possible increases in efficiency:

- IODP management and administration structure – both numbers of people and process
- Overlaps in IO functions: e.g.
  Data management,
  Technical expertise

Tool use and development
Education and Outreach
SOC/POC – combine operations SOC/POC?

- SAS meeting structure (size and number of meetings)
- Proposal evaluation process

(The last two are currently also being addressed by SASEC and its working group on the SAS).

Reduction in Services

IODP provides numerous services to the community including pre-expedition planning (e.g., SAS review of proposals and advice on programs to conduct), shipboard operations (e.g., collecting cores, analyzing cores, wireline logging, etc.), and shore-based operations (publications, core archiving, education/outreach activities, etc). However, the budgetary reality facing us today dictates that we re-examine the levels and number of services. Clearly, some services are more essential than others. Can the removal of less-essential services provide significant cost savings that can be applied to operations? What priority does the program place on each service? What are the ramifications of the removal of services?

The Management Forum recommends that the following services should be reviewed and prioritized to answer the questions above:

- Minimum shipboard measurements
- Technical support levels
- Engineering development
- Publications
- Data management
- Core curation
- Education
- Outreach
- Management and Administration

Timetable to Address Efficiency Increases and Service Reduction

The magnitude of the issues demands a thoughtful examination of the costs, benefits, risks, and ramifications associated with implementation of any option or suggestion. The CMO must lead this effort with appropriate input from the IOs and advice on prioritization of services from the Science Advisory Structure. Over the next few months, there are several scheduled meetings that provide a framework for discussion and feedback concerning various scenarios that could increase efficient or reduce costs. Full use of these opportunities will require cost-benefit analyses as well as risk assessment.

April 2007

April 25-27	IO/IODP-MI meeting to discuss FY2008 Annual Program Plan. At this meeting, the group should create a plan and timetable to examine the adjustments necessary to deal with the new reality of ship operations and to decide how to minimize cost and deliver science
June	SASEC/BoG meetings – first opportunity for SASEC advice; BoG should address how to examine Management and Administration
July-August	IO/IODP-MI meeting – discussion of cost-benefit-risk analyses
Summer 07	SPC/SAS discussions of potential service reductions

Fall 07 Options and scenarios finalized and recommendations on how to proceed
January 08 SASEC review IODP-MI and IO recommendations

4.3 Securing External Funding

Presently available funding is not adequate to keep the riser and riserless drilling vessels in full time operations. However, it is very desirable to keep the vessels operating for as much of the year as possible in order to maintain quality of the vessels and drilling operations. Consequently, all IODP entities should vigorously explore sources of outside funding.

There are two kinds of avenues that exist for external funding for times when the vessels are not being used in the regular IODP program mode:

i. IODP is not involved in the funding arrangement – the expedition is fully funded by an external source. However, scheduling and logistics are coordinated with IODP.
ii. In a "hybrid mode", IODP entities will be principally involved in securing funding from outside sources such as other agencies from IODP member countries, other governments, industry, etc.

If a "hybrid" arrangement is being considered, the preferred criteria for such arrangements are:

a. A confluence of objectives between IODP and the outside entity
b. An open sample, data, and publication policy
c. Joint shipboard parties

Each arrangement that involves sharing of funding will have to obtain the approval of Lead Agencies, the agreement of relevant the IO, and the project will be reviewed by the Science Advisory Structure. The scientific community should be kept fully informed of this new development in funding sources, which will only be possible with help and support of the community.

It is clear that the spectrum of possible funding options to augment IODP budgets and increase utilization of the vessels needs to be examined in considerably more detail. The first step in this is for IODP-MI to develop draft principles/guidelines that can provide the basis for discussions by the SAS and the funding agencies.

2006 Ocean Drilling Citation Report

Overview of the Ocean Drilling Citation Database

The Ocean Drilling Citation Database, which contained almost 22,000 citation records related to the Deep Sea Drilling Project (DSDP) and Ocean Drilling Program (ODP) in February 2006, is produced by the American Geological Institute (AGI). The database has been on line since August 2002. Beginning in 2006, citation records related to the Integrated Ocean Drilling Program (IODP) have also been included. To generate the GeoRef database, AGI indexes and records citation records from approximately 3,500 foreign and domestic publications (called "serial" in this report), as well as books, reports, serial conference proceedings, monographs, maps, and abstracts published in serial publications but not presented at meetings or conferences (called "abstracts and meetings" in this report), and maps, videos, books, monographs, and theses (called "miscellaneous" in this report). In addition, AGI obtains citation information from international data-exchange partners in Australia, Canada, China, Finland, Germany, Hungary, Italy, the Netherlands, New Zealand, Poland, Russia, Spain, and the United Kingdom. They also have arrangements to acquire metadata with many publishers, including Elsevier, the American Association for the Advancement of Science, Copernicus, Wiley, and 22 of the Geoscience World publishers. There is no guarantee that all publication venues for program research are included, but scientific publications throughout the world are represented. The Ocean Drilling Citation Database is created by AGI by using a series of keywords to extract a subset of citation records related to DSDP, ODP, and IODP research from the AGI GeoRef database. The database resides on the AGI server (http://odp.georef.org/dbtw-wpd/qbeodp.htm) and is updated on a weekly basis from the GeoRef database. Users can also access the database via IODP U.S. Implementing Organization (USIO) Web site (http://iodp.tamu.edu/publications/citations/database.html) and may download data into common bibliographic software.

Annual Ocean Drilling Citation Report

Introduction

Member countries and funding agencies have long been interested in how program-related research is being disseminated into the scientific community through publications, and the study of the records in the Ocean Drilling Citation Database can provide this information. Since 1999 the Publication Services Department at ODP and, starting in 2004, the IODP USIO on behalf of IODP has produced annual studies of the Ocean Drilling Citation Database. The results of these studies have been included in panel reports and have been used to track program publication trends as well as provide individual reports to member countries.

The USIO receives a copy of the citation database from AGI annually on CD-ROM, and this disc is used to generate citation reports and provide statistics for the program and affiliate organizations that request citation data. The annual CD-ROM provides a snapshot of the database at a specific point in time each year, which allows year-to-year comparisons to be made. A time lag exists between the dates new papers are published and the date a record of the paper is entered into the GeoRef database, depending on the source from which AGI acquires its

information. The CD-ROM production date is timed to best attempt to include most publications from the previous calendar year.

Reports that document statistics by country are based on author affiliation (institutions and countries of contributing authors). Approximately 10% of the records in the database have no affiliation listed. Prior to 1975, AGI did not record affiliation information. In addition, many records lack such information simply because many publication venues do not require it. The number of records in the database without country affiliation information remains relatively constant from year to year because this information is now required by most publishers and AGI.

The 2006 Study

The CD-ROM produced at the end of February 2006 contains 21,520 records. These records can be divided into program (39%) and nonprogram (61%) citation records. These percentages have remained fairly consistent throughout each annual study since 1999 (**Figure 1**). For the 2006 study, program citations include publications produced and published directly by DSDP or ODP. Starting in 2007, the annual study will also document IODP publications. Program publications covered in the 2006 annual study include the *Initial Reports of the Deep Sea Drilling Project* and the *Proceedings of the Ocean Drilling Program* volumes as well as the ODP *Scientific Prospectus, Preliminary Report,* and *Technical Note* series but do not include the *JOIDES Journal*. Nonprogram records include citations for serials, abstracts and meetings, and miscellaneous (books, maps, videos, theses, etc.). **Figure 2** shows a comparison between the number of records for program publications and each category of nonprogram publications from 1969 through the end of 2005. **Figure 3** shows a year-by-year comparison between the number of citations for program publications and nonprogram serial publications.

The focus of much of the annual study is on nonprogram publications, with an emphasis on peer-reviewed serial publications. Of special interest are nonprogram peer-reviewed serial publications produced by authors affiliated with program member countries. Authors from approximately 80 countries have contributed to DSDP and ODP nonprogram publications in all citation record categories (abstracts and meetings, serial, and miscellaneous) (**Table 1**). Because scientists may be affiliated with more than one institution or country over time, reports are based on the country affiliation of the first author at the time of publication. Although countries such as the Soviet Union (USSR) and Czechoslovakia have divided into new geographic and governmental entities, the number of records attributed to each is still recorded under USSR and Czechoslovakia. This reflects an effort to report these data in a manner that is historically consistent rather than in a manner that reflects current political boundaries. The footnote to Table 1 denotes the current national affiliation of first authors from specific segments of these two reorganized countries.

The 2006 CD-ROM includes records of 11,000 nonprogram publications whose first author was affiliated with a program member country. Authors from countries that were members of ODP at the conclusion of ODP drilling in September 2003 account for 10,608 of these publications (see **Table 2** for a breakdown by country). Approximately 55% of these publications were first-authored by authors from the United States. The member countries that were the top ten producers of nonprogram publications from 1969 through 2005 are featured in **Figure 4.**

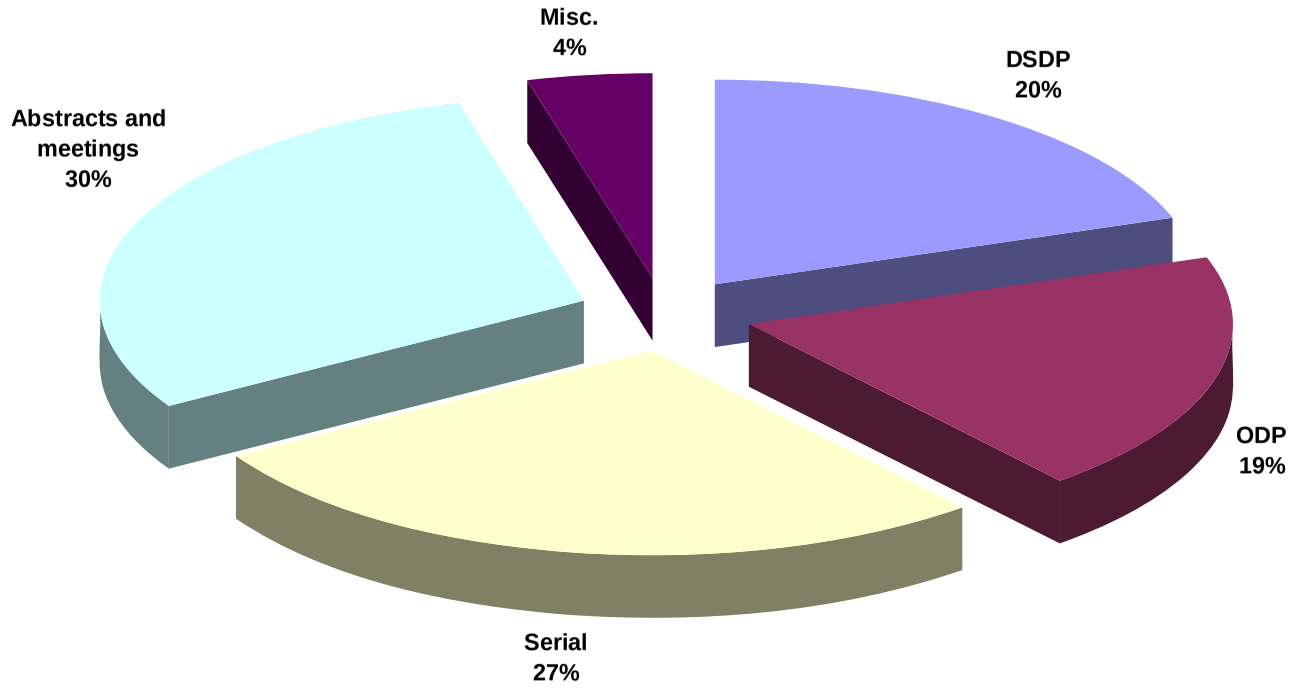
DSDP- and ODP-related research has been published in more than 900 nonprogram publications. Although many of these publications consist of abstracts or publications that have arisen from professional meetings, a significant number of peer-reviewed journals have published 60 or more DSDP- or ODP-related scientific papers. These journals and the number of program-related papers published in them are found in **Figure 5.** The figure footnote lists an additional 20 serial publications that have published 30 or more program-related publications. For the peer-reviewed journals that have published 60 or more DSDP- or ODP-related publications, **Figure 6** shows the annual number of scientific papers per journal.

Program publication productivity has generally been tracked on a year-by-year basis rather than the leg-by-leg scheme. However the program has also reviewed publication data by leg to track whether beginning with Leg 160, when scientists were given the option of publishing their postcruise research in peer-reviewed journals rather than in the ODP *Proceedings,* the ratio of publications in program vs. nonprogram venues has changed. **Figure 7** presents the number of papers published in the ODP *Proceedings Scientific Results* volumes compared to the number of papers that have appeared in the nonprogram venues. Although many scientists have elected to publish their research results in peer-reviewed journals, the majority have elected to publish in the ODP *Proceedings Scientific Results* volumes. What appears to be a progressive drop in the number of ODP publications per leg since the beginning of the program is attributable to three primary factors: research related to more recent ODP legs is ongoing, the final volumes of the ODP *Proceedings Scientific Results* series will not be completed until late 2007, and there is a lag time from publication of research papers to entry of those records in the Ocean Drilling Citation Database.

Annual Updates

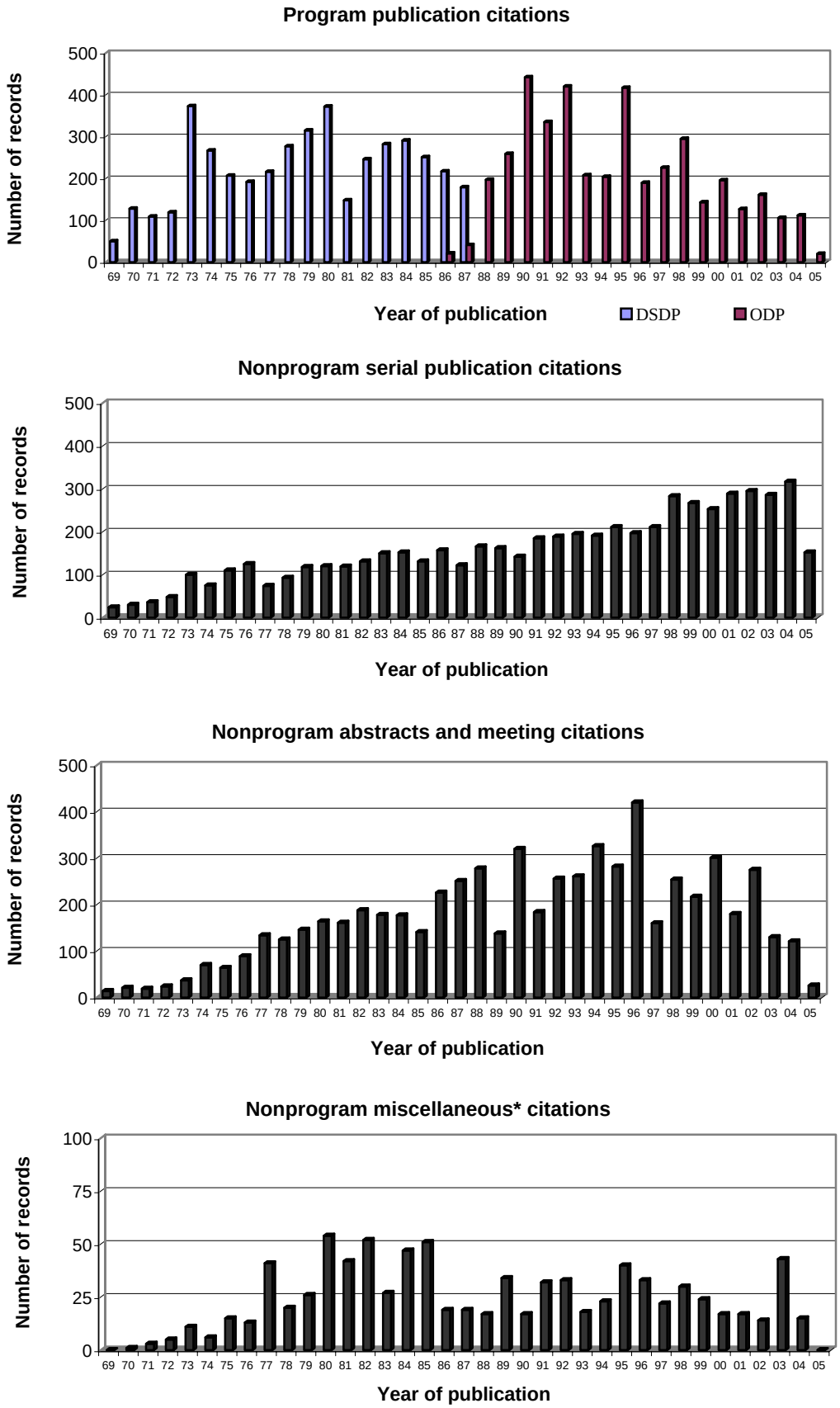
On behalf of IODP, beginning in 2007 the annual Ocean Drilling Citation Report will be updated based on the data that exist in the AGI Ocean Drilling Citation Database as of February of each calendar year and made available online by October of that same year by the USIO. IODP funding agencies, implementing organizations, program management offices, or individual member countries may request customized reports (contact CitationStats@iodp.tamu.edu).

Figure 1. Percentage of program vs. nonprogram records in the Ocean Drilling Citation Database.



Notes: Citation records for abstracts/meetings come from books, reports, serial conference proceedings, monographs, or maps. They also include abstracts published in serial publications but not presented at meetings or conferences (e.g., *AAPG Bulletin* , *Eos* , etc.). Serial publication citation records are drawn from any periodically produced analytic or monographic journal or report, especially those peer-reviewed (e.g., *Nature, Science,* or *Journal of Geophysical Research*) but may also include reports from universities, organizations, or government entities (e.g., *Open-File Reports—U.S. Geological Survey*). Miscellaneous citation records include all other maps, videos, books, monographs, and theses.

Figure 2. Breakdown of Ocean Drilling Citation Database records.



* Notes: Miscellaneous citations include maps, videos, books, monographs, and theses. Note difference in scale for miscellaneous citations.

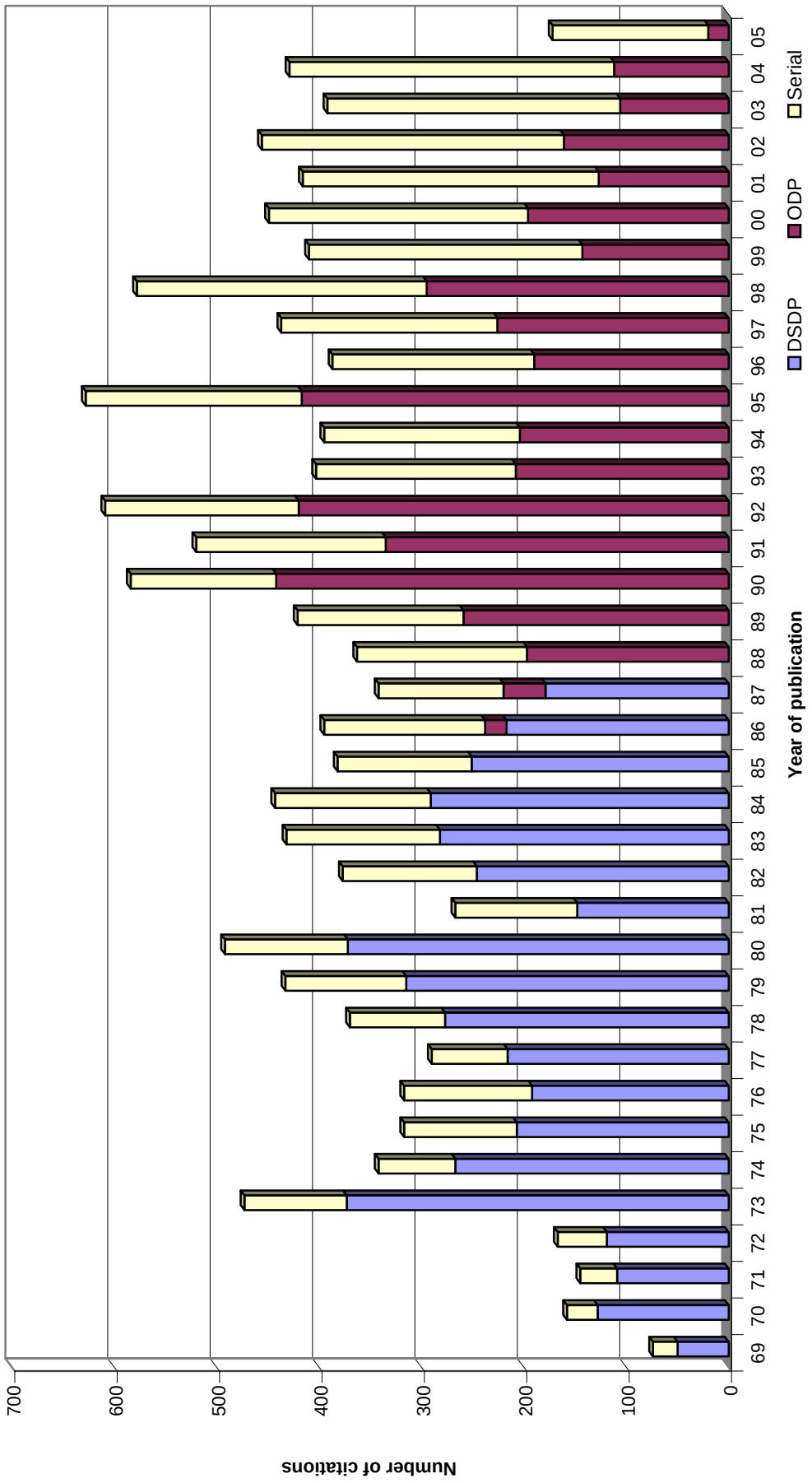


Figure 3. Number of program vs. nonprogram serial citations per year.

Table 1. Number of contributions to nonprogram publications by authors from each country represented in the database.

Country	Number of publications contributed to	Number first-authored	Country	Number of publications contributed to	Number first-authored	Country	Number of publications contributed to	Number first-authored
Argentina	28	23	**Iceland**	**7**	**2**	Poland	15	7
Australia	**414**	**220**	India	128	109	**Portugal**	**33**	**10**
Austria	26	11	Indonesia	5	3	Puerto Rico	7	3
Barbados	2	1	Iran	1	1	Romania	2	0
Belgium	**70**	**19**	**Ireland**	**6**	**2**	Saudi Arabia	1	0
Botswana	1	1	Israel	26	19	Senegal	1	0
Brazil	30	19	**Italy**	**397**	**199**	Seychelles	1	1
Bulgaria	2	2	Jamaica	6	2	Solomon Islands	2	1
Canada	**822**	**496**	**Japan**	**753**	**487**	South Africa	23	10
Chile	10	2	Lebanon	1	0	**South Korea**	**27**	**19**
Colombia	9	3	Malaysia	1	1	Soviet Union***	282	230
Costa Rica	3	1	Malta	2	2	**Spain**	**113**	**59**
Cuba	6	0	Mexico	38	15	Sri Lanka	1	0
Cyprus	6	0	Morocco	4	2	**Sweden**	**168**	**96**
Czechoslovakia*	9	2	Namibia	1	0	**Switzerland**	**249**	**126**
Denmark	**102**	**47**	**Netherlands**	**252**	**125**	**Taiwan**	**32**	**25**
Dominican Republic	1	0	New Caledonia	3	1	Tanzania	4	3
Ecuador	1	0	New Zealand	160	99	Thailand	1	1
Egypt	3	2	Nigeria	4	3	Tonga	2	0
Fiji	1	0	**Norway**	**235**	**131**	Trinidad/Tobago	2	0
Finland	**17**	**12**	Oman	3	1	Tunisia	4	3
France	**1122**	**667**	Pakistan	3	0	Turkey	12	5
French Polynesia	2	0	Papua New Guinea	4	0	Venezuela	2	2
Germany	**1439**	**951**	**People's Republic of China ****	**149**	**93**	United Arab Emirates	1	0
Greece	9	7	Peru	2	0	**United Kingdom**	**1512**	**867**
Hungary	6	5	Philippines	8	3	**United States**	**7003**	**5958**

Notes: These figures only account for citations with author affiliation data. Numbers include serial publications, meetings, and miscellaneous citation records. Countries and associated totals in **bold** were ODP member countries at the conclusion of ODP drilling in 2003. * Czechoslovakia = 3 Czechoslovakia + 4 Czech Republic + 1 Slovak Republic. ** All Hong Kong records are included in People's Republic of China. *** USSR = 146 USSR + 123 Russian Federation + 1 Estonia + 2 Ukraine.

Table 2. Nonprogram publications first-authored by authors affiliated with ODP member countries.*

Member country	Serials	Abstract/ meetings	Miscellaneous	Total
Australia	89	128	3	220
Belgium	9	10	0	19
Canada	188	305	3	496
Denmark	24	23	0	47
Finland	2	10	0	12
France	348	303	16	667
Germany	410	518	19	947
Iceland	2	0	0	2
Ireland	1	1	0	2
Italy	101	97	1	199
Japan	289	169	29	487
Netherlands	87	38	0	125
Norway	77	53	1	131
People's Republic of China	73	20	0	93
Portugal	2	6	2	10
South Korea	14	5	0	19
Spain	36	23	0	59
Sweden	58	37	2	97
Switzerland	59	63	4	126
Taiwan	19	6	0	25
United Kingdom	470	381	16	867
United States	2503	3335	120	5958

* Member countries at the conclusion of ODP drilling in September 2003.

Figure 4. Number of nonprogram publications published by the top ten ODP member countries based on first-author country affiliation.

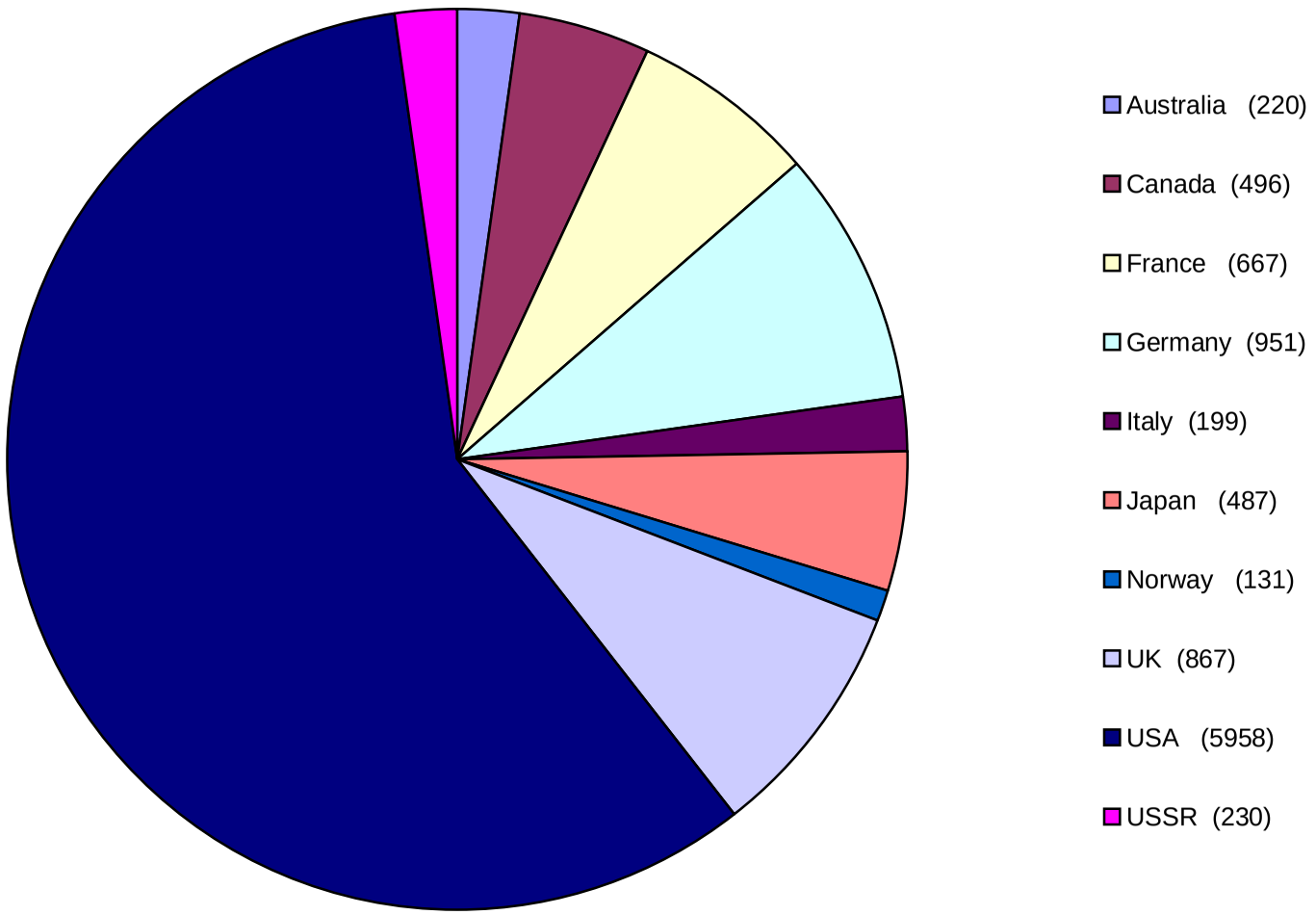
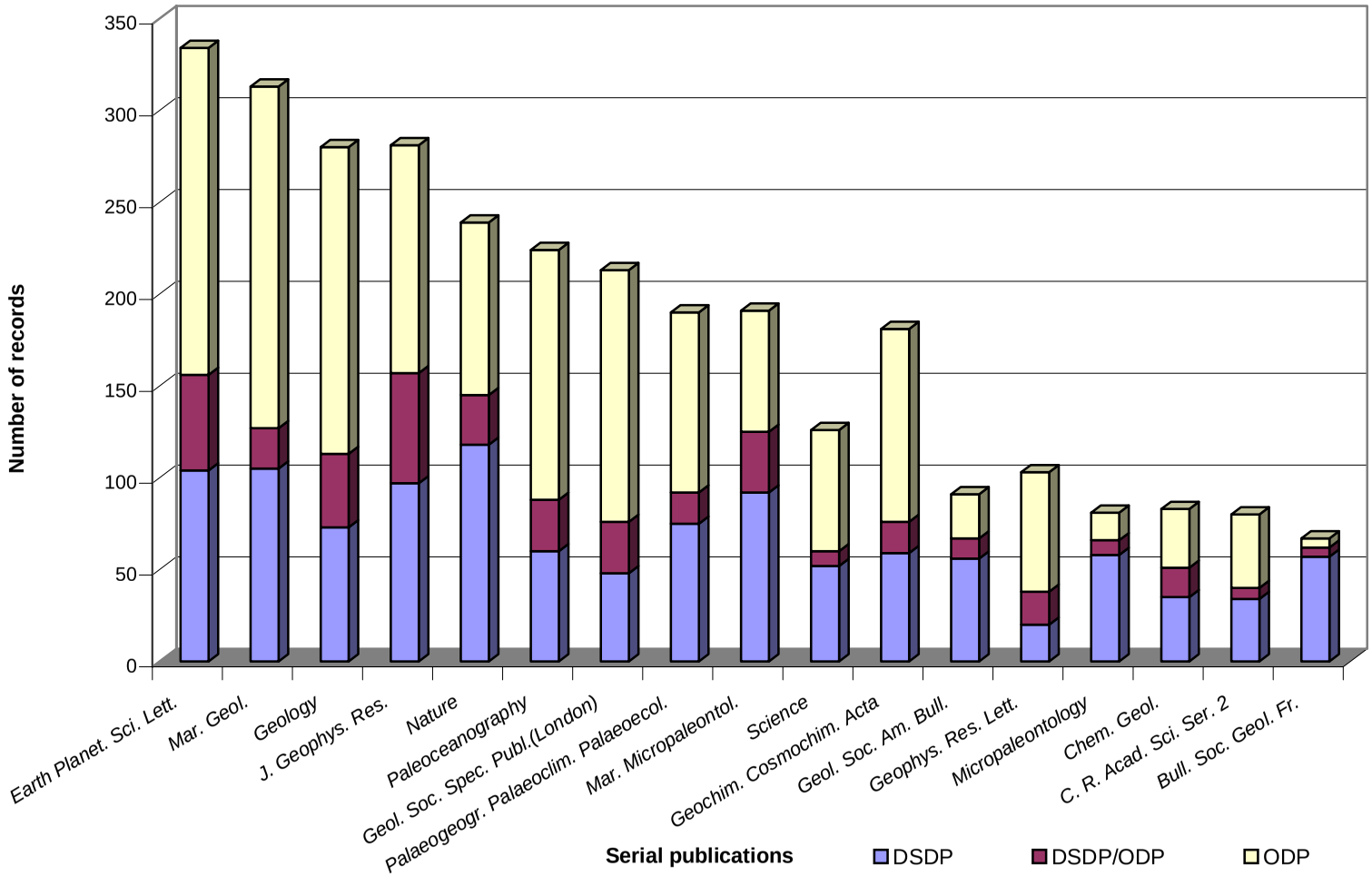
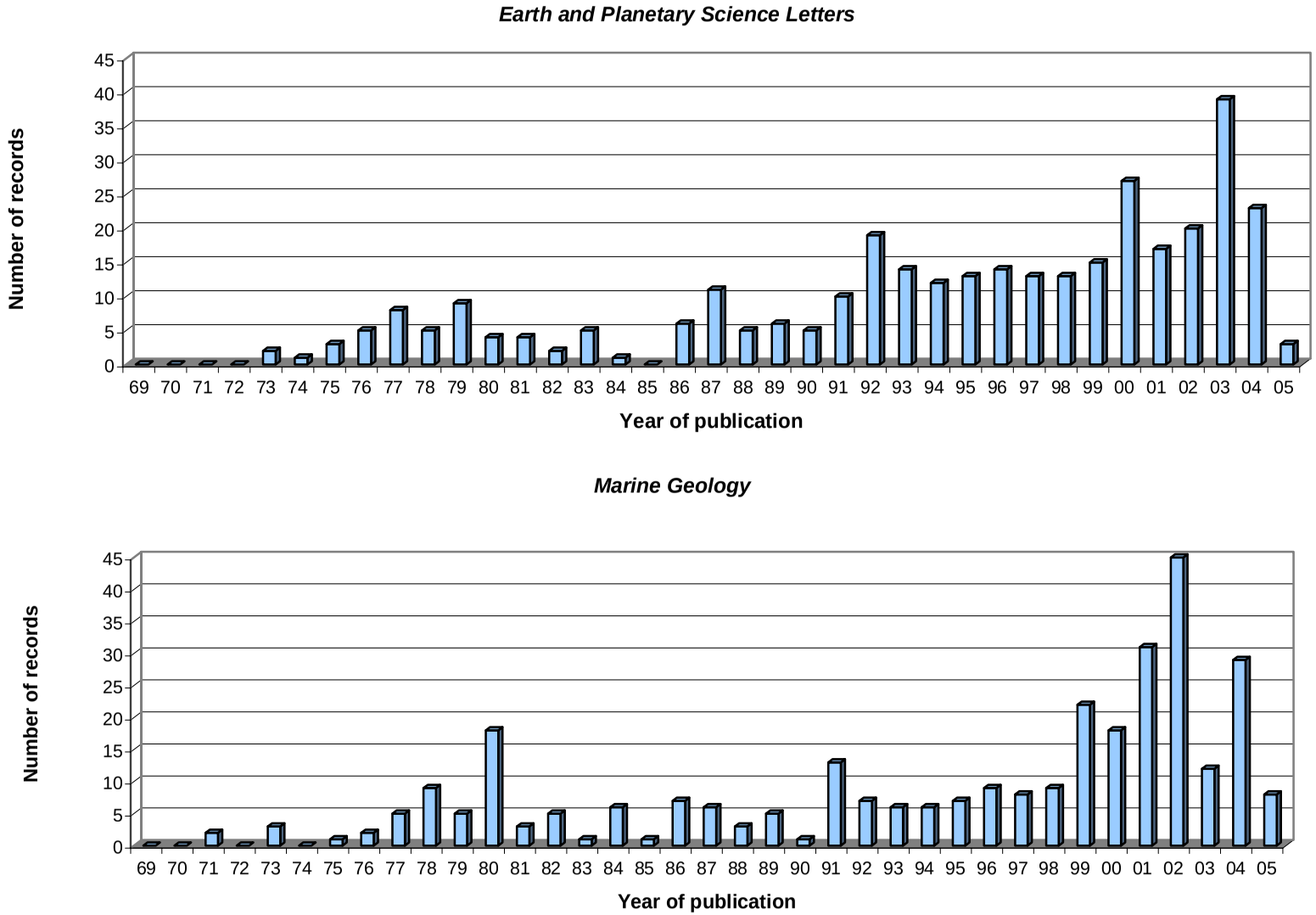


Figure 5. Serial publications with 60 or more peer-reviewed DSDP- or ODP-related papers.



Notes: The following serials had more than 30 DSDP/ODP-related publications: *Organic Geochemistry* = 58; *AAPG Memoir* = 57; *Special Paper —Geological Society of America* = 56; *Geochemistry, Geophysics, Geosystems (G3)* = 52; *Preliminary Report—Ocean Research Institute, University of Tokyo* = 52; *Journal of Foraminiferal Research* = 50; *Sedimentary Geology* = 48; *Special Publication—SEPM* = 47; *Maurice Ewing Series* = 46; *Tectonophysics* = 41; *Canadian Journal of Earth Sciences* = 39; *Geophysical Journal International* = 37; *Geologische Rundschau* = 36; *Open-File Report—U.S. Geological Survey* = 35; *Oceanology* = 35; *Trudy—Geologicheskiy Institut, Akademiya Nauk SSSR* = 35; *AAPG Bulletin* = 34; *Marine and Petroleum Geology* = 33; *Journal of Paleontology* = 32; *Global and Planetary Change* = 32.

Figure 6. Annual number of scientific papers per serial publication with greater than 60 DSDP- or ODP-related publications.



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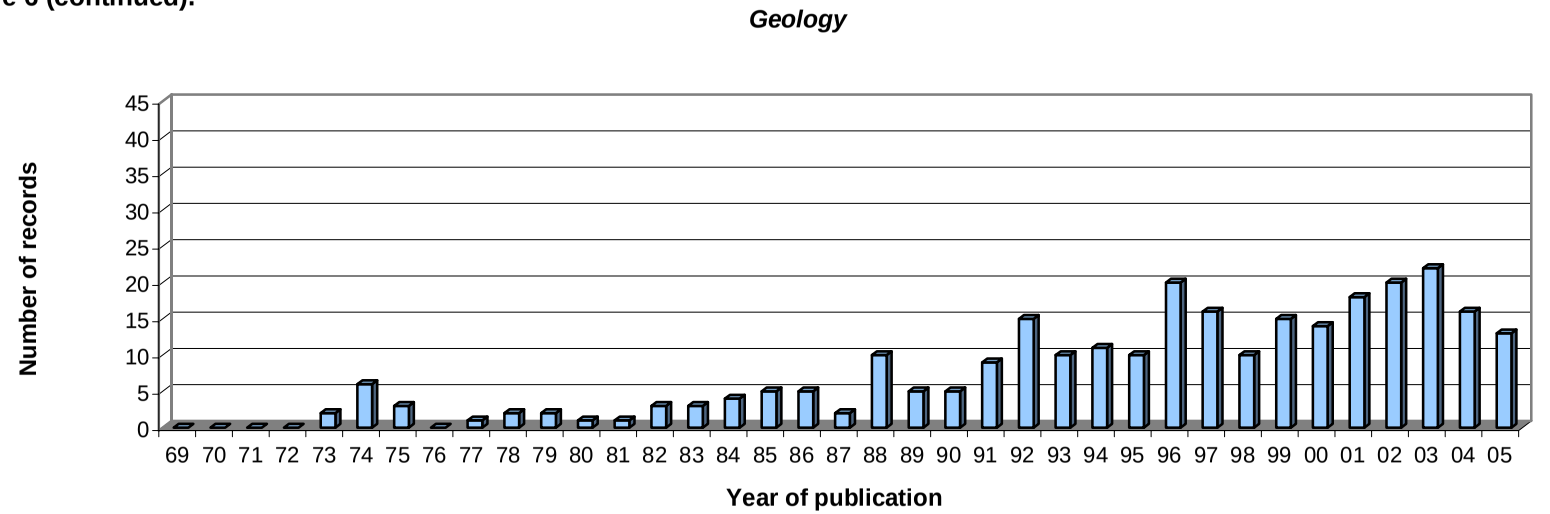

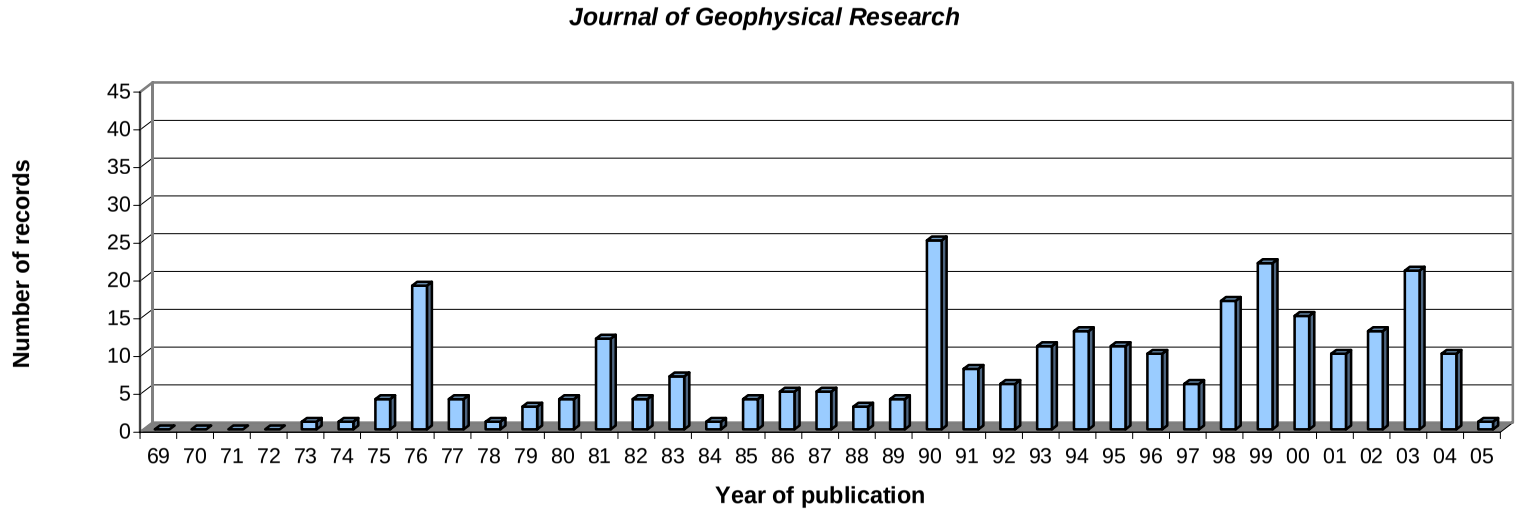

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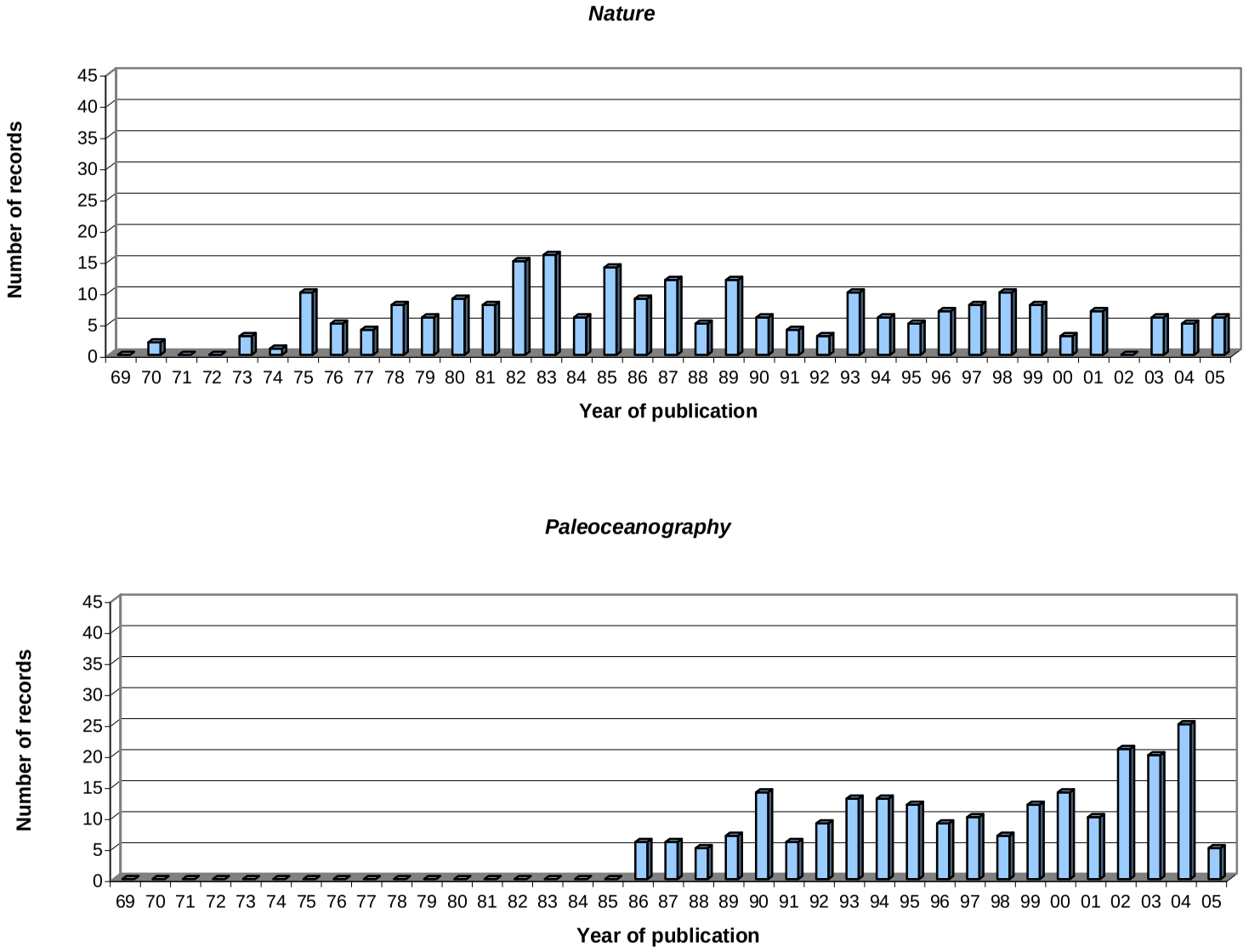

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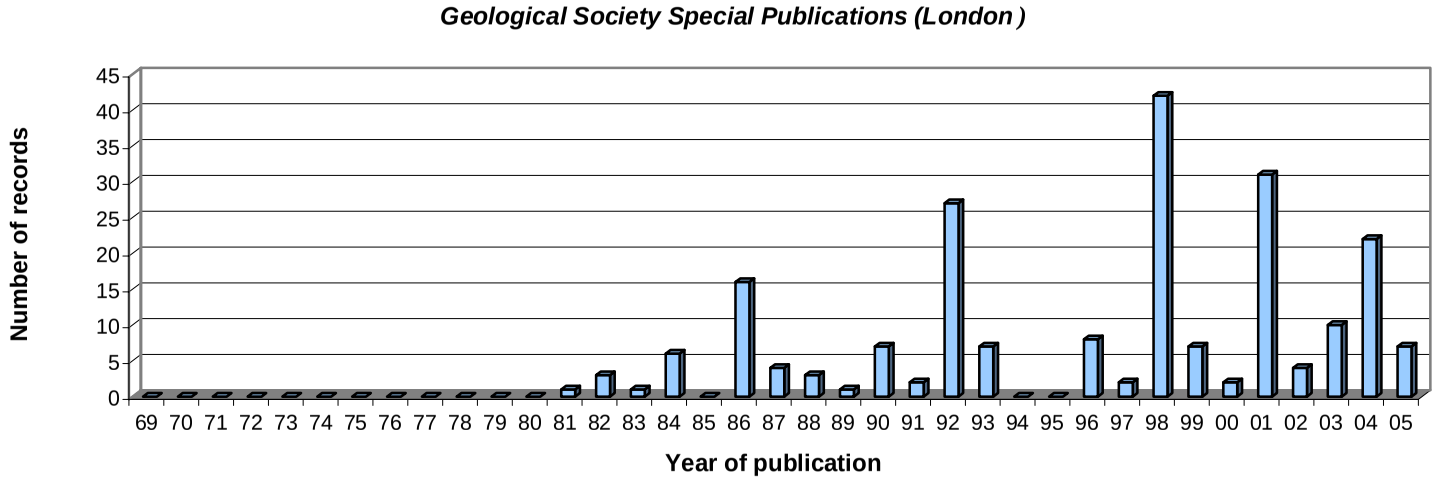

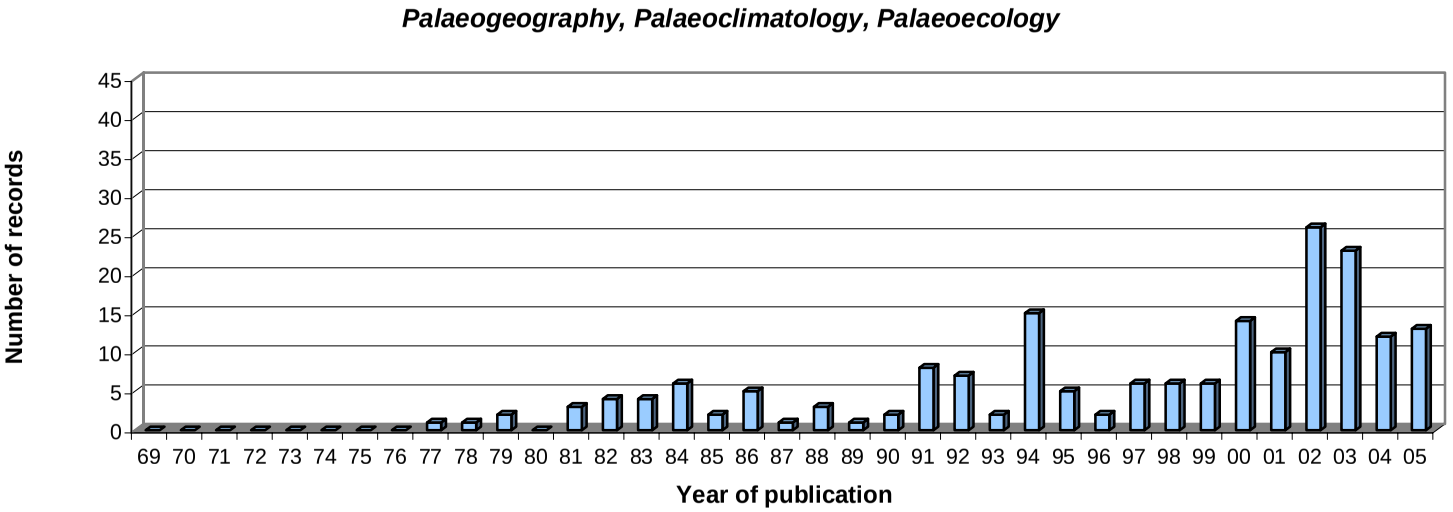

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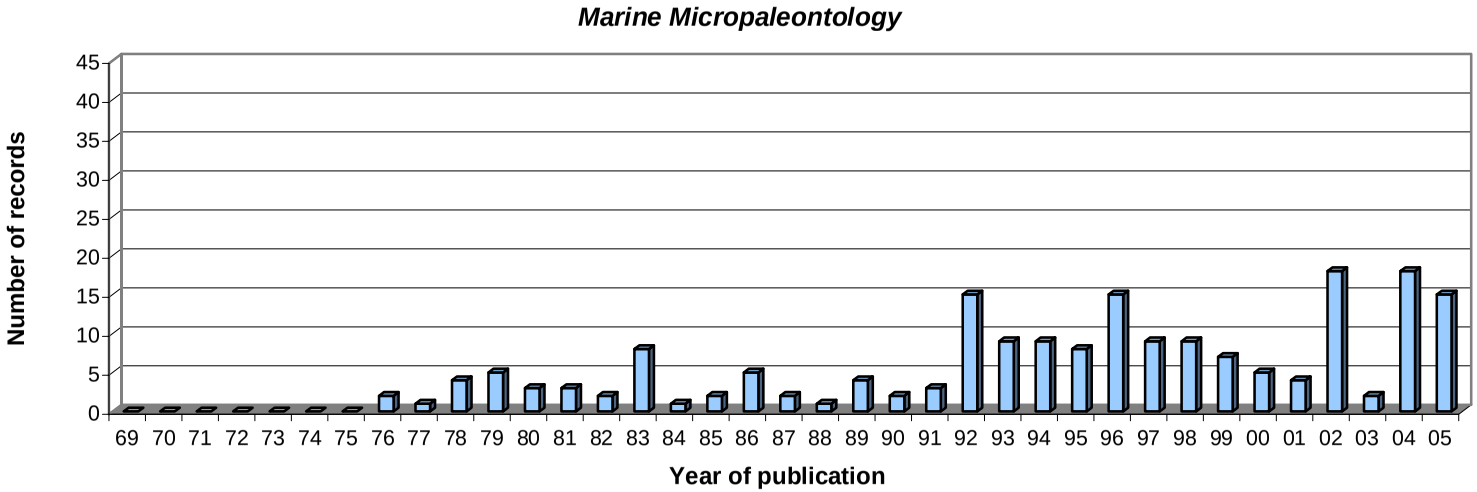

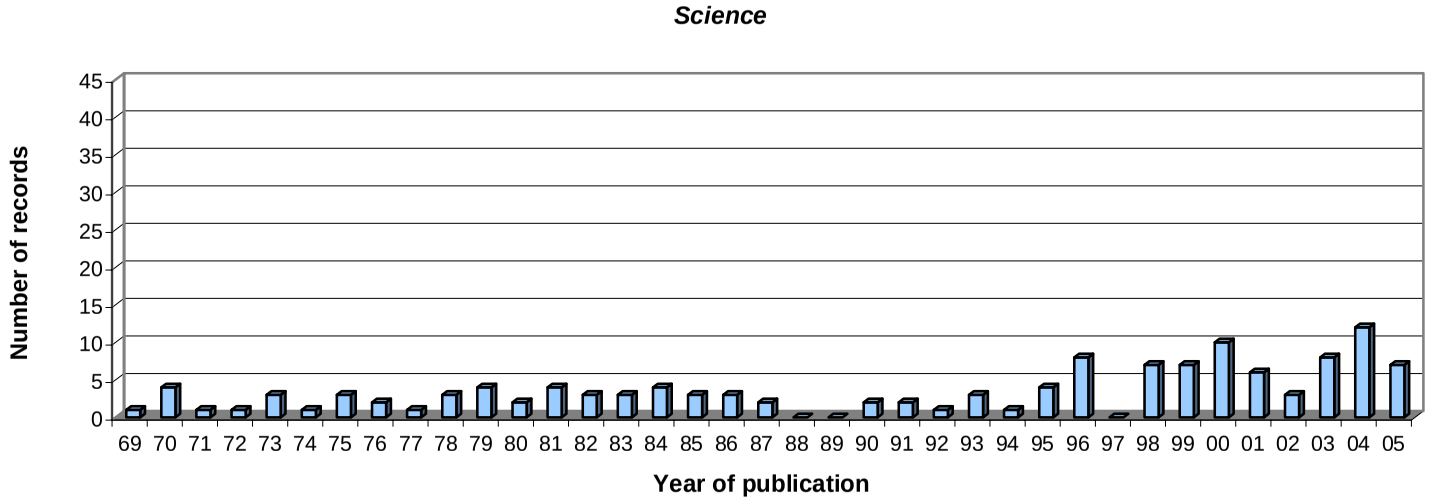

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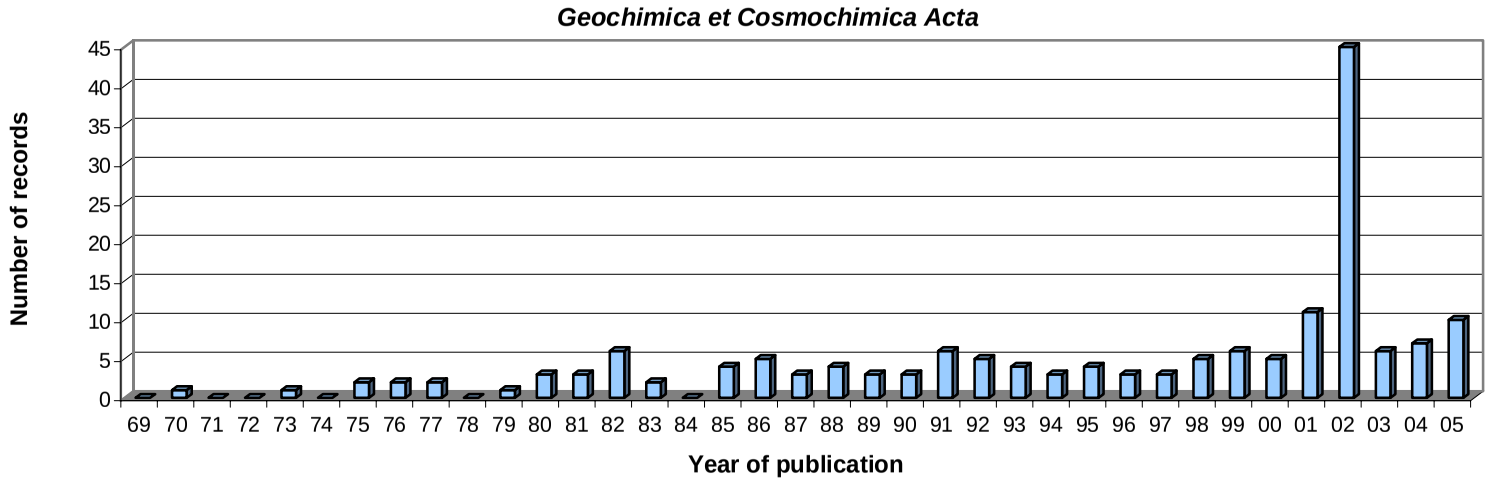

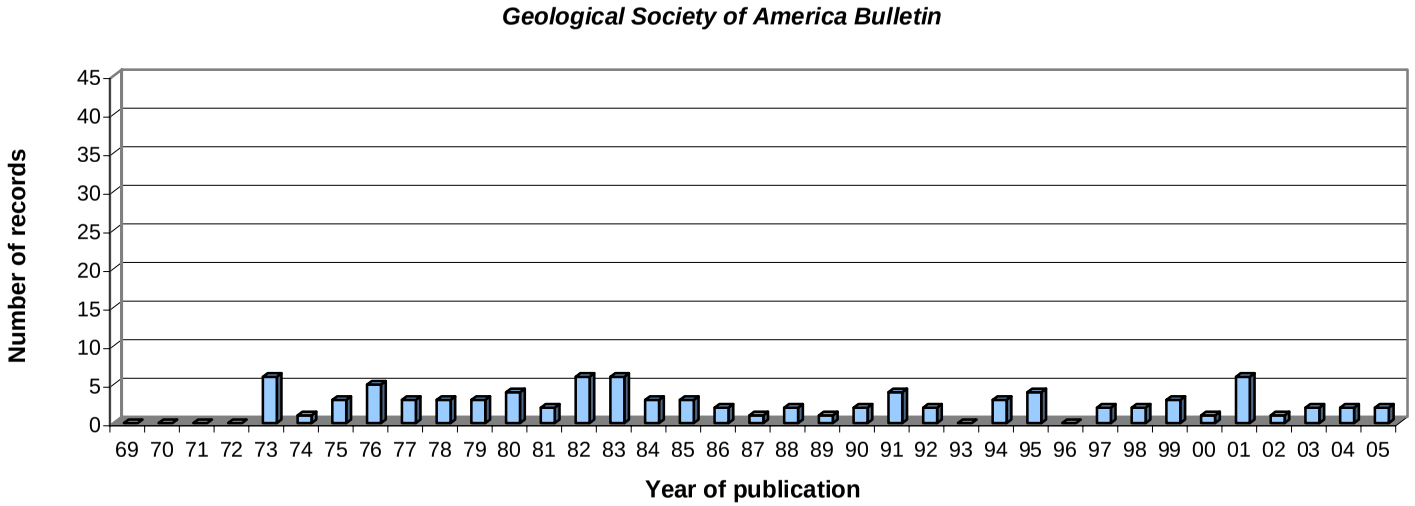

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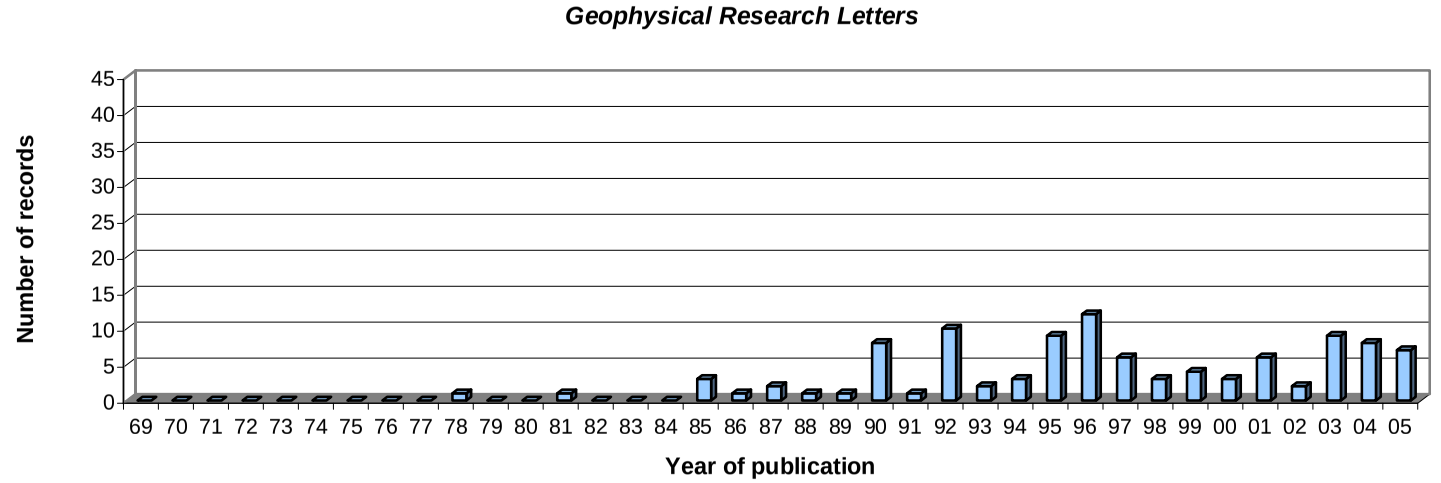

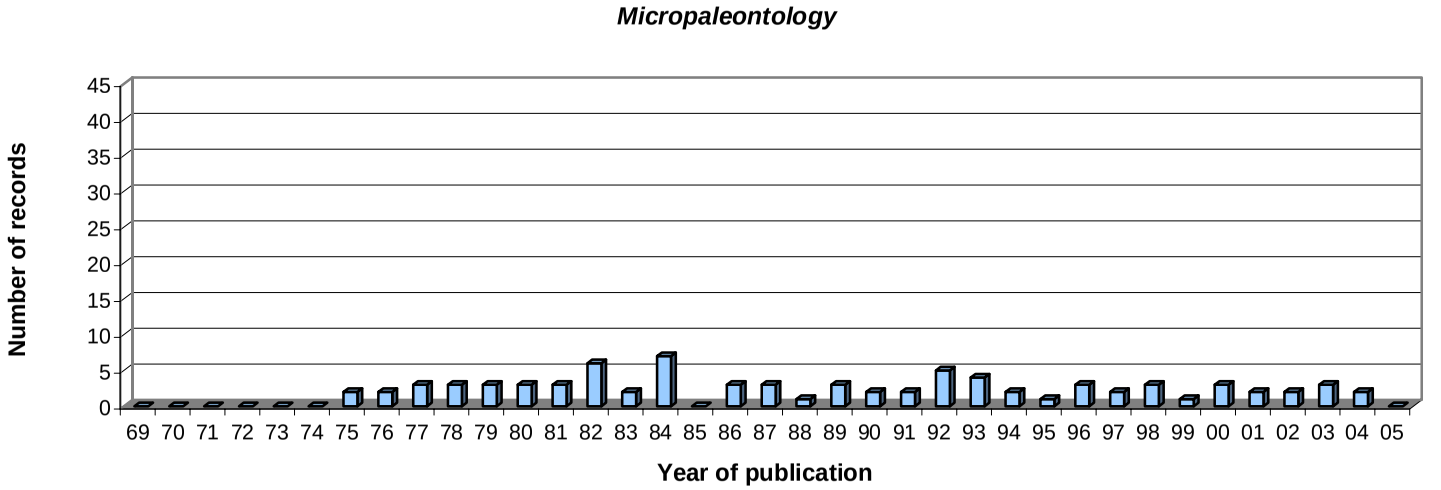

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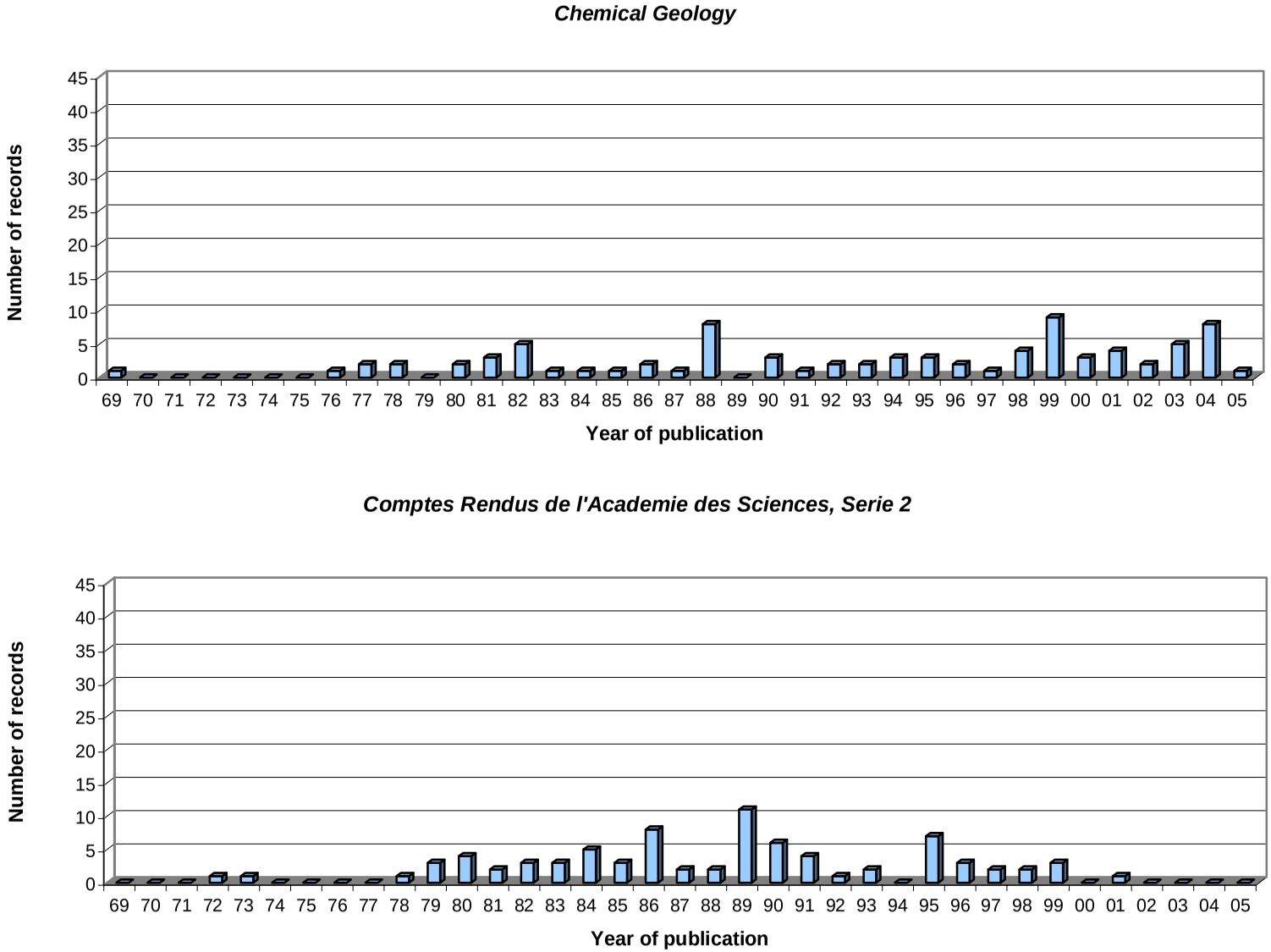

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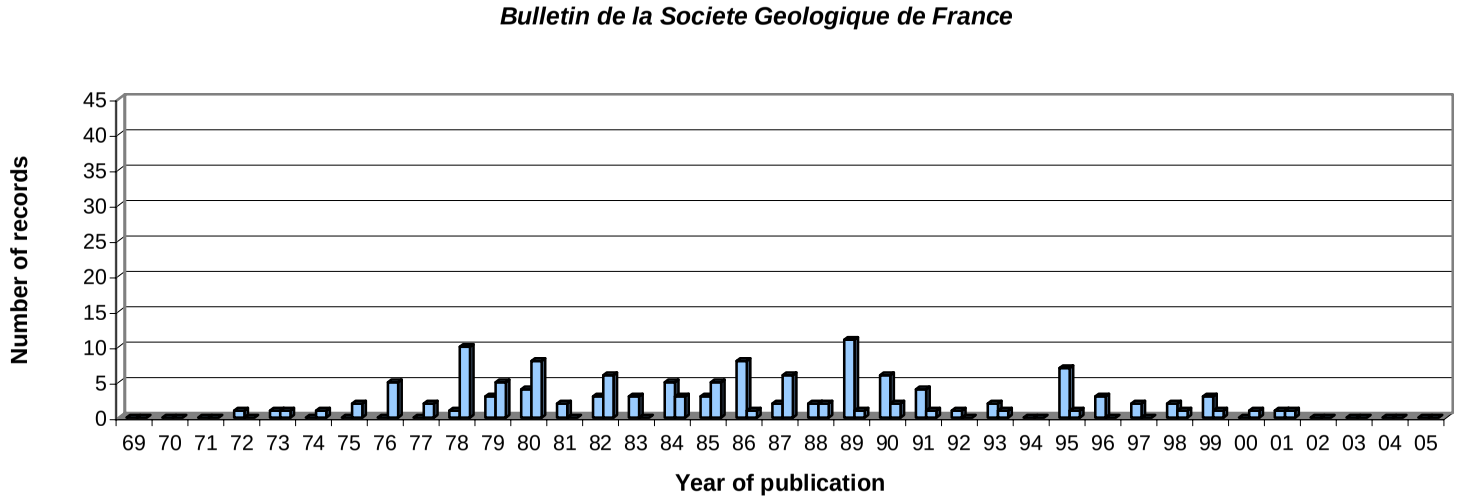
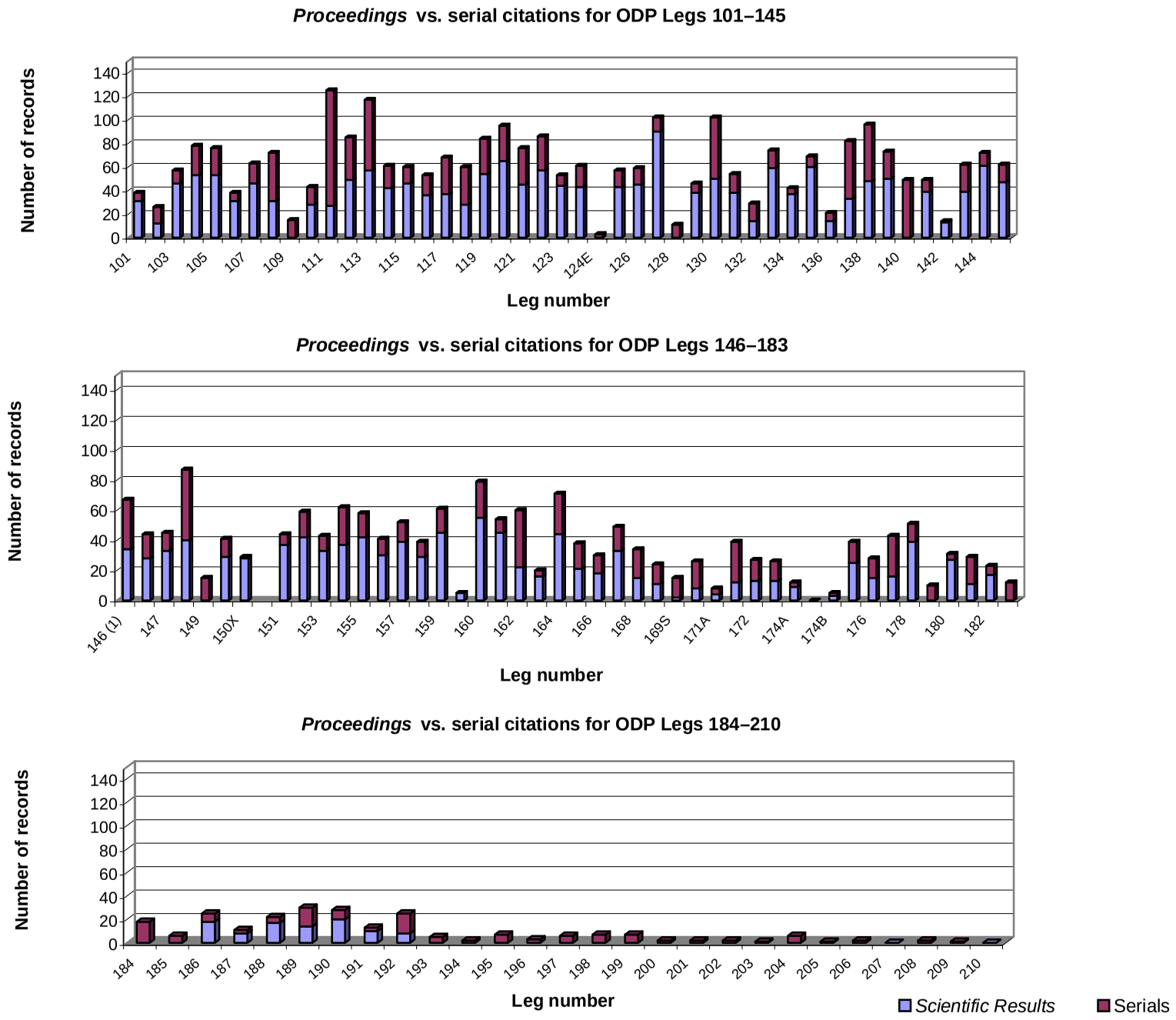


Figure 7. Number of papers published in the ODP *Proceedings* volumes vs. number of papers published in nonprogram serial publications for each ODP leg.



ESSAC (ECORD Science Support & Advisory Committee)

invites applications for the

ESSAC Science Coordinator position

The Integrated Ocean Drilling Program (IODP) is an international research program that explores the history and structure of the Earth as recorded in seafloor sediments and rocks. The Program comprises three partners : the USA, Japan and a consortium of 17 European countries organized through ECORD (European Consortium for Ocean Research Drilling - http://www.ecord.org/).

The Centre National de la Recherche Scientifique (CNRS) supports the French involvement in IODP.

The ECORD Science Support and Advisory Committee (ESSAC - http://www.essac.ecord.org/index.php) is responsible for the scientific and technological planning and coordination of Europe's contribution to IODP. During the period 1 October 2007 to 30 September 2009 the ESSAC Office will be located at the CEREGE, Aix-en-Provence, France and supervised by the ESSAC Chair (Dr. Gilbert Camoin).

Starting date : 1 October 2007 or earlier (15 September 2007) if possible.

Duration : Until 30 Sept 2009.

Qualifications : Minimum postdoctoral level.

Location : CEREGE, Europôle Méditerranéen de l'Arbois, BP80, F-13545 Aix-en-Provence cedex 4 (http://www.cerege.fr).

General job description : The Science Coordinator will be expected to manage the activities of the ESSAC Office. The role will be wide ranging, from the day-to-day management of the Office to communication with ESSAC delegates, the wider European, Japanese and US science communities and national funding agencies. The Coordinator will assist in outreach activities, and will be expected to take the lead in preparing scientific reports that detail ECORD scientific participation and general science activities in IODP. The Coordinator will act as full-time scientific secretary to the ESSAC Chairman and, when requested, ECORD Council. The Coordinator will attend meetings with the ESSAC Chairman (e.g. ESSAC, PMO etc.). Depending upon circumstances, the Science Coordinator may have some time to be actively involved in academic research, including in IODP science themes.

Requirements : Applicants should have a background in Earth Sciences with a PhD degree, be fluent in English and have excellent (verbal and written) communication skills. Experience in management and science communication is required and the ability to function in a multidisciplinary research environment is essential. Initiative, flexibility and professional autonomy are important assets. The applicant should ideally be able to work in a multilingual environment.

Salary : CNRS contract ; range : 1800-2200 EUROS net/month (depending on the background).

Applications : Formal applications should comprise a Cover Letter, outlining past experience of relevance to the position and a statement explaining why the job of Science Coordinator interests you, a CV, the names and contact details of three referees, and a publication list. Applications should be sent via email to Dr. Gilbert Camoin (gcamoin@cerege.fr) by July 1st, 2007.

Further information : You are encouraged to contact Dr. Gilbert Camoin (tel: +33-4-42-97-15-14; email: gcamoin@cerege.fr) for further details about the position.

IODP INTEGRATED OCEAN DRILLING PROGRAM

GÉOSCIENCES DE L'ENVIRONNEMENT CEREGE
CENTRE EUROPÉEN DE RECHERCHE ET D'ENSEIGNEMENT DE GÉOSCIENCES DE L'ENVIRONNEMENT

CNRS

ECORD European Consortium for Ocean Research Drilling

Appendix 1.6: ESSAC Terms of Reference

European Consortium for Ocean Research Drilling (ECORD)

MEMORANDUM OF UNDERSTANDING

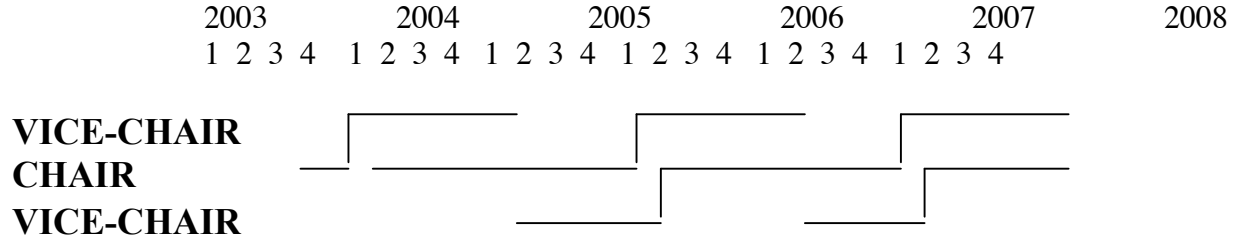
of European and Other Funding Organisations on Membership and Operation of ECORD in the Integrated Ocean Drilling Program (IODP)

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.

IODP Engineering Development Panel
4th Meeting, 17-19 January 2007
New York City, New York, U.S.A.

EXECUTIVE SUMMARY

Overview

The Engineering Development Panel of the Integrated Ocean Drilling Program convened their 4th Meeting in New York City at BP's offices. Our meeting followed the structure proposed at our 1st EDP Meeting, where we established that the winter meeting would focus on shorter term issues such as: 1. assessing the outcome of previous fiscal year Engineering Development projects**;** 2. learning of the status of current fiscal year issues and projects; and 3. making final comments on the engineering development component of next year's Program Plan.

In addition our meeting focused on two additional issues:

1. The IODP-MI Proposal Process: IODP-MI has made tremendous strides to develop a process that uses EDP's Technology Roadmap (http://www.iodp.org/eng-dev) as a foundation to implement engineering development (see http://www.iodp.org/eng/). EDP reviewed the process proposed, considered how EDP could more effectively contribute to this, and made suggestions for how IODP-MI can more effectively achieve engineering development.
2. EDP Technology Roadmap: EDP reviewed and began to revise the Technology Roadmap. A new version of the road map will be released after the next EDP Meeting.

EDP Recommendations,
Consensus Statements and Action Items

The EDP forwards the following recommendations, consensus statements, and action items to the SPC or the IODP-MI as appropriate.

EDP Consensus 0701-01: Proposed New Vice Chairperson of EDP
The EDP nominates Dr. Makoto Miyairi as vice-chairperson of EDP.

EDP Consensus 0701-02: EDP Technology Roadmap
The EDP has made minor revisions in its roadmap. The additions will be edited by the Chair and distributed to panel members prior to EDP Meeting #5. The revised document will not be public. At EDP Meeting #5 we will discuss, modify if necessary, and accept the revised document. EDP will then make the new version of the Roadmap a public document, and use it to establish priorities.

EDP Consensus 0701-03: Approval of EDP Meeting #3 Minutes
The EDP approves the minutes from EDP Meeting #3.

EDP Consensus 0701-04: The Importance of preserving the ability of an ROV Capability on the SODV

1. EDP fully appreciates the constraints and difficulties surrounding the prioritization of options leading to the decision making process for the SODV. However, we strongly feel that one of the most critical engineering developments in the road map which will be crucial to IODP 'transformational science' may have been significantly compromised in the current SODV plans. The presentation from the USIO at the EDP meeting in New York in January 2007 could not definitively conclude that the current SODV Plans could accommodate the deployment of an ROV of the required capabilities. We urgently request that the USIO clarify the capability of an ROV deployment for the 'unstretched' SODV.
2. ROV capability is a critical transformational technology for ocean drilling. ROV applications include, installation and service of subsea science packages (e.g. CORKS), seabed frame installation and use, seabed visualization, facilitating use of large diameter tools, monitoring for environmental impact of flow resulting from the well, safety, improved efficiency of re-entry operations, and seabed surveys. To wellhead work, the ROV is both the opposable thumb and the third eye.
3. The infrastructure for accommodating a full ocean depth ROV should be installed on the SODV now. A clear plan for installation under the new configuration must be developed. Failure to make this provision is an extreme compromise of the technology roadmap that conflicts with feedback from EDP and other committees. Proponents will respond to ROV capability with transformational science proposals but they will not do so until the capability is present or a plan for its deployment is clearly defined.

EDP Consensus 0701-05: Comment on 2008 Eng. Dev. Plan—ESO Down-Pipe Camera

The EDP views visualization as an important tool to deliver the science plan and it is defined in Technology Roadmap 1.0. The EDP did not receive a Concept Proposal and the ESO did not present any results on this project at this EDP meeting. Thus EDP cannot comment on this part of the 2008 Eng. Plan.

EDP Consensus 0701-06: Comment on 2008 Eng. Dev. Plan-USIO Downhole Sensor Sub and Remote Memory Module

EDP supports testing and evaluation of the DSS-RMM tool described as part of the 2008 Engineering Plan. Tests that simulate the field environment in which the tools will be used should be accomplished. Offshore field tests should be accomplished. The results should be documented to ensure that adequate acceptance criteria are satisfied before the tools are deployed in an operational mode.

EDP strongly endorses DSS-type measurements. This project is 7 years old. EDP has concerns whether this specific tool will be successful. EDP recommends that there should be an independent review of the DSS project and the vendor selection to determine if the current delivery path is going to meet IODP needs in an acceptable timeframe.

EDP Consensus 0701-07: USIO Pulsed Telemetry Module

EDP supports the idea that real-time downhole measurements be made and that these measurements be transmitted in real-time to the surface. An approach is to use mud-pulse technology. However, the PTM is linked to the DSS. There currently is no other function for the PTM other than to support the DSS. EDP has recommended an independent review of the DSS (Consensus 0701-06). EDP suggests that PTM should not be progressed ahead of, or in parallel, with the DSS project.

EDP Consensus 0701-08: Comment on 2008 Eng. Dev. Plan-CDEX Monitoring

EDP appreciates the efforts expended in developing the high level design of the LTBMS and the subsequent design review. EDP supports the continued development of this critically important technology. During the next phase of detailed engineering design, EDP recommends specific consideration be given to several important topics. The first topic concerns the operational temperature limits at long timescales. This remains a critical enabling technology barrier to long term deep installations. The 2nd topic should integrate well design details including cement requirements, casing sizes, annulus size constraints, and casing contingencies. There is concern that the actual final casing dimension may not be that originally envisioned due to drilling challenges and that this may compromise the performance of the monitoring plan. Finally, the design should include operational plans for continual monitoring, surveillance, maintenance, and data archival.

EDP Consensus 0701-09: Eng. Dev. Proposal Process
The EDP endorses the Engineering Development Proposal Process developed by IODP-MI as generally in alignment with EDP's proposed project life cycle process. EDP recognizes the efforts of IODP-MI to disseminate information regarding engineering development to the larger community (http://www.iodp.org/eng/). EDP will work with IODP-MI to further strengthen this process.

EDP Consensus 0701-10: Weighted Fluid Operations
The EDP requests that IODP identify those techniques and tools unique to the IODP that will be used in weighted fluid operations and assess the impact and then feedback to the EDP identified developments that need to be added to the Roadmap.

EDP Consensus 0701-11: Operational Review Task Force
EDP recommends that IODP-MI monitor the engineering issues that are identified by the Operational Review Task Group after each expedition in the form of a simplified table that relates directly to the 'engineering road map'. This table will enable past engineering issues to be tracked and should be available at EDP meetings in order that engineering issues and priorities can be reviewed and updated as required.

The EDP endorses the Engineering Development Proposal Process developed by IODP-MI. EDP recommends that if unsolicited proposals (Class A & B) are not forthcoming for high priority engineering developments in the EDP Technology Roadmap, then IODP-MI should seek funds from lead agencies for these developments such that they can develop a request for solicited proposals (Class C) in a timely manner.

Furthermore IODP-MI should seek funds annually from lead agencies for engineering developments (unspecified) so that unsolicited proposals for high ranking developments can be funded rapidly as and when appropriate.

EDP Consensus 0701-12: IODP-MI Proposal Process-Concept Phase Review
EDP desires to see proposals at the end of the concept phase. Work described in the Concept Phase in the Class B and Class C Engineering Development Proposal in the IODP Engineering Development Proposal Process should be complete when the proposal is presented to EDP. The proposal should contain a description of how work in the Design, Fabrication and Implementation phases will be executed.

EDP Consesnsus 0701-13: Prediction and detection of overpressure in drilling operations

The capability of IODP to drill with weighted fluids introduces the probability of conducting ongoing operations in the presence of overpressure. The presence of overpressure introduces a new level of complexity to the operations which requires, for both safety and environmental considerations, techniques to both predict and detect pressure in these drilling environments. Existing IODP pressure detection techniques were designed for use in soft sediments and were not intended for continuous drilling in overpressured environments. Techniques need to be developed or adapted from industry to detect pressure while drilling in weighted fluid drilling environments.

EDP Consensus 0701-14: Thanks to Dr. Peter Schultheiss

The EDP greatly appreciates the dedicated efforts and the effectiveness of outgoing panel member Peter Schultheiss.

EDP Consensus 0701-15: EDP Meeting #5

The EDP recommends holding EDP Meeting #5 in Japan on Monday, July 9, 2007 – Wednesday, July 11, 2007. The location will be decided by our Japanese hosts. Possible location includes Chiba, Tokyo, and Sapporo.

EDP Discussion Item 0701-01: Liaisons to SSEPs, ETF, and STP

The EDP had extensive discussions about the importance of having liaisons to SSEPs, ETF, and STP. There was general support for promoting these interactions.

EPSP Meeting Yokohama 9-10 January 2007 - Summary

SASEC - "Mission Proposals"
Component proposals might need EPSP participation on case by case basis (next year)

USIO - SODV Status:
- Budget fixed at USD 115m, but significant price increases in petroleum sector due to market forces
- At present, no substantial delay envisaged in delivery of SODV which is assumed to commence operations by 15 Nov 2007 (1st expedition to start from Singapore)

ESO – Status Proposal 313 New Jersey Shallow Shelf
- Aim to start in May 2007, DOSECC preferred contractor. Platform: "lift boat" (jack-up) with limited space on board
- Issues: platform availability, geotech survey to be done, permits, sea mammal observer (during seismic acquisition), limited rig space (could be an issue for drill pipe, equipment, material).

EPSP aspects:
- No downhole BOP, slim hole 100-125mm (ACEX 250mm), no LWD possible
- HC monitoring protocol similar to ACEX protocol: pump pressure will be monitored, cores will be "sniffed", if gas encountered then coring will be stopped – no means to continue. Heavy kill mud will be applied if gas is encountered
- Critical factor: hole stability due to loose sand
- Industry exploration wells did not encounter any HC in shallow section.

Action Points:
- ESO will provide description of gas detection procedure and instrumentation
- EPSP requests that baseline for gas readings should be established when geotechnical cores are taken prior to spud.

ESO – Status Proposal 519 Great Barrier Reef:
ESO meeting with GBR Marine Park Authority in early 2007. Site surveys planned for later part 2007, data available by end 2007, additional funding assured from Australian government.

EPSP aspects:
- Updated draft of ESO Reef Drilling Guidelines distributed to EPSP members
- platform-specific environmental impact assessment (EIA) not available until platform is contracted
- EPSP approval will be requested for drilling within a defined radius of each proposal site to be able to avoid coral nests
- 2-stage pre-expedition approval process: outline site approval + final approval

Action Points:
- Pre-view required at next EPSP meeting in June 2007
- EPSP members will specify data requirements directly to ESO (Colin Graham) prior to June pre-view. This is important as there will be no time for multiple data acquisitions. Data requirements mentioned were side scan sonar, decimetre bathymetry, back-scatter, visual transect (digital photography resolution better than 1cm).

ESO - Proposal 637 Full2 - New England

Drilling in 2009? Potential EPSP issue: overpressured sands

CEDEX – Status Chikyu
- 'Chikyu' is drilling two oil exploration wells offshore Kenya for Woodside (water depth 2200m; total drill depth 2500m and 3900m, respectively), followed by two further holes on Australia NW Shelf (water depth 1000m; total depth 1500m in a northern location and

4400m in a southern location). Chikyu is expected to be available for IODP operations from September 2007
- In 2008, Chikyu will undergo 3 months inspection & maintenance; further inspections will be required every 5 years (1-1.5months each)

EPSP Review – Proposal 600 Canterbury Basin *(Craig Fulthorpe)*
- 'Canterbury Basin Shallow Drilling Hazards' report presented by Dan McConell, AOA Geophysics Inc., College Station
- All sites approved as proposed except for CB-05A (not approved due to indications for shallow gas risk), CB-05C (total penetration limited to 1625m from proposed 1783m), and CB-06A (site moved to new location – *proponents to provide new Lat/Long, water depth, total penetration to "green horizon + 50m", safety sheet*)

EPSP Review – Proposal 603A NanTroSEIZE (*Greg Moore et al.)*
All presented sites (three primary, five alternate, three previously approved with revised penetration depth) are for riserless drilling, LWD and coring are planned at all sites.
Two of the proposed sites (NT3-01, NT2-03) will be deepened by riser drilling in stage 2 and EPSP was requested to give approval to full deep hole sites to avoid later delays. However, final TD of the deep riser holes are subject to ongoing studies and could not be provided yet.
- EPSP decided to identify potential issues for deep holes, but *not formally approve deep hole sections until final depth of penetration is available.*
- All sites approved as proposed, except for deepening of NT1-03A which was approved to a maximum depth of 1800m (instead of 2700m as proposed which is considered not save for riserless drilling).
- An additional (non-EPSP) issue at site NT1-03A is the steep sea floor slope of ~12° which poses an operational risk (riser wellhead slip, currents); CEDEX stressed that the Chikyu riser wellhead only accepts a slope of 5° and riserless drilling is only possible at slopes <12°.
- Although EPSP sees no environmental or below ground safety issues down to the approved 1800m penetration, it *strongly recommends that proponents confirm the "slope issue" with operators. It is up to the operators to decide, if these sites can be drilled to the approved depth.*
- Two new alternate sites for NT-03A presented ad-hoc (NT1-03B and -03C, not included in orig. safety package) were approved to a max. depth of 1800m as proposed. *Final safety sheets to be submitted by proponents*
- EPSP took note that overpressure was encountered in previous drilling, but due to absence of permeable sands any flow is likely confined to thrust/splay faults.
- EPSP site approval is valid for a 50m radius around approved coordinates. If for operational reasons a site needs to be moved beyond this radius on short notice, EPSP approval is required and may be requested (and be granted) via e-mail from the Chair. *This is a general EPSP principle which applies to all IODP proposals.*

2nd EPSP Preview – 537A CRISP (Costa Rica Seismogenesis Project)
(Paola Vannucchi / Cesar Ranero)
- All sites approved as proposed with following exceptions:
- CRIS-3A not approved, replaced by new location CRIS-3B at SP 2500 on seismic line BGR-7 (proponents to provide Lat/Long, water depth and total penetration)
- Following an EPSP suggestion, proponents prepared alternate sites as contingency (all sites are in territorial waters requiring permission)
- All five alternate sites (one for each primary site) were approved. *Lat/Long plus final safety sheets to be provided by proponents*
- *EPSP recommends to drill all holes with LWD/MWD prior to coring.*

EPSP Update – Proposal 595 Indus Fan / Murray Ridge *(Craig Shipp, EPSP watchdog)*
- Shell is currently drilling an exploration well near the proposed IODP location (MU-1C), proponents (Peter Clifft) have been assured to get timely access to Shell well data, esp. pore pressure data.

- 3.8 km sediments sub seafloor to 'basement' at proposed MU-1C
- 3D seismic amplitude horizon extraction does not point to anomalies near site MU-1C
- Evidence for hydrates (discontinuous BSR) and indications for free gas observed under hydrate stability zone (truncated amplitude anomalies), but away from site MU-1C
- Mud diapirs in the region indicate high chance of overpressure
- *EPSP requests an independent shallow hazard assessment, pore pressure data and assessment of deeper section (amplitude anomalies observed near basement).*

CDEX Safety Review *(Yoshi Kawamura)*

- No specific safety panel (as in USIO/ESO) envisaged by CDEX in current draft of safety review process. Instead, the safety review includes "peer reviews" (involving CDEX specialists and external consultants) and a *"CDEX Safety Committee"* consisting of CDEX group leaders
- *EPSP raised concern that it may not get involved early enough in the process (e.g. via pre-views) and asked CDEX to consider this aspect in their final review process.*
- There were also suggestions from EPSP that international oil industry and other IODP operators be represented in CDEX peer reviews

USIO-CDEX LWD-MWD Operational Template (Draft)

A draft was presented for information.

Next EPSP Meetings Schedule

- **Houston, June 18-19, 2007** (host: Barry Katz)
  - pre-view of Great Barrier Reef proposal (519)
  - pre-view of Murray Ridge proposal (595)
- **Germany (location to be announced), November 29-30, 2007** (host: Dieter Strack)

12.01.2007
Dieter Strack
EPSP Member

DRAFT

IODP-Industry Science Program Planning Committee Meeting

19-20 January, 2007

Hess Offices, Houston, USA

Executive Summary

This was the second meeting of the IODP/Industry Science Project Planning Group. To promote development of industry related drilling proposals, to facilitate communication, and to develop effective links between academic and industry scientists, we generated eight consensus statements at the meeting:

IIS-PPG Consensus 0701-1: IISPPG is promoting the submission of two projects for the April 1/07 proposal deadline: 1) A South Atlantic rifted margins project which will be included in a rifted margins mission proposal. 2) A pre-proposal on the theme of silica diagenesis, shallow compaction and fluid flow.

IIS-PPG Consensus 0701-2: IISPPG is promoting a proposal or pre-proposal on Mesozoic source rocks and paleo-oceanography for possible submission in April 1/08.

IIS-PPG Consensus 0701-3: The Arctic Basin is one of the last remaining scientific frontiers on a number of fronts, from basin evolution to paleo-oceanography and paleo-climate change. IISPPG believes this is an area of great mutual interest to academia and industry. The panel will prepare a 2-3 page white paper scoping out possible Arctic drilling of joint industry-academic scientific interest.

IIS-PPG Consensus 0701-4: IISPPG recommends that IODP-MI increase the awareness of IODP in the Japanese petroleum industry in addition to US and European efforts, for example by having a booth at the JAPT. In conjunction with the next meeting in Sapporo, IISPPG will participate in a mini-workshop in Tokyo on "Applications of IODP data in petroleum exploration".

IIS-PPG Consensus 0701-5: IISPPG supports the IODP data management efforts (SEDIS portal) which involve interoperable data portals. Coordination between US, Japanese, and European data management efforts is obviously essential. Specifically we request that the industry “user community” be involved in pilot projects to guide the development and to ensure the utility of the data management infrastructure.

IIS-PPG Consensus 0701-6: IISPPG will contact EGI (Energy Geoscience Institute - University of Utah) to identify whether they would have interest in developing with IODP scientists an integrated database of DSDP, ODP and IODP well data.

IIS-PPG Consensus 0701-7: IISPPG supports the membership of IODP-MI in the RPSEA and Deep Star projects. IISPPG will monitor developments on the Deep Star Technical Advisory Committees on Geoscience and Downhole Measurements.

IIS-PPG Consensus 0701-8: IIS-PPG members will identify alternates for themselves whom they know and with whom they can communicate easily. Ideally these alternates will meet the criteria for PPG membership outlined in the terms of reference. National committees (PMOs for US and Japan) should confirm that they will pay travel costs for the designated alternates if necessary. Action item for IIS-PPG members and Chair.

We thank Andy Pepper and Hess Corporation for graciously hosting the meeting.

IIS-PPG Attendees:
Richard Davies
Harry Doust
Andrew Pepper
Martin Perlmutter
Kurt Rudolph
Ralph Stephen
Yoshihiro Tsuji
Osamu Takano - alternate forYasuhiro Yamada

Guests (* first day only):
*Michael Grecco
Young-Joo Lee
*John Hopper
*Harm van Avendonk

Ex-Officio Attendees:
Keir Becker
Nobu Eguchi
Manik Talwani

IIS-PPG Regrets:
Didier-Hubert Drapeau
David Roberts
Eugene Shinn

Report on 'IODP Science Advisory Structure Executive Committee' (SASEC) Meeting 1-2 November 2006 Odawara

The committee received agency reports. The key information is the state of plans for refurbishment of the Joides Resolution (SODV). The increased cost of stretching the vessel combined with the anticipated delay, which would incur the payment of day costs in addition to the refurbishment costs, has lead NSF to restrict the refurbishment to essential maintenance, addition of weight to improve stability, refurbishment of accommodation and the laboratory stack and equipment with a larger diameter drill string. Work has started but the extra funding for completion still depends on funding approval by Congress. It is still hoped that the ship will commence drilling operations in FY'08 (October-November '07 or more likely early 2008). It seems quite likely that initial expeditions will have to be postponed and the Nantroseize expeditions rescheduled. Meanwhile the Chikyu is sailing for commercial work off Kenya and then off Australia. The Chikyu has successfully completed nearly all its sea and drilling trials. The only significant hitch is that one of the duplicate hydraulic systems failed during a weather-induced emergency disconnection from the bottom hole assembly and for safety reasons it was decided not initiate riser drilling with mud. Previously they had been riser drilling circulating seawater.

Other work by the agencies is proceeding as planned including implementation of the MSP New Jersey Shallow Shelf Expedition. Planning is proceeding with the MSP Great Barrier Reef Expedition with a view to implementation in Sept-Nov 2008, subject to satisfactory site survey work, which is progressing well.

SASEC approved a rewritten document describing 'IODP Missions: Designation and Implementation' after much discussion. There is still considerable unease about the precise definition of missions and their role in the IODP organisation. It is clear that there will be only very few missions active at any one time. Subject to approval by the Implementing Organisations (NSF, MEXT, ECORD), applications for missions will be invited with a deadline of 1st April, 2007. These will be reviewed by the SSEPS and SPC as well as an external review. Details are on the IODP website and these will be updated as soon as final approval is available.

Reports on the workshops on 'Investigating 'Continental Break-up', 'Subseafloor Life' and 'Mission Moho' were presented. The first two went well but the Talwani was critical of the Mission Moho workshop and presented a report by Coggan and others detailing their concerns over the organisation.

SASEC approved the revised proposal for an IODP workshop on Large Igneous Provinces submitted by Coffin and Neal. Workshop proposals on 'Extreme Climates and abrupt climate change during the Cretaceous and Paleogene' and on 'High- to ultra-high resolution sedimentary records' were welcomed and full applications will be invited. Initial candidates for the IODP distinguished lecturer series (DRILLS) were selected (one each from Japan, Europe and the USA) and these lecture tours should take place in 2007 or 2008.

The first IODP Topical Symposium on 'North Atlantic and Arctic climate variability' overseen by Gerald Wefer is planned to be held in Bremen in August 2007 and the long-term review of IODP expeditions within this theme of the Initial Science Plan (Environmental change, processes and effects) will take place in conjunction with the meeting. The next IODP Topical Symposium will concern the ocean crust.

The SASEC review of SAS is progressing and the subcommittee were taken to task for not proposing radical changes and ordered to seek input from the community.

SASEC is reviewing the Initial Science Plan with the objective of publishing an update in ? 2009.

Mike Bickle 3/11/2006

IODP Science Advisory Structure Executive Committee

2nd Meeting, 1-2 November 2006
Odawara, Japan

DRAFT EXECUTIVE SUMMARY (v2.0)

2. Approval of the Minutes from the July 2006 SASEC Meeting

SASEC Motion 0611-01: SASEC approves the revised minutes of its first meeting on 11-12 July 2006 in Washington, D.C., USA.

Miller moved. Kono seconded. 10 in favor, 0 abstained, 0 against.

3. Approval of the Agenda

SASEC Motion 0611-02: SASEC approves the revised agenda for its second meeting on 1-2 November 2006 in Odawara, Japan.

Silver moved. Tatsumi seconded. 10 in favor, 0 abstained, 0 against.

8. Update on Long-Term Evaluation Plans for IODP Science

SASEC Consensus 0611-03: SASEC endorses the approach to long-term evaluation of IODP science suggested by Hans-Christian Larsen. Specifically, one panel will be convened each year, reviewing in turn each of three thematic areas. To begin, the theme of climate variability will be reviewed in late 2007. The themes dealing with the structure of the ocean crust and with fluid flow and sub-seafloor life will follow in 2008 and 2009.

The panels will be chaired by the IODP-MI Vice President for Science Planning. As outlined in SASEC Consensus 0607-06, each review committee will include two to four experts external to IODP, one member each from SASEC and SPC one representative from IODP-MI, and one former member of SAS who was involved in the nurturing of the expeditions under review.

For the review of the climate variability theme in 2007, SASEC proposes that K. Miller should be its representative, that R. Nomura (or, as an alternate, G. Filippelli) should be the representative from SPC, and that J. Thurow (or, as an alternate, R. Tada) would be an excellent representative of SAS. Two to four individuals from the group comprised of R. Toggweiler, W. Curry, G. Haug, B. Zolitschka, E. Tajika, and M. Sarnthein would provide the required external experts.

9. Review of the Science Advisory Structure

SASEC Consensus 0611-04: As part of its activities to review and recommend any changes to the Science Advisory Structure to ensure it is optimally configured as IODP enters Phase II and as Missions are introduced, SASEC recommends that the sub-committee created at its last meeting solicit input from the broader IODP community on the effectiveness of SAS and ideas for structural modifications and/or simplifications. This may best be accomplished through the development of a short questionnaire.

10. Mission Implementation

SASEC Motion 0611-05: SASEC approves the IODP Mission Designation and Implementation Plan as developed by the Mission Implementation group (SASEC Action Item 0706-08) and as revised at this meeting.

Silver moved. Nagao seconded. 10 in favor, 0 abstained, 0 against.

SASEC Action Item 0611-06: SASEC requests that IODP-MI integrate a Call for Mission proposals into its next annual Call for Drilling Proposals, ensuring that expectations regarding available resources and the number of proposals likely to be designated as Missions are contained.

SASEC notes that the lead agencies need to review the IODP Mission Designation and Implementation Plan prior to its official release, and requests this be done as soon as possible.

12. Planning for Future Workshops

SASEC Consensus 0611-07: SASEC recommends that IODP-MI fund the revised proposal for an IODP Workshop entitled 'Large Igneous Provinces' in 2007. SASEC believes that the Workshop proponents have adequately addressed the issues discussed and summarized in SASEC Consensus 0607-09.

Charge to the Steering Committee for the Large Igneous Provinces Workshop from the IODP Science Advisory Structure Executive Committee (SASEC)

The IODP Initial Science Plan (ISP) identifies Large Igneous Provinces (LIPs) as one of its important initiatives, and highlights their importance for understanding mantle processes, melt formation and movement, as well as for their potential environmental impacts. The committee recognizes the value of a workshop aimed at planning global and long-term drilling strategies to address the problem of LIP formation.

SASEC charges the workshop participants with (i) defining the key scientific objectives that can be achieved by drilling into LIPs, (ii) identifying a global, long-term strategy (including scientific, technical, engineering and operational components) to address those objectives, and (iii) providing a conceptual framework for potentially considering LIP drilling as a Mission within the IODP.

IODP-MI will provide logistical support for the workshop.

Steering Committee: SASEC recommends creating a steering committee of 5-7 individuals to organize and run the meeting, headed by 1-2 conveners. The steering committee must decide how best to structure the workshop and accomplish those goals within the available budget.

Expected deliverables: As an outcome of the workshop, the steering committee must deliver at least two publishable documents – an *EOS* meeting summary report, and a longer, comprehensive workshop report that describes the scientific objectives, presents a drilling strategy for addressing those objectives, and identifies the technological and engineering requirements. A primary goal is to provide information to update the ISP.

SASEC Consensus 0611-08: SASEC thanks the SSEP and the SPC for sending forward two workshop proposals:
(i) Extreme Climates and Abrupt Climate Change During the Cretaceous and Paleogene
(ii) IODP-ICDP Workshop on High to Ultra-High Resolution Sedimentary Records,
and applauds the SSEP's efforts to be proactive in bringing important topics to the attention of SASEC.

Both topics are regarded as highly relevant to the objectives of IODP, and SASEC looks forward to receiving more complete proposals at the next workshop proposal deadline (1 February 2007).

In preparing such proposals, SASEC encourages the proponents to ensure they address the following issues:

- overall scientific or technical objectives, and their relevance to the ISP
- rationale for drilling as a means of addressing scientific questions
- scope of topics to be covered by the workshop and potential for interactions with other international science programs
- target audience/workshop participants (individuals or research groups)
- proposed conveners and Steering Committee members
- suggested timing and location of workshop
- a preliminary budget (including potential for funding from other organizations – highly desirable).

SASEC Consensus 0611-09: SASEC approves the following call for workshop proposals and requests IODP-MI to advertise this opportunity in a timely manner for a 1 February 2007 deadline.

Integrated Ocean Drilling Program

Call for Workshop Proposals

Deadline: 1 February 2007

The Integrated Ocean Drilling Program (IODP) is the premier international research program conducting scientific investigations of the Earth through ocean drilling.

IODP invites short proposals for workshops to be held (tentatively) in 2008 and 2009 on topics either derivative of the IODP Initial Science Plan (ISP – download at

www.iodp.org/isp) or on other globally important problems that can be addressed through ocean drilling during the next phase of IODP.

Proposals (not to exceed four pages of text) must include:

- overall scientific or technical objectives, and their relevance to the ISP
- rationale for drilling as a means of addressing scientific questions
- scope of topics to be covered by the workshop and potential for interactions with other international science programs
- target audience/workshop participants (individuals or research groups)
- proposed conveners and Steering Committee members
- suggested timing and location of workshop
- a preliminary budget (including potential for funding from other organizations – highly desirable).

Expected deliverables will likely include an EOS meeting report, a detailed workshop report, and an article for Scientific Drilling.

Please include a 1-2 page curriculum vita for each workshop convener (up to a maximum of 5). Submit proposals in .pdf format by 1 February 2007 to Kelly Kryc (kkryc@iodp.org).

13. IODP DRILLS Program

SASEC Consensus 0611-10: SASEC nominates Bo Barker Jørgensen (USA tour), Ted Moore (Japan tour) and Yoshiyuki Tatsumi (European tour) as the inaugural speakers for the IODP DRILLS program starting in 2007.

14. IODP Topical Symposia

SASEC Consensus 0611-11: SASEC thanks Gerold Wefer for agreeing to host the first IODP Topical Symposium on "North Atlantic and Arctic Climate Variability" to be convened in Bremen, Germany in August 2007. SASEC further nominates G. Wefer, J. Backman, R. Stein, J. Channell, K. Takahashi, D. Kroon, M. Raymo, and E. Janssen as potential Steering Committee members.

SASEC Consensus 0611-12: SASEC recommends that the subject of the 2008 Topical Symposia be Ocean Crust Formation and Evolution.

SASEC Action Item 0611-13: SASEC members are requested to identify potential additional funding sources, location, and convenors for the 2008 IODP Topical Symposia, including investigating the possibility of convening a dedicated Gordon Conference, for further discussion at the its spring 2007 meeting.

16. Interactions with Industry

SASEC Consensus 0611-14: SASEC endorses IODP-MI pursuing partnerships with industry for drilling targets of mutual interest, particularly in light of the realities of future funding for IODP. Such partnerships will need to be set up so that the scientific integrity of the Program is maintained.

SASEC Consensus 0611-15: SASEC encourages the IIS-PPG to foster the development of industry-related drilling proposals. However, SASEC does not endorse the establishment of "proposal working groups" as a formal part of the IIS-PPG and the SAS. Furthermore, IODP cannot provide travel support for proposal working groups to meet to write proposals.

17. Update of the IODP Initial Science Plan

SASEC Action Item 0611-16: SASEC members are requested to identify potential editorial board members for the preparation of an updated ISP to be published by December 2008. The editorial board will be constituted at the Spring 2007 SASEC meeting.

SASEC Action Item 0611-17: SASEC members are requested to re-read the IODP ISP and identify areas that need to be updated or added in the updated ISP to be published by December 2008. The Table of Contents of the updated IODP ISP will be discussed at the Spring 2007 SASEC meeting.

19. Future meetings

SASEC Consensus 0611-18: SASEC agrees to hold its next meeting 22-23 March 2007 (Eastern Standard Time mornings only) via videoconference in locations to be determined.

20. Closing remarks

SASEC Consensus 0611-19: SASEC thanks Yoshi Tatsumi and Issa Kagaya for hosting their second meeting. The location was wonderful, the views spectacular, and the onsen much appreciated by all.

IODP Missions: Designation and Implementation

(K. Becker, S. Humphris, M. Talwani, Y. Tatsumi, M. Underwood)

(*Document approved by SASEC; awaiting Lead Agency comment and review)*

This document outlines a plan for the designation and implementation of IODP Missions – a new mode of IODP planning intended to complement existing procedures.

The Mission concept builds on recent experience in planning the "NanTroSEIZE" program that will be a prime focus of IODP operations starting in 2007. It will involve years of riser and riserless drilling to core, log, and instrument the seismogenic plate-boundary fault in the Nankai Trough offshore SW Japan. This program began as a highly rated proposal, and was recognized as having unusual scope, challenges, and scientific importance. It became remarkable for the level of resources devoted by program management to early planning stages. It demonstrated the need for a mechanism within IODP to facilitate development of such programs.

Goals of Missions

IODP proposal processes should foster the imaginative conception and testing of bold scientific ideas that advance the scientific goals of the Initial Science Plan. The addition of Missions is expected to allow IODP to (a) address its scientific goals and initiatives effectively, efficiently, and within budgetary constraints, and (b) engage a broader array of scientific stakeholders in Missions, including a new generation of ocean drilling scientists and scientists from other communities.

What is a Mission?

A **Mission** is an intellectually integrated and coordinated drilling strategy originating from the scientific community that addresses a significant aspect of the IODP Science Plan theme over an extended period and which merits urgent promotion in order to achieve overall IODP program goals.

Overarching Principles of Mission Designation

- Missions must address scientific themes of global significance and must originate from, and must be strongly supported by, the international scientific community.
- Mission proposals do *not* replace proposals for specific expeditions but, rather, augment them. As always, IODP will remain responsive to individual, unsolicited proposals for single or multi-expedition projects.
- Definition and planning of missions should integrate scientific strategies, technological approaches, and management and educational/outreach plans.
- Because resources are limited, Missions should be proposed only when requirements for development of complex strategies, or integration of multiple expeditions, are compelling.

Call for Mission Proposals

It is anticipated that there will be annual calls for Mission proposals. The first will have a deadline of 1 April 2007.

- Proposals should follow the guidelines below and should be specifically designated as "Mission Proposals."
- Ideally, Mission proposals will originate from the international scientific community through planning activities such as workshops.
- Proponents can develop entirely new proposals or can bundle existing proposals, adding new components if necessary, to form a Mission proposal.
- As with conventional drilling proposals, no IODP-MI financial assistance will be available for preparation of Mission proposals.

Content and Structure of Mission Proposals

A Mission proposal outlines and explains the scientific factors that unite the individual projects to address an important global scientific theme. It provides an overall identity for the **expedition or** expeditions that fall within its scope. Although more detailed, full proposals will be required for each component of the Mission, those proposals will be reviewed in terms of their contributions to the overall Mission.

A Mission proposal (no more than 25 pages, including text, figures and tables, excluding references) should:

- state the theme and scientific objectives and explain how they address a significant aspect of the ISP or emerging new IODP science;
- identify the process by which broad, international input has been sought and incorporated and outline evidence for acceptance of the plan by the community;
- describe the overall drilling strategy and its components, showing how the proposed multiple drilling and logging sites/expeditions will address the scientific objectives;
- describe each component in sufficient detail to enable evaluation of its importance to the overall drilling strategy;
- prioritize the components and propose a timeline for completion of the Mission;
- identify critical milestones and suggest an appropriate process for assessment of progress throughout the lifetime of the Mission;
- describe the status of site surveys, especially what additional information is needed and how it could be obtained;
- identify technical needs for tools, observatories, etc. – are they already available or will funding be needed from the program or third parties for their development?
- identify what resources, fields of expertise, and personnel will be needed for the Stage 1 core Mission Team (see below);
- specify co-leaders and proponent members (4-6) based on expertise needs for the Stage-1 core Mission Team.

Since there will be separate proposals for each Mission component, only Site Summary Form 1 is required for each site for a Mission proposal.

Review of Mission Proposals and Mission Designation

- Mission proposals will be reviewed both within SAS and by an external review panel.
- The major criteria in considering Mission designation will include:

  (i) the plan should lead to considerable scientific success and is or should be a high priority for IODP.

  (ii) accomplishment of the science goals will require a considerable technological effort and/or complex, multiple drilling strategies, hence requiring planning on a longer term than is typical of drilling expeditions.
- SSEP will review Mission proposals and will forward its evaluations to SPC. SSEP will also provide comments on the compositions of the proposed Stage-1 core Mission Teams.
- In parallel with the SSEP review, an external review panel appointed by SASEC will conduct an independent review of the Mission proposals as a group, and will forward its evaluations to SPC.
- SPC will consider the recommendations and the proposals, possibly selecting one or more to be designated as Missions. For those selected, SPC will also provide a recommendation on the composition of the Stage-1 core Mission Team. Other possible outcomes are

  (i) outright rejection;

  (ii) recommendation for revision and/or resubmission;

  (iii) recommendation that a proposed mission be "unbundled," with some components being submitted as regular drilling proposals.

  They will also provide comment on the needed expertise for the Stage-1 core Mission Team.

Implementation

After initial designation, Missions will progress through three stages of implementation. IODP-MI will be responsible for managing these stages.

Stage 1. Definition of Scope

After SPC designates a Mission, a Mission Team is created. The Mission Team includes all proponents (and others) involved in any component of the Mission, including young scientists. Since this may be a large number, IODP-MI will form a Stage-1 core Mission Team. The charge to the core Mission Team is to (i) ensure that full proposals for each component of the Mission are developed by proponent groups and submitted to the SAS, (ii) with technical advice from the IOs and IODP-MI, begin refining the scope of the Mission by determining first-order operational needs and budgets, engineering development needs, etc. and (iii) develop a conceptual plan for Mission management.

Deliverables from Stage 1:

(1) Full proposal(s) for the initial component of the mission submitted to SAS
(2) a conceptual Mission management plan.

The Stage-1 core Mission Team will consist of the following members:

- 2-3 co-leaders (proponents) – salary support will be provided depending on workload
- 4-6 proponent members based on expertise
- an IODP-MI representative
- IO representative(s) as appropriate to the Mission
- Education and Outreach representative(s) as needed, and as appropriate to the Mission.
- Outside consultants invited as required.

Liaisons will include representatives from:

- SAS (especially SSEP) as needed
- Appropriate earth and biological science initiatives.

The normal lifetime of a Stage-1 core Mission Team will be 1-2 years, with a review of progress by the SSEP and SPC at the end of Year 1 (see below).

Stage 2. Detailed Planning and Execution

A Mission advances to Stage 2 after one or more of the component proposals has been through the SAS review process (see below) and has been forwarded to the Operations Taskforce for scheduling and execution. The charge to the Stage-2 core Mission Team is (i) to develop and coordinate the detailed staging and operational plans for the Mission expeditions, (ii) to ensure that full proposals for the remaining components of the Mission are being submitted to the SAS, and (iii) to continue site-by-site scoping for components still within the SAS.

Deliverables from Stage 2: Proposals for all expeditions within the mission.

The original, Stage-1 core Mission Team evolves into the Stage-2 core Mission Team. Co-chief scientists of each expedition will be added (if not already members), and Specialty Coordinators may be appointed as necessary. Technical advice from the IOs will continue, and outside technical consultants will be added as required to provide external advice on aspects of the detailed planning. Liaisons from the SAS will no longer be required.

The normal lifetime of the Stage-2 core Mission Team will be 2 years.

Stage 3. Synthesis and Completion

Stage 3 begins when all Mission expeditions have completed Stage-2 planning. The charge to the core Stage-3 Mission Team will be to (i) downsize the core Mission Team and available resources, (ii) oversee the synthesis and coordination of science results, and (iii) define needed follow-up expeditions, observatory data acquisition needs, etc.

Mission Evaluation Process within SAS

1. Evaluation of Mission component full proposals

Full proposals for Mission components will be submitted to the SAS. The review process will duplicate that used for proposals that are not part of any mission. Passage through this process should, however, be more efficient because of the early nurturing by SSEP liaisons to the Stage 1 core Mission Team.

The SSEP will forward mature component proposals to SPC, which will include them in its overall ranking of all proposals forwarded by the SSEP. As with any proposal,

Mission-component proposals will need to rank high enough to fall in the group to be sent forward to the Operations Taskforce for scheduling.

2. Review of Mission progress

The progress of the core mission team will be reviewed annually by SSEP and SPC as long as Mission-component proposals remain within SAS. During stages 2 and 3, progress will be assessed by OTF and SPC at regular intervals consistent with critical milestones identified in Mission planning. If there is insufficient progress or serious logistical issues arise, SPC can recommend changes in the Mission and its scope or, in an extreme situation, that the Mission be halted.

Needed Program Support

- Support (salary, travel, etc.) of the core Mission Team co-leaders is essential to the success of Missions. Resources will come from IODP-MI. Program Member Offices (PMO) or other sources may also contribute to the support.
- The IOs will require the resources to support the participation of staff scientists and engineers in Mission scoping and implementation. These will come from commingled SOC funds.

Needs Critical to Successful Implementation of IODP Missions

- Coordinated national funding is absolutely required for site surveys and related research that is essential for Missions, as for all drilling expeditions.
- Observatories are likely to be an essential component of some Missions. Coordinated national funding for instrumentation, installation and maintenance of observatory facilities will be required. This will include support for major infrastructure development such as riser-hole observatory data telemetry systems.

IODP Science Planning Committee

9th Meeting, 4-7 March 2007

Osaka International House Foundation
Osaka, Japan

DRAFT EXECUTIVE SUMMARY (v1.2)

1.3. Approve SPC meeting agenda – highlight action items

SPC Consensus 0703-01: The SPC approves the agenda of its ninth meeting on 4-7 March 2007 in Osaka, Japan.

1.4. Approve last SPC meeting minutes

SPC Consensus 0703-02: The SPC approves the minutes of its eighth meeting on 28–31 August 2006 in Os, Norway.

1.6.2. Conflict-of-interest policy and statements

SPC Motion 0703-03: The SPC overrules the initial chair's ruling on potential conflict-of-interest of SPC member Tim Byrne, who has been invited, but not yet accepted, to be a co-chief in NanTroSEIZE stage 2 operations. The overruling allows Byrne to participate in the discussion of the status of proposals remaining at the Operations Task Force (OTF) (agenda item 11).

Mountain moved, Behrmann seconded; 15 in favor, 2 abstained (Byrne, D'Hondt), none opposed, 3 non-voting (Jenykns, Lee, Zhou).

6. IODP Science Advisory Structure (SAS)
6.1. Panel reports
6.1.1. Science Steering and Evaluation Panel (SSEP)

SPC Consensus 0703-04: The SPC should be able to designate a complex drilling project (CDP) after reviewing only its umbrella proposal.

SPC Consensus 0703-05: The SPC appoints Barbara John as a new co-chair of the Science Steering and Evaluation Panel (SSEP), effective immediately.

6.1.2. Site Survey Panel (SSP)

SPC Consensus 0703-06: The information prepared by an outside contractor as part of a shallow gas hazard or safety assessment could contribute to the scientific results of a drilling expedition if made available to the scientific community. The SPC request that the IODP-MI stipulate that these reports, and whenever practical the data and analyses they are based upon, are deposited in the Site Survey Data Bank (SSDB) and so made available to the community like any other drilling-related information useful to the aims of the drilling program.

6.1.5. Engineering Development Panel (EDP)

SPC Consensus 0703-07: The SPC appoints Makoto Miyairi as the Engineering Development Panel (EDP) vice chair, effective immediately.

6.2. Updates from PPG and DPG
6.2.1. Industry-IODP Science Program Planning Group (IIS PPG)

SPC Consensus 0703-08: The SPC endorses the initiative by the Industry-IODP Science Program

Planning Group (IIS PPG) to actively participate in a mini-workshop held in association with its planned July 2007 meeting in Japan, with the aim of engaging Japanese and Asian industry and fostering increased interest in the IODP.

SPC Consensus 0703-09: The SPC appoints Neil Frewin as a new member of the Industry-IODP Science Program Planning Group (IIS PPG), replacing resigned member John Hogg, effective immediately.

10. Global ranking of proposals

10.1 Select proposal pool to rank

SPC Motion 0703-10: The SPC will include Proposal 535-Full5/Add2 (Atlantis Bank Deep) in the ranking pool.

Sato moved, Becker seconded; 1 in favor, 1 abstained (Ravelo), 15 opposed, 1 absent (Zhou), 2 non-voting (Jenykns, Lee).

SPC Consensus 0703-11: The SPC defines the pool of proposals to be ranked for FY2009 and beyond as including 15 of the 18 proposals reviewed at this meeting. The three exceptions are: 555-Full3 (Cretan Margin), 667-Full (NW Australian Shelf Eustasy), and 535-Full5/Add2 (Atlantis Bank).

The SPC excludes Proposal 555-Full3 (Cretan Margin) from this year's ranking pool in response to the proponents' request to allow them to fully analyze recently acquired site survey data and refine site characterization. It is expected that this proposal will be ready to rank at the next SPC proposal-ranking meeting.

The SPC excludes Proposal 667-Full (NW Australian Shelf Eustasy) from this year's ranking pool so that the proponents' ongoing analysis of industry seismic data can be completed to the point that the proposal's conceptual "preliminary" sites are fully characterized as actual sites. It is hoped that this proposal will be ready to rank at the next SPC proposal-ranking meeting.

The SPC excludes Proposal 535-Full5/Add2 (Atlantis Bank Deep) from this year's ranking pool because the "clarification" provided in 535-Add2 represents such a significant expansion of the scope of Proposal 535-Full5 that the previous Science Steering and Evaluation Panel (SSEP), external, and SPC reviews are no longer adequate or fully applicable. The proponents should submit a revised full proposal incorporating the objectives of 535-Add2. The revised proposal will be reviewed by the SSEP at its first meeting after submission of the revised proposal.

10.4 Select ranked proposals to forward to the Operations Task Force (OTF)

SPC Consensus 0703-12: The SPC will forward at least the top nine ranked proposals to the Operations Task Force (OTF).

SPC Consensus 0703-13: The SPC forwards the top twelve of the fifteen ranked proposals in two groups to the Operations Task Force (OTF), for developing schedule options for FY2009 and beyond.

Group I includes the top-nine-ranked proposals:
- 505-Full5 Mariana Convergent Margin
- 659-Full Newfoundland Rifted Margin
- 633-Full2 Costa Rica Mud Mounds
- 552-Full3 Bengal Fan
- 644-Full2 Mediterranean Outflow
- 654-Full2 Shatsky Rise Origin

- 537B-Full4 Costa Rica Seismogenesis Project Phase B
- 522-Full5 Superfast Spreading Crust
- 661-Full2 Newfoundland Sediment Drifts

Group II includes the next three proposals (tenth through twelfth-ranked).
- 548-Full2 Chicxulub K-T Impact Crater
- 612-Full3 Geodynamo
- 581-Full2 Late Pleistocene Coralgal Banks

If not included in the FY2009-2010 schedules, Group II proposals will be re-reviewed and re-ranked at the next SPC ranking meeting. At its August 2007 meeting, SPC intends to review and prioritize among all the unscheduled Group I proposals remaining at OTF from this and all prior SPC rankings, with input from the OTF as to technical, logistical, and financial feasibility. At that review, the SPC may elect to return any of those proposals to the pool for review and re-ranking at its next ranking meeting.

11. Clarify status of proposals remaining at OTF
11.1 Approve adjusted FY08 and FY09 schedules

SPC Consensus 0703-14: The SPC receives the update on minor schedule adjustments reported by the Operations Task Force (OTF) for FY2008 *Chikyu* NanTroSEIZE operations and FY2008-2009 Mission Specific Platform (MSP) operations at Great Barrier Reef, and confirms that these are fully consistent with the August SPC consensus statements (0608-04 and 0608-05, respectively) approving those programs for the FY2008-2009 schedules.

SPC Consensus 0703-15: The SPC accepts the adjustments recommended by the Operations Task Force (OTF) to the FY2008-2009 U.S. Scientific Ocean Drilling Vessel (SODV) science operations schedule in response to National Science Foundation (NSF) budgetary guidance for FY2008 and other logistical factors. After a 1 January 2008 start date to international operations and a short transit, the approved schedule would include the following sequence:

- NanTroSEIZE Stage 1 coring (Proposals 603A-Full2, 603C-Full; subduction inputs and site NT3-01)
- Equatorial Pacific Paleogene Transect I (Proposal 626-Full2)
- Equatorial Pacific Paleogene Transect II, ending with remedial cementing of two Juan de Fuca CORKs installed on Expedition 301
- Bering Sea Pliocene/Pleistocene Paleoceanography (Proposal 477-Full4)
- Spanning the FY transition, a transit to the Southern Oceans with undetermined potential for brief additional science operations
- Canterbury Basin Sea Level (Proposal 600-Full)
- Wilkes Land Paleoceanography (Proposals 478-Full3, 638-APL2)

This adjusted schedule is as close as possible to the previously approved FY2008-2009 schedule (SPC Consensus 0608-03) given the budgetary and logistical constraints, except that it does not include an initial NanTroSEIZE observatory and the observatory-intensive second Juan de Fuca IODP expedition. Nevertheless, it still presents a strong mix of societally relevant, highly rated seismogenic zone, paleoclimate, and sea level objectives, early enough in Phase II that the results can be expected to have a significant positive impact on renewal of IODP post-2013.

In the event that the NSF, IODP-MI, and USIO cannot identify the resources to achieve the full sequence of FY2008 SODV operations above, the SPC recognizes that the fourth FY2008 expedition (Bering Sea paleoceanography) would need to be deferred, and that a completely different model for FY2009 SODV operations would need to be developed at the June 2007

Operations Task Force and August 2007 Science Planning Committee meetings.

19. Review of motions and consensus items

SPC Consensus 0703-16: The SPC thanks Mike Underwood for two years of dedicated and highly effective service as co-chair of the Science Steering and Evaluation Panel (SSEP). We really appreciated his stellar (*****) co-leadership of the SSEP proposal review and nurturing process, as well as his frank and insightful contributions on new IODP matters like missions. We wish him even longer and more fulfilling service - and unlimited time at sea - as a key member of the NanTroSEIZE project management team.

SPC Consensus 0703-17: The SPC thanks Jeff Schuffert for many years of stellar service as an IODP-MI science coordinator, particularly for producing such fine SPC minutes since the beginning of the IODP. Those minutes are an invaluable record of SPC proceedings. We were disappointed at the news after our last meeting that he had moved on from the IODP-MI, but we are glad to see him remaining in the IODP community at JOI/USSSP.

SPC Consensus 0703-18: The SPC thanks Hiroshi Kitazato for his service to the committee. He has much expertise in geology, paleontology, microbiology for living foraminifer, and even deep sea biology. His extraordinary efforts have reminded us that it will be important to consider environmental issues in carrying out a marine science program such as the IODP. The real talent is moving out from the SPC, but we believe that he will keep active in the science community.

SPC Consensus 0703-19: Professor Nomura has studied paleoceanography using benthic foraminifera. His research career started from reviewing the classification of benthic foraminifera, Cassidulina Group, and he became a world-famous paleontologist by successful re-classification of these based on detailed observations of the skeletons. He was an onboard scientist of ODP cruises, from which he contributed greatly to the Tertiary paleoceanography of the Indian Ocean. His style of science is always based on the huge data sets of foraminifera. In his career, he is a serious person. He looks modest, like a typical Japanese; however, he turns into a brave hunter when he finds a target in his research work. His recent interest is in the anthropogenic disturbance on the natural environment, and he is particularly active in the analyses of environmental change of coastal and estuary watersheds, such as Osaka Bay, Lakes Naka and Sinji, which are located nearby some highly populated areas in Japan. He is a mysterious person, and no one knows very much about his private life. Based on his self-evaluation, he is a tedious person among his family, because he does not have any hobbies or pleasures other than his own work! Now that he is leaving the SPC, he will no doubt be a boring person, since he will have too much time, which for the last three years he has devoted to the IODP. We are sad that he is leaving, but we can hope that he will come back to the IODP community in the near future. Until then, we wish him great enjoyment with his own time, not only for research work but also with his family.

SPC Consensus 0703-20: The SPC thanks Harue Masuda and Muneki Mitamura of Osaka City University for hosting our 9th meeting at the Osaka International House and a fascinating field trip to the regional fault systems. We also thank Issa Kagaya, Yui Masuda, Manami Ono, and AESTO for outstanding support of the meeting. We thoroughly enjoyed the cosmopolitan city of Osaka and hope to return here for future IODP meetings.

(December 04, 2006)

Report of the 7th SSEP Meeting (Sapporo/Japan, November 13 to 16, 2006)

ECORD participants of the meeting: Jan Backman (Sweden), Jörg Erzinger (Germany), Frederique Eynaud (France), Jens Konnerup-Madsen (Denmark), Bénédicte Menez (France), Heiko Pälike (UK, alternate for Timothy Elliott), Ruediger Stein (Germany, co-chair), Jürgen Thurow (UK).

The 7th Meeting of the Science Steering and Evaluation Panel (SSEP) has been held in Sapporo (Japan) from November 13 to 16, 2006. Main targets were (a) proposal review and (b) discussions related to the Mission Concept and future workshops.

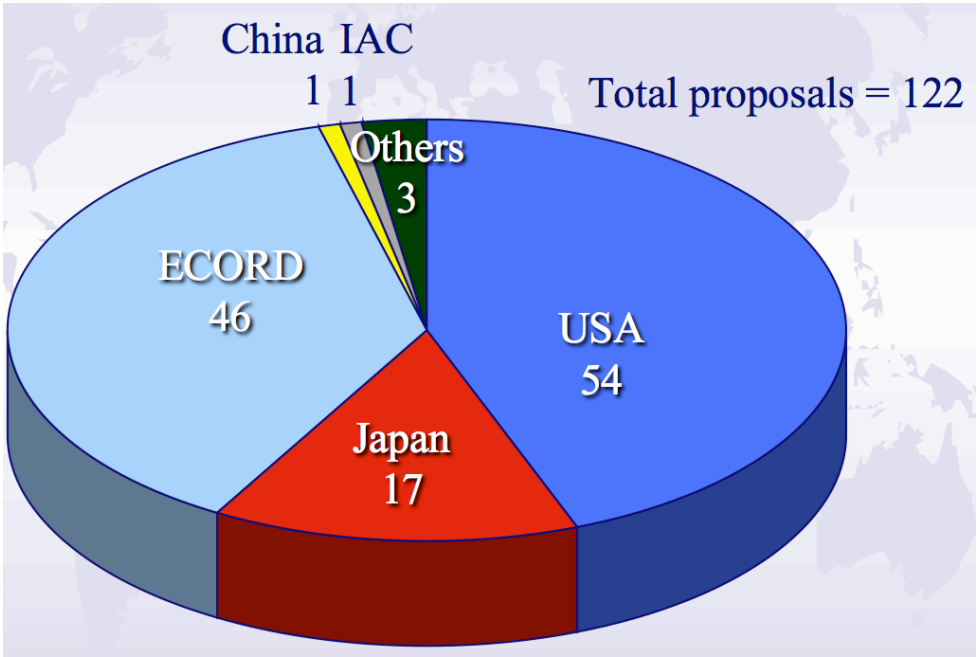
Reports and Meeting overview

Following the reports of IODP-MI and the other SAS panels, Ruediger Stein reviewed the SSEP mandate, conflict-of-interest rules, confidentiality of proposals, proposal review process, purpose of breakout sessions, the purpose and content of general sessions, the content of final reviews for proposals forwarded to SPC, and 5 star grouping system. Mike Underwood gave an introduction on the criteria for identification, characteristics, and the process of designation of Complex Drilling Project (CDP).

Panel members and guests provided brief summaries of activities and outcomes of recently held IODP-MI sponsored workshops (Fault Zone Drilling, Mission Moho, Continental break-up, Sub-seafloor Life, and Chicxulub Impact Crater).

Proposal review

According to the IODP-MI Report, in total 122 active proposals are in the system, 46 of them have ECORD lead proponents:

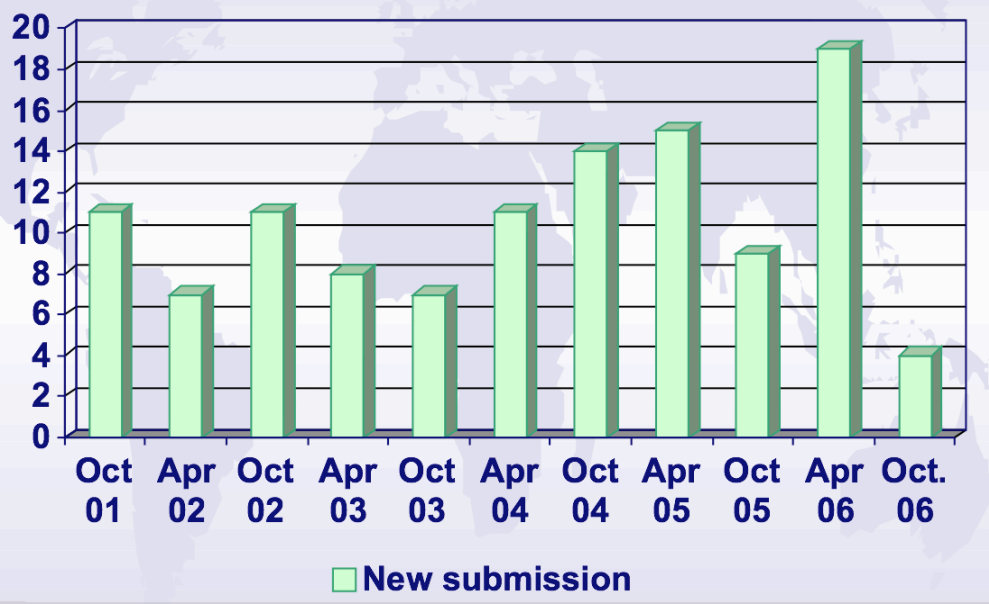


In the breakout sessions and joint session, a total of 15 proposals were reviewed during the Sapporo meeting (Solid Earth: 5 proposals, Paleoceanography/Paleoclimate: 7 proposals; Fault/Fluids: 3 proposals). New external reviews were available for 1 proposal. Six of the 15 proposals have ECORD lead proponents:

		Prop. #	Short Title	Proponent	Member	Theme
1		522-Full5	Superfast Spreading Crust	Teagle	ECORD	3
2		556-Full4	Malvinas Confluence	Wefer	ECORD	2
3		567-Full3	South Pacific Paleogene	Rea	USA	2
4		644-Full2	Mediterranean Outflow	Molina	ECORD	2
4'		644-Full2	Mediterranean Outflow	Molina	ECORD	3
5		669-Full2	Walvis Ridge Hotspot	Sager	USA	3
6		694-Full2	Izu-Bonin-Mariana Arc Evolution	Tatsumi	Japan	3
7		697-Pre2	Izu-Bonin-Mariana Rearc Crust	Tamura	Japan	3
8		698-Pre2	Izu-Bonin-Mariana Middle Crust	Tatsumi	Japan	3
9		705-Pre2	Santa Barbara Basin Climate	Nicholson	USA	2
10		707-Full	Sagami Bay Seismic Monitoring	Kobayashi	Japan	3
11	new	708-Pre	Central Arctic Paleoceanography	Stein	ECORD	2
12	new	709-Pre	Pacific Mesozoic Extreme Env	Ohkouchi	Japan	2
13	new	710-Pre	Gulf of Corinth Rift	McNeill	ECORD	3, 2
14	new	711-Pre	Tanzania Margin Paleoclimate	Wade	USA	2
15	ext rev	574-Full3	Rainbow Hydrothermal Field	Fouquet	ECORD	1

Breakout Session 1: Solid Earth/Petrology
Breakout Session 2: Paleoceanography
Breakout Session 3: Faults/Fluids

For the October 01 deadline, only four new proposals were submitted (two of them have ECORD lead proponents). The number of new proposals submitted for the October 2006 deadline was significantly lower in comparison to previous deadlines:



As result of the SSEPP´s review of proposals, the dispositions are as follows:

Pre-Proposal: request Pre2 Proposal = 2 (709-Pre, 710-Pre)
Pre-Proposal: request Full Proposals = 4 (697-Pre2, 698-Pre2, 708-Pre, 711-Pre)
Pre-Proposal: Special Case = 1 (705-Pre2; see below).
Full Proposal: forward to SPC = 2 (522-Full5, 644-Full2)
Full Proposal: send for External Review = 2 (556-Full4, 669-Full2)
Full Proposal: request revision = 1 (707-Full)
Full Proposal: request revision or CDP = 1 (694-Full2)
Full Proposal: request revision or new APL= 1 (567-Full3)
Full Proposal: deactivate = 1 (574-Full3)

All decisions were reached by consensus.

SSEP recognizes 705-pre (Santa Barbara Basin) as a special case. The primary scientific objectives and potential results of this proposal are extremely exciting; however, the proposal cannot proceed forward without a drilling strategy that adequately addresses environmental and safety issues. Thus, SSEP suggests that one or more meetings should occur with various "stakeholders", including (a) proponents, (b) EPSP members, (c) potential science operators, and (d) IODP engineers to develop an adequate drilling strategy that meets EPSP criteria. SSEP recommends that the first of these meetings coincide with the scheduled June 2007 EPSP Meeting.

Discussion on workshops

SSEP continued the discussion related to workshops on "Ultra-high resolution of Paleoclimate" and "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene".

Mike Underwood gave a brief summary on the present state of these two workshop proposals, which SSEP recommended to SPC at the last meeting in Potsdam. SPC endorsed SSEP´s recommendation and forwarded the two proposals to SASEC for consideration. SASEC did not formally accept these two workshop proposals, but encourages submission of revised proposals for the next annual call for IODP-MI sponsored workshops Feb 01, 2007. Proposal submission and further planning and organization of the workshops will be the responsibility of the steering committees, including additional funding sources. ECORD members of the tentative steering committees of the two proposed workshops are Elizabetta Erba (Extreme Climates) and Jürgen Thurow (Ultra-high resolution).

Discussion on Mission Implementation

Mike Underwood gave an introduction on the definition, goals, overarching principles, and potential problems of the IODP Mission, as approved by SASEC during their last meeting. He further explained call for Mission proposals schedule, format of proposals, proposal review process and mechanism, criteria for proposal evaluation, and SSEP's role in proposal evaluation process.

Other topics

- New US co-chair (replacing Mike Underwood) : SSEP recommends that SPC consider Barbara John for appointment as the next Co-Chair of SSEP.
- 8th SSEP Meeting tentatively scheduled for May 29 to June 01, 2007 (Rice University, Houston/Texas)
- 9th SSEP Meeting (November 2007) probably in France (Bordeaux or Paris)
- Resolutions were presented thanking outgoing SSEP members for their years of dedication: Junichiro Ishibashi (Japan), Takashi Ito (Japan), Jörg Erzinger (ECORD), and Jürgen Thurow (ECORD).

Site Survey Panel Meeting – February 2007 – annotated agenda

20 February. 1245 Meeting called to order.

2. Welcome and Introduction
    1.1 Introduction of participants
    1.2 Meeting logistics
    1.3 Site Survey Data Bank (Weatherford)

1330
3. Last meeting minutes approval (Sawyer)

4. Conduct of business (Sawyer)
    3.1 Adoption of agenda
    3.2 Reminder of SSP mandate
    3.3 Reminder of data requirements matrix
    3.4 Reminder of SSP "completeness" classification
    3.5 Reminder of IODP Conflict of Interest Policy and COI statements
    Gulick 548
    Kanamatsu 612, 605, 698, 697
    Gaedicke 537
    Bangs 537
    Miura 697, 698, 707
    Lericolais 685
    Qiu 618
    Sharai 605

5. Reports
    4.1 IODP-IMI Office (Zelt)
    - Outline of SAS structure and proposal evaluation process.
    - Only 14 proposals (new and revised) received for Oct 2006 deadline. (7 Solid Earth, 7 Environment).
    - 121 active proposals curently in the system (54 USA, 45 ECORD, 17 Japan, 1 China, 4 others. 90 non-riser, 13 MSP, 5 riser.
    - NSF support for IODP-MI and USSAC may fall, with implications for the programme.

    4.2 SPC (Mountain)
    - SODV is now in shipyard. Contract to be finalised.
    - Personnel changes at NSF.
    - NSF funding for FY07 to be approved, ≤ FY06.
    - JAMSTEC has 4% *increase* in funding (Chikyu ops to be allocated by JAMSTEC).
    - Japan has vigorous outreach to schools and India, …
    - ECORD personnel changes.
    - ECORD funding.
    - 3 MSP operations in 4 years.
    - ECORD also promoting outreach – distinguished lecture series, summer schools.
    - SASEC replaces SSPOC. Considering Mission implementation;SAS evaluation; updating ISP based on workshop reports, 1 theme/year (Climate Variability in 2007); LIPS workshop for 2007.
    - Expedition scheduling: If SODV starts Jan 08, Equatorial Pacific to be postponed 'until later' – OTF meeting 22 Feb 07; Chikyu non-riser starts Sep 07, riser Jun 08; Great Barrier Reef (Aug-Nov 08) depends on site survey and safety evaluation; Indian Ocean attractive target for Chikyu in USFY 09.
    - STP recommends IOs put post-expedition drilling data into a data bank (not SSDB) accessible to SAS panels via a common web portal.
    - Industry/IODP PPG recommending white papers to stimulate drilling proposalsSPC formed a LIPS DPG.
    - New SSP chair and vice chair approved..

    4.3 SSEP (Yoshikazu)
    - 15 proposals reviewed.
    - Encouraging revised proposals for workshops on Earth Climate System.
    - Discussed Mission implementation.

4.4 EPSP (Toshifumi?)

- New guidelines produced and published.
- New Jersey Shallow Shelf. Small borehole precludes LWD/MWD, Proposed to use geotechnical core with sniffer to m onitor expected h/c level.
- Great Barrier Reef probably drill in 2008. Site surveys incomplete. Proponent invited to next EPSP.
- No site survey data for New England Hydrogeology
- Review of Canterbury Basin (600-Full).
- 595 Indus Fan-Murray Ridge (595). No evidence for h/c in most section; BSR at 200-280m; Shell has nearby well that will give velocity and pore pressure prediction. Requests OTF and IOs to do shallow hazard survey and independent pore pressure assessment.
- 537A CRISP. 3A not approved, 1A, 5A, 2B, 3B, 4A were. Other alternate sites considered/approved?
- Nantroseize stage 1. Needs LWD/MWD and prior coring. All sites approved with some modification.
- Discussed CDEX safety review and communication protocol.

4.5 SSDB (Zelt)

4.6 CEDEX (Moore)

- Chikyu shakedown cruises (Japan and Kenya) described.
- Chikyu schedule presented.
- Site survey cruises described: Kumano 3D survey underway; Sagami Bay AUV survey done May 2006; Okinawa trough July last year and Feb this year.
- J-cores database system used on shakedown cruise. and tested elsewhere.
- Kochi core centre undergoing remodelling to take ODP and IODP W Pacific and Indian Ocean cores.

4.7 USIO (Klaus)

- Personnel changes.
- SODV: Ship stretch can now not be afforded; but hope many desired improvements can be incorporated in existing hull (alternate engineering design is underway; lab and accommodation integrated; new largewr science lab; bridge raised and integrated with DP; new mud pumps, etc; 4000 sq ft new space).
- Draft SODV schedule: will be modified. There is currently a large mismatch between funds available and those required for the draft cruise (e.g. CORK not available for Juan de Fuca(?)
- NSF has funded digitisation of all DSDP and early ODP publications as searchable pdfs. All MSS will have doi links.

4.8 ESO (Graham)

- 313 New Jersey Shallow Shelf: aim to start May 2007. Geotechnical survey needed (March?). Onshore science party January 2008 Bremen.
- Great Barrier Reef 519. Site surveys partly complete; remaining ones scheduled for 2007. Aiming to drill autumn 2008.
- New England Hydrogeology schedulled (¿) but no site survey! IODP has set up a scoping group.

6. Discussion of SSP issues related to proposal review raised by Earl Doyle

- What triggers an SSP review?
- Should SSP re-review if EPSP moves some sites?
- Should geohazard surveys go into the SSDB?

7. Watchdog Preparation of Proposal Reviews in Databank

7. Watchdog Preparation of Proposal Reviews in Databank

8. Review of Proposals

The following were reviewed:

707 Full Kanto Asperity Project: Geological and Geophysical Characterization of the History and Present Behavior of the Earthquake Cycle

537A Full5 Costa Rica Seismogenesis Project CRISP Program: A Sample and quantify input to the seismogenic zone and fluid output. Installation of long term monitoring laboratories.

685 Full Installation of Borehole Observatories on the Ligurian Margin

618 Full 3 Dating Tibetan Uplift and Evolving River Drainage Patterns in East Asia using the Sedimentary Record of the Red and Mekong Rivers

548 Full2 Chicxulub: Drilling the K-T Impact Crater

552-Full3 Himalayan Orogeny Bengal Fan

612 Full3 Paleoclimatic and Orbital Modulation of the Earth's Magnetic Field: A Possible External Energy Source of the Geodynamo

605 Full2 Onset and evolution of millennial-scale variability of Asian monsoon and its possible relation with Himalaya and Tibetan uplift

644 Full2 Environmental significance of the Mediterranean outflow water and its global implications

522 Full5 Superfast 4: Drilling gabbro in intact ocean crust formed at a superfast spreading rate

535 Full5 Atlantis Bank Deep: The Nature of the Lower Crust at an Ultra-slow Ridge

Pre Proposals

711 Pre Tanzania to Offshore Paleogene Survey (TOPS): Tropical climate modes during greenhouse to icehouse conditions

640 Pre Drilling the Godzilla Mullion detachment in the Philippine Sea: formation of detachment fault in intermediate-spreading oceanic lithosphere

702 Pre **S**outhern **Af**rican Climates, **A**gulhas Warm Water Transports and **R**etroflection, and **I**nterocean Exchanges - S A F A R I

698 Pre2 Continental Crust Formation at Intra-Oceanic Arc: Ultra-Deep Drilling to the Middle Crust of the Izu-Bonin-Mariana Arc

697 Pre2 The rear arc: the missing half of the subduction factory

705 Pre2 Extending the High-Resolution Global Climate Record in Santa Barbara Basin Back to ~1 Ma (Revised)

708 Pre A Paleoceanographic Transect across the Central Arctic Ocean: Towards a Continuous Cenozoic Record from a Greenhouse to an Icehouse World (ACEX-2)

9. Other business
What should trigger a new SSP review?
What has happened about New England Shelf?
Noting SSP mandate 2.5, we should take more care to report on the extent to which science objectives can be achieved with the given data package.
Can Geohazard surveys go into the SSDB?

Liaisons to upcoming meetings

SPC Dale
SSEP Volunteers requested

10. Date and venue selection for next meeting.
16-20 July
BGS Edinburgh? BGR Hanover? Cardiff?

f. Meeting roster

SSP panel members:
Acton, Gary (USA)
Andersen, Holge-Lykke (ECORD)
Bangs, Nathan (USA)
Corthay, James E. (USA)
Doyle, Earl (USA)
Gaedicke, Cristoph (ECORD)
Gulick, Sean (USA)
Hino, Ryota (Japan)
Kanamatsu, Toshiya (Japan)
Lericolais, Gilles (ECORD)
Locker, Stanley (USA)
Matsuda, Hiroki (Japan)
Miura, Seiichi (Japan)
Park, Jin-Oh (Japan)
Qiu, Xuelin (China)
Sawyer, Dale (USA, chair)
Searle, Roger C. (ECORD)
Shirai, Masaaki (Japan)
Yoshikazu, Yaguchi (Japan, vice-chair)

Liaisons and guests:
IODP-IMI
SPC
SSEP
EPSP
DEX
USIO
ESO
SSDB

IODP Scientific Technology Panel (STP)

4th Meeting, 7-9 December 2006
Hilton San Francisco
San Francisco, California, U.S.A.

EXECUTIVE SUMMARY

The STP forwards the following recommendations, consensus statements, and action items to the SPC or the IODP-MI as appropriate, and for distribution to the IOs as required. STP suggestions for whether items should be forwarded to SPC and/or IODP-MI are indicated, as are priorities for action items, Brief overviews/background are provided where appropriate in italics.

Recommendations

STP Recommendtaion 0612-01: VCD/Lithology

The STP wishes to thank members of the VCD/Lithology working group for their efforts to develop a common solution for a VCD process and common lithologic classification, and Bernard Miville for presenting the results of the meeting. The STP supports the working group's recommendations, and in order to avoid a proliferation of lithologic classifications and to maintain some link with lithologic representations STP recommends the following:

- All IOs should agree on a limited set of common lithologic classifications; science parties can then select from this restricted set of classification schemes, which they can modify if they desire to do so, in order to fit their respective expedition objectives.
- The selection of a limited number of lithologic classification schemes is a complex issue and advice from experts from existing petrologic databases (e.g., IUGS, GEOROC, PetDB) should be sought.
- Lithologic names must be distinguished as either descriptive or interpretative in the database. The STP requests feedback prior to the start of NantroSEIZE.

3 abstentions (Neal, Villinger, Lovell); 2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Recommendation 0612-01: The IODP-MI working group, including Clive Neal as STP liaison, recommends the following: (1) Observable parameters (texture, grain size, etc.) need to have the same name, units and definition for all IOs. (2) Lithology name always needs to be collected with the lithologic classification it came from. (3) The choice of lithologic classification should be expedition specific and driven by science and not IO specific. (4) All VCD data needs to be collected electronically. (5) VCD data needs an XML-based exchange format, (6) All IOs need to agree on a basic set of graphic representations for the lithology names, (7) Lithology names should never be deduced automatically but be entered by the scientist.

Consensus Statements

STP Consensus 0612-02: Report from CDEX on feasibility study of Measurements at High Pressure and Temperature.
STP welcomed the Report by Dr. Philippe Gaillot on Measurements at High Temperature and Pressure. STP also welcomed the presentation by Junzo Kasahara on measurements of shear wave velocities at high temperatures and pressures. There were several questions raised and STP urges further discussion of these issues, as listed below, by the IOs and IODP-MI, as appropriate, and that CDEX report back to the next STP meeting.

2 absent (Korja, Sakurai)
Priority: Medium
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-02:

1. We recognize the need to have the capability to measure the in situ seismic properties of returned core samples in order to compare with downhole logging data. There was discussion of whether the ultimate high temperature/pressure measurements must be done at sea or in shore-based laboratories.

2. One option discussed was if there is need for at-sea seismic property data, could this be satisfied by a small low temperature/pressure system (to close cracks in samples), with high temperature/pressure measurements being made ashore.

3. These issues raise a possible broader question; i.e., should there be an established criteria for distinguishing at-sea versus ashore measurements. Possible criteria include.

a. time-dependent samples
b. need for real-time feedback of data that would impact operations during expeditions.
c. safety for shipboard party.

Further background is provided in a previous STP Consensus 0606-08.

STP Consensus 0612-03: ESO Temperature Tool
STP recommends that ESO upgrades its currently used downhole push-in temperature tool to an absolute accuracy of 0.01˚C and a resolution of 0.001˚C. This must be accomplished before the New Jersey Expedition.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC and IODP-MI

Background to STP Consensus 0612-3: A previous *STP Consensus (0606-11: ESO Temperature Tools) was forwarded to IODP-MI requesting ESO to consider the draft T and P accuracy document when deciding which temperature tool to lease for drilling the NJ Transect. STP encourages ESO to explore existing downhole tools used in the program in order to improve resolution and accuracy of its previously used push-in BGS temperature tool. The panel asked ESO to report back on this issue at the next meeting as the platform for*

the New Jersey Margin will be determined by then. ESO reported to STP in San Francisco requesting advice on accuracy and resolution and this new Consensus Statement addresses these requirements specifically. The present tool is unacceptable given the 0.1°C resolution and absolute accuracy of 0.5 °Cbecause normal geothermal gradients are such that data from this tool may provide ambiguous result and small temperaturedata loggers with much higher resolution (e.g. 0.001°C) and accuracy (up to 0.01°C depending on calibration) are readily available as off-the-shelf items at moderate cost.. In addition the planned holes will be in close vicinity of the ODP Leg 150 where downhole temperature data analysis of holes at site 903 show a dramatic warming of bottom water temeperatures between 6 and 10°C within the last 50 to 150 years (Fisher, A., Von Herzen, R. P., Blum, P., Hoppie, B., Wang, K., Evidence may indicate recent warming of shallow slope bottom water off New Jersey shore, EOS, Trans. Am. Geophys. Union, 80: 165, 172-173, 1999). High quality downhole temperature measurements in the planned holes off New Jersey will help to support or refute the hypothesis of Fisher et al.

STP Consensus 0612-04: Uniform depth scale
STP receives the report from the Uniform Depth Models Meeting (Sept., 2006), and acknowledges the participants to this meeting for their work and B. Miville for his presentation. The STP appreciated the effort in clarifying depths definitions and implementation. The STP supports the main principles and definitions of depth scales. Discussion of the report and presentation led to comments and suggestions for continued investigation. The STP requests feedback on these comments (see Background for details) and suggestions prior to the start of NantroSEIZE.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-04: uniform depth scale

Discussion on the report and presentation generated the following comments and suggestions:
1) Travel time of seismic waves data (such as MCS, 3D-seismic, VSP and check shots use time in ms for profiles) can be used as a depth scale, if a relevant depth model of seismic velocities is available. Recent data show quite good consistency between meter and ms for crustal structure. Considering those, it is necessary to use time in depth scale with meter, though there is necessity of some interpretation for the relation between reflection records and drilling data.
2) Track the evolution of apparent depth scales and depth maps (i.e., to include post-cruise data).
3) Define a vertical depth scale below sea floor which includes and uses hole deviation measurements (that includes dip (deviation from vertical) and azimuth) to calculate true depths. .
4) Encourage the working group not only to define a system for tracking errors sources, but also for quantifying errors such as wire elongation, pipe dilation, water depth measurements
5) For core depths and logging depths, to indicate the locus of measurement on the side of or centered in the core/hole
6) Curation depth in ODP was not regarded as depth scale in the meeting. The depth of discrete samples and shipboard measurements, because length and intervals in the section often changes during core-processing (sectioning, splitting, sampling, and archiving), are necessary to record intervals of shipboard measurements and samples taken in the section

with depth.

STP Consensus 0612-05: Depth scale as a minimum measurement
The STP recommends that depth is a minimum measurement. This includes any measurement used to define depth. The STP requests feedback prior to the start of NantroSEIZE.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Recommendation 0612-05:The only referred depth measurement in the IODP measurement document is drilling depth as a standard measurement. Other depth scales include water depth measurements, length of wireline, hole deviation, logging tool acceleration (when applicable), and more generally any measurement used to define any depth scale used during a given expedition.

(see http://www.iodp.org/index.php?option=com_docman&task=doc_download&gid=1195 for reference to IODP Measurements Document)

STP Consensus 0612-06: Digital taxonomic dictionary
STP supports the formation of the IODP ad hoc Paleontology Coordination Group. STP participation should be included in this group, as its mission is distinct from the STP Paleontology Working Group.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-06: From Paleontology WG 2004 Report Recommendation PALEO-3: Taxonomic Dictionaries with stratigraphic databases IODP must coordinate their efforts regarding digital taxonomic dictionaries and cyber atlases and related issues with other national and international initiatives such as CHRONOS, NEPTUNE and et. al. The Paleontology Working Group recognizes the importance of international cooperation and interaction among the IOs and the micropaleontologists community and encourages collaborations with IMRC curators to develop these dictionaries to be used on the IODP drilling platforms The microfossil groups to be covered should include calcareous nanofossils, planktic foraminifera, benthic foraminifera, diatoms, silicoflagellates, radiolarians, and palynomorphs (dinoflagellates and pollen). The taxonomic dictionaries for the Cenozoic and Mesozoic should be updated and expanded on a regular basis (e.g., at least once per year).

STP Consensus 0612-07: Temperature and pressure resolution, accuracy and calibration
STP asks IODP-MI to circulate the draft report on resolution, accuracy and calibration of temperature and pressure measurements (STP Consensus 0606-13) among the IOs and asks the IOs to report back to STP at the next meeting.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-07 This is a follow up request to STP Consensus 0606-13 to IODP-MI to circulate a draft report to the IOs for comment and feedback at the next STP meeting.

STP Consensus 0612-08: LA-ICP-MS
The STP wishes to thank Philippe Gaillot for presenting the results of the evaluation of *in situ* analysis using the LA-ICP-MS system onboard the *Chikyu*. The STP notes that the laser ablation unit (New Wave 213 nm) performed on the ship (while in transit) as well as it did while on shore, but recognizes that more tests of the ICP-MS are needed to ensure the successful interface with the laser ablation unit. The STP requests that CDEX report further LA-ICP-MS test results at future STP meetings.

2 absent (Korja, Sakurai)
Priority: Medium
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-08: This is a continuing item and the presentation is in response to STP Consensus 0606-15 requesting CDEX for ICP-MS test results. Prior to that, SPC Consensus 0603-12 received STP Consensus 0601-2 regarding installation of laser-ablation inductively-coupled plasma mass spectrometers (LA-ICP-MS) on IODP platforms.

STP Consensus 0612-09: STP Mandate.
STP discussed the panel mandate at the December 2006 STP meeting and agreed that it did not need any modification at this time. The current mandate allows STP to restructure its two meetings per year to address immediate issues at one of its yearly meetings, while dealing with future issues and planning at the other (STP Consensus Statement 0612-12). Any specific changes will be addressed after the SASEC working group on SAS Review reports its findings.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC

Background to STP Consensus 0612-09: In order to better serve the community, STP discussed if its mandate should be revised.

STP Consensus 0612-10: STP Working Group Reports
STP will continue to have three working groups within its structure: Chemistry & Microbiology (CMWG); Petrophysics (including Physical Properties, logging, downhole measurements, paleomagnetism, and underway geophysics); Core Description (including Micropaleontology).

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC

Background to STP Consensus 0612-10: In order to better serve the community, STP also discussed if its internal working group structure should be revised.

STP Consensus 0612-11: Operations Review Task Force
STP welcomes the presentation by Thomas Janecek on how the Operations Review Task Force may proceed in future, together with the opportunity for STP to become more involved

in considering Expeditions in terms of Scientific Technology. STP agrees with the proposal that the VP Science Operations will report annually on expeditions reviewed in that time frame (in line with the proposed STP Roadmap agenda), and that where appropriate IODP-MI should request specific advice from STP and participation in individual reviews.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC and IODP-MI

Background to STP Consensus 0612-11: Thomas Janecek (IODP-MI-VP) presented how the Operations Review Task Force has worked in the past, how it will probably work in the future and suggested some possible mechanisms for STP to get involved. Discussion took place and the Panel explored the most effective role for STP in the process, such that STP is able to monitor the scientific measurements and technological aspects of Expeditions and provide advice and input to both IODP-MI and IOs in a timely and efficient manner.

STP Consensus 0612-12: STP Meeting Format
STP agrees to change the format of its twice-yearly meetings in the following way: both meetings will deal with immediate issues, while one meeting will deal with regular reports (IO, IODP-MI, etc.) and the other will consider future issues and planning allowing STP to be more proactive.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC

Background to STP Consensus 0612-12: Discussion was held regarding changing the STP meeting format to be similar to that adopted by EDP. In essence, this would give a formal structure to what STP has been doing, to some extent, but it will allow a greater emphasis on planning ahead for future IODP expeditions, developments, and policies. The current STP mandate allows for this change in emphasis at the twice-yearly meetings.

STP Consensus 0612-13: Larger Drill Pipe
STP welcomes the adoption of a plan to implement larger diameter drill pipe on the SODV. STP offers its support for the full implementation of this plan since larger diameter pipe will allow the use of state-of-the-art well-logging tools during IODP. The IOs should provide the scientific community with information about these additional downhole logging capabilities.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to SPC and IODP-MI

Background to STP Consensus 0612-13: A previous STP Consensus (0606-14: SODV - Larger Drill Pipe for Enhanced Well Logging) proposed support for larger diameter drill pipe for the SODV. After reviewing revised plans for a tapered drill string on the SODV at this (San Francisco) meeting, the STP reiterates its support for larger diameter pipe that will allow the use of state-of-the-art well-logging tools during IODP. The STP believes the tapered drill string will considerably enhance the potential of IODP borehole geophysical science for years to come. Further background is provided in support of the earlier consensus statement (0606-14).

STP Consensus 0612-14: Technical Support
STP expresses concern about levels of technical support staff training for delivering IODP Minimum and Standard Measurements across all platforms. STP encourages IODP-MI and the IOs to work together to ensure delivery of these measurements (e.g., Microbiology) through appropriate technical support at the start of Phase 2 operations towards achieving expedition-specific scientific objectives.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-14: STP revisited previous SciMP/iSciMP Working Group reports and one item of immediate concern for Phase 2 is provision of appropriate technical support for delivering the measurements detailed in the IODP-MI Measurements document. STP reiterates that this is vital for the success of IODP in going beyond ODP and in providing the scientific community with accurate and precise data from which well-formulated research proposals can be crafted to work on expedition/discipline specific issues.

STP Consensus 0612-15: SODV Report
STP wishes to thank Jeff Fox for his presentation on a possible design for a non-extended SODV. STP remains willing and able to give advice and input to this process when called upon by the USIO.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI
Background to STP Consensus 0612-15: STP received a request from the USIO in late November to review a revised set of possible plans for a non-extended version of the non-riser SODV. STP reviewed this electronically and provided input to the USIO prior to the San Francisco meeting. This presentation gave STP members an update of progress. The list of comments, questions, and suggestions given by STP prior to the San Francisco meeting can be found in an appendix to the minutes of the meeting..

STP Consensus 0612-16: Chikyu Shakedown Cruise Report
STP wishes to thank Shin'ichi Kuramoto for his presentation on the *Chikyu* shakedown cruise. STP welcomes the invitation to give input to CDEX on the results of this initial test of the *Chikyu*.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI

Background: STP invited CDEX to present an overview of the shakedown cruise: "The IODP community is very excited by the prospect of using the CHIKYU for scientific ocean drilling and these shakedown cruises form an important part of the overall process from designing and commissioning the CHIKYU through to its first IODP operations. STP has been involved with the design of the CHIKYU throughout, although the panel has been through several name changes (iSciMP, SciMP, STP). While the Shakedown cruises are not strictly an IODP operation, we realise that they do provide CDEX with the first real experience of the ship, its facilities and its capabilities. The Scientific Technology Panel is available and willing to provide you with constructive input to help in assessing the outcomes of these Shakedown

cruises, including how best practices identified on the Chikyu can be transferred to other Implementing Organisations. Part of the role of STP is to understand what issues have been identified on all platforms and how to facilitate coordination between the IOs regarding lab changes/improvements in time for Phase 2 operations."

STP Consensus 0612-17: Local Crustal Structure – New Technology.
For VSP, cross-hole tomography, and imaging of local crustal structure, a downhole seismic source is necessary. However, it is extremely difficult to obtain such a source under the deep ocean. New technology called *seismic interferometry* (virtual source, daylight imaging) could be applied for borehole source. In this case, receivers can be virtual seismic sources if any noise such as whale calls, drilling noise, natural earthquakes, or airguns are used for external seismic sources. STP brings this new technology to the attention of the IODP-MI and IOs and recommends monitoring of its development with the potential for future use in IODP.

2 absent (Korja, Sakurai)
Priority: Low
STP suggests this be forwarded to IODP-MI

Background to STP Consensus 0612-17: Dr Junzo Kasahara requested the opportunity to present to STP the application of this new and developing technology, at this meeting prior to rotating off STP as a J-DESC nominated panel member.

STP Consensus 0612-18: Core Splitting Techniques
STP thanks Lee for his presentation on the problems related to core splitting in soft sediment. STP requests IODP-MI together with the IOs investigate solutions to this problem and encourages dialogue with other scientific communities (for example, lake sediments and geology groups). STP requests IODP-MI to report on their findings at the next STP meeting.

2 absent (Korja, Sakurai)
Priority: High
STP suggests this be forwarded to IODP-MI
Background to STP Consensus 0612-18: this is recommendation number1 in the Core Description Working Group report available on the STP web page of the IODP web site.

STP Consensus 0612-19 Junzo Kasahara
STP thanks Junzo Kasahara for his contributions to our discussions on all things seismic. His passion has given us all a new appreciation for "Vs-Vp", "CLSI", and many other acronyms. Thank you, Junzo for all your help, comments and dedication, and good luck in your post-STP life.

STP Consensus 0612-20: Annakaisa Korja
STP gratefully thanks Annakaisa Korja for her work and dedication to the IODP over the last 3 years she has served on this panel. Her sharp and appropriate comments have been a great help in making difficult discussions. We all will miss her kind eyes as they often appeared through the bottom of a glass, as well as discussions with her and her sparkling wit.

STP Consensus 0612-21: Tatsushiko Sakamoto
STP wishes to thank Tatsushiko Sakamoto for his tireless service to IODP and this panel. His command of the English language and knowledge of sedimentology has allowed him to make significant contributions to STP during his three years on the panel, although his language skills appear to fail him when it is time for another beer! Despite that, his presence will be

missed, although we are sure that he will contribute again to this panel in the near future in a new role.

Consensus Statement 0612-22: Heinrich Villinger
The STP gratefully thanks Heinrich Villinger for his great work and dedication to the IODP over the years he has served on this panel. His strong comments on logging tools, high pressure Vp measurements, and petrophysics were so valuable although his choice of post-meeting beverages has been a cause for concern! As a result he will give us 0.000001˚C absolute precision with the Temperature tool and 0.0000001 Pa with the Pressure tool under 500˚C circumstances. These tools may progress to IODP as the critical measurements package. We hope his contribution to STP will continue from outside the panel.

STP Consensus 0612-23: Sean Higgins
STP wishes to thank Sean Higgins for his tireless service to STP and the IODP. His encyclopedic knowledge of downhole tools, logging, and good beer will be sorely missed by the panel. In addition, Sean's ability to wear many hats is a talent that few others possess, or would want to. STP wishes him well in his new appointment.

STP Consensus 0612-24: Jeff Schuffert
STP thanks the service of Jeff Schuffert to this panel. While his relentless devotion to detail and the intricacies of IODP policy drove most people to drink, it is now recognized that he kept STP on track thus allowing it to play an effective role in the SAS structure.

STP Consensus 0612-25: Geoff Wheat
STP wishes to thank their Alaskan representative for the excellent organization and hospitality offered by the City of San Francisco. The smooth operation and efficient organization by our host made our meeting enjoyable and productive. But we could expect nothing less from a Panel Member who manages to work at Moss Landing while supposedly being in Alaska… but then as Geoff says, it's only a matter of (geological) time before the spatial geography brings Moss Landing north…

Action Items

STP Action Item 0612-26: Third Party Tools.
STP members are requested to provide feedback on the TPT implementation guide from IODP-MI. These should be sent to the STP chair no later than January 24, 2007.

Priority: High
Leads: STP Chair, STP Panel.
Deadline: 31st Jan 2007 to IODP-MI.
Background to STP Action Item 0612-26: this follows on from Agenda item 24 and the discussion that ensued.

STP Action Item 0612-27: Time stamp for measurements & procedures.
The timing of measurement is important for ephemeral properties such as microbiology, fluid, gas, measurements on soft sediments (e.g. core length, color…). There is currently no requirement to record the time of measurement in the IODP measurement document. Basile will investigate if and how the time of measurement may be a minimum/standard measurement in IODP and whether this issue may be resolved by QA/QC procedures.

Priority: Medium
Date/Timeline: Next meeting
Lead: Basile
Background to STP Action Item 0612-27: this follows on from discussion of measurements under several agenda items.

STP Action Item 0612-28: STP Geochemistry and Microbiology WG report
Geochemistry and Microbiology WG members Rick Colwell and Takuro Nunoura will study the minutes of the SPC and IODP-MI meetings to find out why some of their previous recommendations were not implemented. They will report their findings at the STP's next meeting.

Priority: High
Date/Timeline: Next meeting
Lead: Colwell and Nunoura
Background to STP Action Item 0612-28: The STP reevaluates its WG structure in response to SPC's request to charter its long-term vision or future roadmap. The Geochemistry and Microbiology WG has determined that some of its recommendations have not been implemented. These recommendations are essential to the routine collection, analysis and characterization of the microbiological contents of seafloor sediments. This action item is to ensure a corporate memory of the efforts of the panel and to ensure efficient use of discussion time.

STP Action Item 0612-29: STP will investigate whether the effects of riser drilling on microbiology and chemistry of cores is significant.

Priority: High
Date/Timeline: Next meeting
Lead: Neal and CMWG
Background to STP Action Item 0612-29: riser drilling is a new venture in scientific ocean drilling and STP is concerned that there may be consequences of riser drilling that have not been considered.

STP Action Item 0612-30: Core Description WG
The core description working group is satisfied with the size and expertise of the working group, although we recognize that additional ad hoc membership may be warranted. Watchdog pairs are nominated to follow progress on each of the two laboratory working groups: Paleontology (Suzuki, Christensen) and Core Description (Ahagon, Basile). The watchdogs should be present their findings in a report for the next STP meeting.

Priority: Medium
Date/Timeline: Next meeting
Lead: Suzuki, Christensen, Ahagon, Basile
Background to STP Action Item 0612-30: this follows on form discussions under agenda items 23 and 26.

STP Action Item 0612-31: Legacy Samples
STP will report at the next meeting on the scientific reasons and potential approaches for collecting and storing legacy samples for future Microbiology investigations.

Priority: Medium
Date/Timeline: Next meeting
Lead: Colwell, Nunoura
Background to STP Action Item 0612-31: Legacy sampling has been proposed previously but it is not clear what the scientific rationale is, or what the logistical and practical considerations are.

STP Action Item 0612-32: Stable Isotope Measurements
STP will investigate new technology for on-board stable isotope analysis of rock, sediment, and water samples.

Priority: Medium
Date/Timeline: Next meeting
Lead: Nunoura, Neal
Background to STP Action Item 0612-32: New technology may allow a relatively cheap, accurate, and effective way for shipboard stable isotope measurements to be made on the CHIKYU and SODV. See Appendix 2 for details. Further investigation of the specific application of this technology to IODP is required.

STP Action Item 0612-33: Major element rock analysis problems on the CHIKYU.
STP requests IODP to consult with the IOs and to request the IOs, for the CHIKYU and the SODV (as appropriate), provide a report on their methods for whole-rock major-element analysis by ICP-AES. These reports are requested by March 31st, 2007, for evaluation by STP so we can work together to find the cause(s) of the problems with the ICP-AES major element analyses on the CHIKYU and identify solution(s). A report of our findings will be given at the next STP meeting by Pat Castillo, who will be the STP watchdog.

Priority: Medium
Date/Timeline: Next meeting
Lead: Castillo

Background to STP Action Item 0612-33:Ahagon presented problems with the major element analytical results, particularly with SiO_2, of the ICP-AES at CHIKYU. A reliable instrument to routinely analyze major elements onboard is essential for CHIKYU to carry out its IODP science objectives. Such problems have been resolved on the JOIDES Resolution prior to demobilization for some expeditions, although problems during Phase 1 operations were anecdotally mentioned during the meeting. STP feels this may be an issue of inconsistent sample preparation procedures, instrument set-up and calibration, and inadequate technician training. The request for information from the IOs will allow us to evaluate the current methods of analysis employed for whole-rock major-element analysis by ICP-AES.

STP Action Item 0612-34: Laser Granulometer
STP will investigate the use of a laser granulometer or other granulometer in routinely measuring grain size and shape in soft sediment.

Priority: High
Date/Timeline: Next meeting
Leads: Basile, Sakamoto
Background to STP Action Item 0612-34: New technology may benefit future IODP

Expeditions and STP requests appropriate further information to enable discussion by the appropriate STP Working Group.

Proposed next STP meeting: June 3rd – 6th 2007
Location Beijing, China
Host: Hongkui Ge

IODP Scientific Technology Panel (STP)
4th Meeting, 7-9 December 2006
Hilton San Francisco
San Francisco, California, U.S.A.

Agenda

Thursday 7th December

08.30
Routine Business:

1. Welcome and logistics (Lovell/Wheat))
2. Introductions of continuing and new members, guests, liaisons (Lovell)
3. Review and Approval of Agenda (Lovell)
4. Review and Approval of Minutes from July meeting (Lovell)
5. Conflict of Interest Policy (Lovell)
6. STP mandate (Lovell)
7. Brief report from most recent SPC meeting (Becker/Lovell). Discussion of status of STP's previous recommendations and action items, etc.(Lovell)
8. Brief report from EDP (Lovell)

Regular Reports:

9. Reports from MEXT (TBN) & NSF (Allen)
10. Report from IODP-MI (Eguchi)
11. Report from CDEX (Gaillot)
12. Report from JOI Alliance (Blum)
13. Report from ESO (Roehl)

14. Brief executive session of STP Panel Members to discuss short- and long-term strategic aims of the STP as IODP enters a new phase of ocean drilling.

12.30 Lunch

13.30 Further business and issues arising from previous meetings:

15. Report from CDEX on feasibility study: STP Consensus 0606-08: Measurements at High Pressure and Temperature (Gaillot)
16. Report from ESO: STP Consensus 0606-11: ESO Temperature Tools (Inwood)
17. Reports from IODP-MI & liaisons on recent workshops:
    a. Uniform Depth Models Meeting (Miville /Sakamoto)
    b. VCD/Lithology Meeting (Miville /Castillo/Neal)
    c. Digital Taxa Dictionaries Meeting (Miville)
18. Reports from IOs on Resolution, accuracy and calibration of temperature and pressure measurements (STP Consensus 0606-13)
19. CDEX report on LA-ICP-MS (STP Consensus 0606-15) (Gaillot)
20. QA/QC Task Force Update (Kryc & Neal)
21. Proposal Review (from SSEP) (Ahagon)
22. Observatories Task Force update (STP liaisons – Wheat/Villinger)
23. Review of Previous STP/SciMP Working Group Reports (Neal)
24. Third Party Tools (Janacek)

17.00 Close
Reception

Friday 8th December

08.30 New developments:

25. STP monitoring of IODP expeditions; input to scientific technology issues. Including Operations Review presentation (Janacek).

26. Development of a Scientific Technology Roadmap for IODP
    a. Presentation on IODP funding: Program Memorandum, funding and contract structure (Allan)
    b. Presentation on EDP Technology Roadmap and a possible role for STP (Becker/Janacek)
    c. Discussion, possible breakout sessions and reporting

27. SODV status – report from USIO (Fox, Blum & Higgins)

28. CHIKYU Shakedown cruise – report from CDEX (Kuramoto/Gaillot)

17.00 Close

Saturday 9th December

08.30

29. Executive session: strategic review of STP aims, workflow, and actions

Reconvene with liaisons and guests

30. Review of Recommendations, Consensus Statements, and Action Items (Lovell/Neal)
31. Next meeting location and date (Lovell/Neal)
32. Rotation of panelists & panel expertise (Lovell/Neal)
33. Closure (Lovell/Neal)

15.00 Close

Meeting participants:

Name (*chair, **vice-chair)	**E-mail Status**	**Affiliation Notes**
Members:		
Ahagon, Naokazu	ahagon@mail.sci.hokudai.ac.jp M	STP
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Christensen, Beth	christensen@adelphi.edu M	STP
Colwell, Rick	rcolwell@coas.oregonstate.edu M	STP
Ge, Hongkui	gehk@cea-igp.ac.cn M	STP
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Iwai, Masao	iwaim@cc.kochi-u.ac.jp A	STP (alternate for Suzuki)
Johnson, Paul	johnson@ocean.washington.edu M	STP
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Nunoura, Takuro	takuron@jamstec.go.jp M	STP
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Sakurai, Shinichi	shinichi_sakurai@oxy.com M	STP absent
Suzuki, Noritoshi	suzuki.noritoshi@nifty.com M	STP absent
Villinger, Heinrich	vill@uni-bremen.de M	STP
Wheat, Geoff	wheat@mbari.org M	STP Local host
Guests, Liaisons, and Observers:		
Allan, Jamie	jallan@nsf.gov	L NSF
Becker, Keir	kbecker@rsmas.miami.edu	L SPC
Blum, Peter	blum@iodp.tamu.edu	L USIO
Eguchi, Nobuhisa	science@iodp-mi-sapporo.org	L IODP-MI
Brewer, Tim	tsb5@le.ac.uk	G ESO
Fox, Jeff	fox@iodp.tamu.edu	G USIO
Gaillot, Phillipe	gaillotp@jamstec.go.jp	L CDEX
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Inwood, Jenny	ji18@leicester.ac.uk	L ESO
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Nam, Seung Il	sinam@kigam.re.kr	O Korea IODP
Röhl, Ursula	uroehl@allgeo.uni-bremen.de	L ESO

Appendix 2.4: Program Member Office report

Program Member Offices

3rd meeting, 8 March 2007
Osaka International House Foundation Room 1 & 2 (3F)
Osaka, Japan

Draft MINUTES (version 1.4)

3. Expeditions

PMO Consensus 0703-01: The program member offices recommend that the description of co-chief responsibilities include the expectation that the co-chiefs will participate in communication activities in addition to the formulation of press releases, including the provision of feedback on the expedition communications plan.

PMO Consensus 0703-02: The program member offices recognize that the individual co-chiefs of the NanTroSEIZE Stage 2 riser expedition will have a significantly reduced level of responsibility compared to co-chiefs of a typical full IODP expedition. The PMOs request CDEX and the NanTroSEIZE Project Management Team to document the reduced responsibilities more explicitly than shown in the current CDEX co-chief agreement. Such a document could serve as a model for similar expeditions in the future.

PMO Consensus 0703-03: The program member offices seek clarification regarding the status of the specialty coordinators involved in the NanTroSEIZE Stage 2 expeditions with respect to their participation in the science party, their adherence to the 8:8:8:1 rule, and the relevant budgetary implications.

PMO Consensus 0703-04: The program member offices recommend that in case an expedition prospectus is not available during the call for applications, the expedition summary should include information on background, rationale, scientific questions to be addressed, tentative drilling plan, methodologies and desired expertise of shipboard participants. Information should be sufficient to allow applicants to develop preliminary research plans and to allow scientists from a wide range of fields to understand the scientific significance and strategy of the expedition. Expedition summaries should be available at the time of call for application.

PMO Consensus 0703-05: To minimize the costs, the program member offices recommend that the IOs consider all potential scenarios regarding sampling parties, including their location (offshore versus onshore) and number of participants.

4. SASEC SAS working group update

PMO Consensus 0703-06: The program member offices support the suggestion in the Science Advisory Structure Executive Committee (SASEC) SAS working group's interim report on maintaining the organization of the current IODP Science Advisory Structure.

PMO Consensus 0703-07: USSSP and J-DESC agree to consider voluntarily reduction in panel participation as suggested in the Science Advisory Structure Executive Committee (SASEC) SAS working group interim report for all proposal handling panels and committees according to a 5:5:3(1):1:(1) rule for U.S.:Japan:ECORD:China:Korea.

PMO Consensus 0703-08: The program member offices support the suggestion in the Science Advisory Structure Executive Committee (SASEC) SAS working group's interim report for a reduced core membership for technical panels (especially the Scientific Technology Panel; STP), with additional experts brought in at one of two annual meetings for focused discussion of selected issues.

PMO Consensus 0703-09: The program member offices prefer that the coordination of expertise balance among panel members be handled by IODP-MI without excluding the possibility of direct communication between the PMOs and panel chairs.

PMO Action Item 0703-10: The program member offices ask IODP-MI to contact panel chairs to determine the required expertise in collaboration with the SPC chair.

PMO Consensus 0703-11: The program member offices acknowledge the needs for and benefit of flexibility in SAS membership term, and would like to implement this in consultation with IODP-MI and SAS panel and committee chairs on the basis of a three-year membership terms.

6. SAS

PMO Consensus 0703-12: The program member offices accept the revised tutorial document for SAS chairpersons and recommend that IODP-MI distribute it to all SAS panel chairs, co-chairs and vice-chairs.

PMO Consensus 0703-13: To facilitate communication and promote scientific collaboration among the international IODP community, the program member offices should announce national planning workshops to all PMOs and the IODP-MI as early as possible.

9. Others

PMO Consensus 0703-14: The program member offices greatly appreciate the efforts of IODP-MI in organizing and leading our periodic meetings. The PMOs recognize the fundamental importance of IODP-MI as a neutral and consistent facilitator of these proceedings and as the most appropriate provider of required background material. For these reasons we believe that IODP-MI should continue in this role for future PMO meetings.

PMO Consensus 0703-15: The meeting attendees acknowledge and thank Elspeth Urquhart for volunteering to record the minutes of this meeting.

Appendix 3.2

EuroMARC Management Committee Meeting

9th December 2006, Brussels
FWO Headquarters, Egmontstraat, 5, rue d'Egmont - 1000 Brussels, BE
Friday 8 December 2006, 10.00 - 16.00

Attendance
Are Birger CARLSON (NFR, NO),
Sören DÜRR (DFG, DE),
Jérôme DYMENT (CNRS/INSU, FR);
Bruno GOFFÉ (CNRS/INSU, FR),
Benno HINNEKINT (FWO, BE),
Sasha LEIGH (NERC, UK),
Raymond SCHORNO (NWO/ALW, NL).

Each Full Proposal recommended for funding by the Review Panel (November 2006) was examined and discussed in the ranking order established by the EuroMARC Review Panel. Where possible, the EuroMARC Funding Agencies' representatives confirmed whether their respective Agency would contribute to a given project, provided that all other Agencies involved agree to do so too, and pending on official national decisions. The contributions were encouraged to be in line with the Review Panel's recommendations or, where appropriate, at a reduced level, following possible negotiation of the grants with the PIs so that the cuts are clearly motivated and cause minimal damages or perturbations in the work plan. Some cases required specific set of actions to be agreed upon by all participating EFAs and the ESF office.

The final list of ranked proposals and funding decisions is:

Proposal	EuroMARC Reference	Project Lead	National Agencies involved	Final percentage of total requested funds awarded (%).
H2DEEP	06-EuroMARC-FP-011	Pedersen (Norway)	SNSF, CNRS, NFR, FCT, NERC	98
CHECREEF	06-EuroMARC-FP-003	Camoin (France)	SNSF, DFG, CNRS, NERC	99
AMOCINT	06-EuroMARC-FP-008	Jansen (Norway)	PFG, CNRS, NFR, FCT, NERC	95
RETRO	06-EuroMARC-FP-005	Dokken (Norway)	DFG, CNRS, NOW, NFR	99
GLOW	06-EuroMARC-FP-009	Kroon (Netherlands)	DFG, IRCSET, NOW, NERC	99
CARBONATE	06-EuroMARC-FP-002	Wheeler (Ireland)	FWO, DFG, IRCSET, NWO	96
MOCHA	06-EuroMARC-FP-004	De Lange (Netherlands)	SNSF, DFG, NWO	98
DAISY	06-EuroMARC-FP-001	Abrantes (Portugal)	DFG, CNRS, NOW, FCT	0

Report on:

ECORD Mid-Term Review

A review of the Science, Management and Value for Money of the European Consortium for Ocean Research Drilling

Professor Peter Styles (Chair)

Professor Arne Bjorlykke

Professor Jan de Leeuw

Dr Marco Ligi,

Professor Jean-Paul Montagner

Professor Pat Shannon

ECORD REVIEW Panel Members

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ECORD REVIEW: TERMS OF REFERENCE

At the first meeting the panel was asked to carry out a mid-term review of ECORD under the following headings:

SCIENCE

The panel will evaluate the science carried out by the Integrated Ocean Drilling Program (IODP) over the first phase of the Program.

The panel will assess the impact of scientific proposals generated by the European Consortium for Ocean Research Drilling (ECORD) scientists.

The panel will review the publications by ECORD scientists arising from ocean drilling in key scientific journals.

STRUCTURE AND MANAGEMENT

The panel will evaluate the efficiency of the ECORD structure: ECORD Council, ECORD Managing Agency (EMA), ECORD Science Support and Advisory Committee (ESSAC).

The panel will evaluate the efficiency and effectiveness of the ECORD Science Operator structure and its links to other IODP Implementing Organisation.

The panel will evaluate the impact of ECORD in IODP under a scientific and structural Perspective.

Expedition reports will be evaluated and ECORD expedition participants will be asked for input.

The panel is expected to point out ways of improvement wherever appropriate or necessary.

OTHER INPUTS TO THE PANEL

The utilisation of Mission Specific Platforms (MSPs) in IODP (i.e. is it useful to run MSPs as a part of IODP?)

The best practice reports from the ECORDnet project should form part of the written evidence

Outreach activities related to MSP operations (ACEX, Tahiti) should be reviewed

The economic impact of participation in the programme (e.g. contracts won by the Netherlands for provision of the drilling derrick for the Japanese ship, *Chikyu*; logging contracts for the *R/V JOIDES Resolution*; core repository contracts at Bremen) should be evaluated.

OCEAN SCIENCE

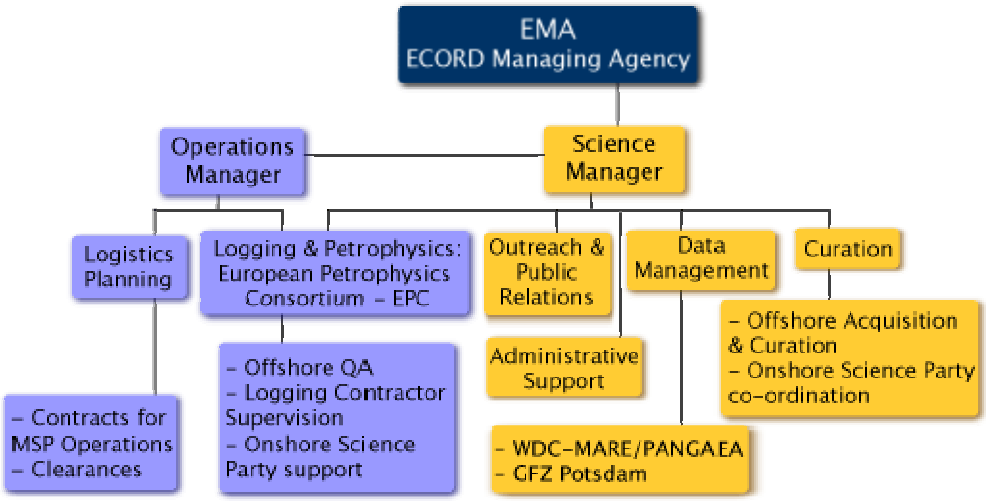
It is incontrovertible that

(a) Large-scale ocean science is an international issue and can best be served by cooperation between nations and international organisations and

(b) Local rivalries are unhelpful and will hinder best value for money.

The essential question posed is whether ECORD is the best route to obtaining value-for-money European involvement in such science.

ECORD REVIEW: STRUCTURE, MANAGEMENT AND INTERACTIONS



ECORD Structure and the roles within it

Components of the Review included visits to and discussions at:

ECORD Paris (at UNESCO)
ESSAC (Cardiff, UK)
ESO EPC (Leicester, UK)
ESO BGS (Edinburgh, UK)
IODP (Solstrand, Norway)
ECORD Council (Bonn, FRG)

ESSAC OFFICE Visit and Review

Professor Peter Styles (Keele) & Professor Pat Shannon (UCD)

Prof. Peter Styles and Prof. Pat Shannon visited the University of Cardiff on 17 July 2006 to review the office of the ECORD Science Support & Advisory Committee.

The ESSAC office is currently located in the School of Earth, Ocean & Planetary Sciences at the University of Cardiff. This is a large, top quality (RAE Grade 5) School. The office moves every two years: initially located at Amsterdam (2003-2005), it moved to Cardiff in 2005 and will move to Aix-en-Provence in France in 2007.

The office is located with the Chair of the ESSAC Committee (Dr Chris MacLeod). The Vice-Chair becomes the Chair every two years. The budget supports a full-time Science Co-ordinator (Dr Federica Lenci for most of the period and now Dr Elspeth Urquhart), office costs and resources to compensate the Chair. Funding is provided by EMA and the host nation

ESSAC is responsible for the scientific planning and co-ordination of ECORD's contribution to and participation in IODP. The function of the office is to co-ordinate the work of the Science Support & Advisory Committee that consists of a representative of each of the 17 member countries in ECORD.

Major duties of ESSAC include the provision of science advice and assistance to ECORD council, EMA and ESA, liaison with IODPD-MI Science Office, other Programme Management Offices (e.g. USAC, J-DESC) and platform operators, encouraging IODP-related activities amongst ECORD nations, assisting EMA and ESO in education and outreach activities.

ESSAC reports to the ECORD Council and has links with various other ECORD and IODP agencies but does not have formal links to ESO

The visit produced the following SWOT analysis:

Strengths

Committed, experienced staff in the Cardiff office.

Combination of northern and southern European staff in the Cardiff office assisted in facilitating communications with ESSAC delegates.

Cardiff office housed within a large Geoscience school that was able to provide backup when the Chair was ill.

Strong financial and other support at Cardiff University and UK national levels allowed the Chair to act as full-time manager without any university duties

Weaknesses

Staff numbers are small, and thus vulnerable to significant interruptions in the event of staff changes (either Chair or Co-ordinator).

Move of office every two years is likely to result in a loss of 'corporate memory' and interruption of office structure and communications network.

Work of ECORD has not been communicated to scientists as effectively as it should through the office/national delegates.

ESSAC does not have formal links with ESO (ECORD Science Operator) (informal links have been established by the Cardiff office). potentially inhibiting effective communications.

Opportunities

Move of office every two years provides the opportunity for new initiatives to be undertaken by the office (e.g. development of workshops, new communications systems).

Move of office every two years leads to introduction of new personnel and new ideas.

Move to different countries offers the potential to increase the visibility and profile of ECORD.

There should be greater and more formal links between the ESSAC office and the European Science Foundation (ESF) regarding the planning and administration of workshops.

Threats

Move of office every two years makes it very likely that the Co-ordinator will be inexperienced in the ESSAC operations.

Move of office every two years carries the risk that the host country/institution may not be willing to free the Chair from all normal institutional duties, thereby resulting in part-time Chair.

Choice of office location and personnel could lead to fragmentation/polarization of ECORD community.

Visit and Review of European Petrophysics Consortium (EPC) at Leicester

Professor Peter Styles (Keele)

The EPC makes up one third of the ECORD Science Operator (ESO) with the British Geological Survey (BGS) and The University of Bremen where the Core Repository is situated making up the other two-thirds. Leicester then makes up one third of the EPC with the other sections being located in Montpellier and Aachen. Leicester is a large Earth Sciences Department with well regarded teaching and research, achieving RAE grade 4. It hosts this facility and also the Natural Environment Research Council Seismic Equipment Pool (SEISUK). It has an internationally renowned Petrophysics Research Group led by Professor Mike Lovell who is also Head of School.

The role of EPC

Within ESO, EPC is responsible for the planning, management, acquisition, quality control/assurance, archiving and educational outreach relating to petrophysics.

Petrophysics is here defined as:

(a) Measurements made downhole using a variety of logging tools (the suite will be specified in the Scientific Prospectus for each MSP expedition) and

(b) Standard core-based petrophysical measurements made on the core both during the offshore and onshore phases of an individual MSP expedition. As a consequence, one of the most important aspects of the EPC is to decide, for each particular MSP expedition, whether the petrophysical operations are to be undertaken fully by EPC members, or whether external resources are required, either from other European and non-European academic institutions, or from industry

MANAGEMENT STRUCTURE

The EPC central office is located at the University of Leicester and is responsible for the management of the EPC, negotiating and representing EPC within ESO and IODP and negotiating and dealing with external organisations as required. The EPC is made up of three organisations.

University of Leicester	University of Montpellier	RWTH Aachen University
Dr Tim Brewer EPC Chair, Chief Scientist	Dr Philippe Pezard Chief Scientist	Dr. Christoph Clauser Chief Scientist
Dr Marc Reichow Research Scientist	Dr Hendrik Braaksma Research Scientist	Dr Renate Pechnig Chief Scientist
Ms Jenny Inwood Research Scientist	Dr Florence Einaudi Research Scientist	Dr Norbert Klitzsch Research Scientist
Mrs Janette Thompson Administrator	Dr Gilles Henry Logging Engineer	Ms Juliane Arnold Research Scientist
	Mr Akram Belghoul PhD Student	Ms Margarete Linek Research Scientist
	Mrs Joelle Gastambide Administrator	Mr Lothar Ahrensmeier Technician

The University of Leicester

The Department of Geology at the University of Leicester has developed a log interpretation centre over several years, which employs a number of different software packages enabling the user to optimise their evaluation and interpretation of both downhole logging data and to facilitate core-log integration. The facility is supported by a number of discrete laboratories within the department, which enable a variety of high quality core-based measurements to aid the interpretation of the petrophysics data. Interaction with Schlumberger and other companies through use of software leads to loss, through head-hunting, of trained staff.

University of Montpellier

The borehole geophysics group of CNRS at the University of Montpellier is called LGHF for "Laboratoire de Géophysique et d'Hydrodynamique en Forage". It is a group of 20, with 10 permanent scientists and engineers. Borehole research at LGHF is focussed both on geophysical and hydrodynamical developments of instruments, experimental methods and models. LGHF has built a logistical site, assembled existing and new means of shallow subsurface investigation in boreholes (down to 1500m at the most).

Present research interests cover the study of hydro-dispersive properties in heterogeneous porous media, salt-water intrusion in shallow coastal reservoirs, geothermal systems both on land and in the deep oceans, and CO_2 sequestration in deep reservoirs.

RWTH Aachen University

One of the major research topics of the RWTH Aachen University geophysics group is log interpretation and the study of petrophysical properties, carried out over more than 15 years. Research emphasis is on the characterization of rocks for geological, geothermal and hydrogeological studies, and on the physical and thermal structure of the oceanic crust with its associated time-

integrated heat and mass fluxes. These require the study of physical properties in the laboratory and the analysis and interpretation of in-situ measured borehole geophysical data.

Visit findings

I. The Leicester facility is not a UK facility like SEISUK and receives no baseline national funding and is wholly dependent on ECORD for funding. It is a stable facility having been in existence for 5 years. Prof Peter Styles had a long conversation with Dr Tim Brewer, Chair and Chief Scientist and a further session with Jenny Inwood, Research Scientist and was shown round the workstation facilities for geophysical log interpretation. The log interpreters are very skilled in the use of industry standard software especially SCHLUMBERGER packages and hence are regularly head-hunted away by them or other offshore logging companies. This leads to difficulty in maintaining enough trained staff.

II. Concern was expressed that IODP did not promote MSP's more and did not appear to value sufficiently the contribution that MSP's make.

III. EPC Leicester were very keen that a wider range of geoscientists, including geomorphologists/ coastal geographers etc., were made aware of the potential which MSPs might have for their research. There was concern that the minimum standards for core logging and other services which are delivered on Joides Resolution may be very challenging for MSP based legs and for EPC to match and they requested that IODP consider this carefully

IV. They expressed concern that scientists are not interested in the entire core and even less in the Geophysical logs but are too focused on their own individual piece of the record. This leads to under interpretation of the core as a whole.

V. Many scientists are also under the impression that the amount of core recovered as a fraction of hole

depth is the recovery rate without any cognisance of the fact that in certain carbonate (especially coral formations) large voids and vuggy sections are present). These can only be evaluated by the logging and NOT by the core. This leads to negative impression as to efficiency and value of geophysical logging.

A SWOT Analysis of EPC gave the following findings

Strengths

Tri-partite structure between three European Universities gives great depth and range of expertise

Permanency of location gives stability to the facility

Well-trained staff have good skill and provide excellent service

Excellent interaction with BGS, a major part of ESO

Weaknesses

Having particular expertise located in different laboratories may mean that staff have a particular point of view and may not be as 'rounded' as they would be if they came from a single laboratory.

Although Chief Scientists meet regularly as part of ECORD business there is insufficient interaction between all levels of staff via exchange possibilities for junior staff.

Well trained staff can be poached by industrial companies leading to difficulties in staffing cruises.

ESO BREMEN CORE REPOSITORY

Another part of the ESO is constituted by the European Core Store in Bremen. It is one of three IODP repositories (beside Gulf Coast Repository (GCR) in College Station, TX, and Kochi, Japan) and was established in the summer of 1994. The IODP-BCR has an 1100 m^2 refrigerated storage area with a movable rack system and state-of-the-art laboratory and office space, and is located on the campus of Bremen University.

IODP Core Repository
Bremen Core Repository (BCR)
Leobener Str
MARUM - Bremen University
Leobener Str
D-28359 Bremen
Germany

It had been intended to pay a visit to the Core Store at Bremen but pressure of time and non-availability of Panel Members precluded this. However, several panel members had already had significant and very good interactions and felt that it was a very successful and well run organisation which had stored core since Leg 150. In consequence it was felt that a site visit was not essential.

ECORD Evaluation Panel Meeting with IODP-MI and the Lead Agencies

Solstrand, Os, Norway 28 and 29 August 2006.

Professor Peter Styles (Keele University) and Professor Arne Bjorlykke (Norwegian Geological Survey)

Professor Peter Styles and Professor Arne Bjorlykke met with representatives of the IODP-MI and the Lead agencies NSF and MEXT at the Solstrand Hotel, Os, Norway as part of the IODP-MI Science Planning meeting.

Note: The U.S. National Science Foundation (NSF) and Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) are Lead Agencies. The European Consortium for Ocean Research Drilling (ECORD) is a Contributing Member.

Participants

The representatives from IODP-MI were:

Dr Thomas Janecek,
Vice President of Science Operations,
Washington

Dr Hans Christian Larsen,
IODP- MI Vice President for Science Planning & Head of Sapporo Office

The representatives from the Lead Agencies were:

Prof Julie Morris,
Division Director,
Ocean Sciences Division
National Science Foundation,
Arlington VA 22230

Dr Toshiyuki Oshima,
MEXT liaison to NSF for IODP, Ocean and Earth Division,

Ministry of Education, Culture, Sports, Science and Technology (MEXT)

The following questions were posed for discussion by the Review Panel

1 What is the special role of ECORD in IODP as perceived by NSF/MEXT and is this the only/best way that European geoscientists can become involved in IODP programmes?

2 What is the perceived value of Mission Specific Platforms (MSPs) to IODP especially during the recent period when availability of other platforms has been limited?

3 If ECORD didn't provide MSPs would NSF/MEXT make this mode of scientific drilling delivery a priority and why?

4 How successful have the Arctic and Tahiti Programs been in the context of IODP and how have they been received by scientific participants?

5 Is ECORD getting/giving a fair deal for the contributions made?

6 How well do interactions between the Lead Agencies and ECORD/ESSAC/ESO proceed and how might they be improved?

In addition to this there was further significant discussion of the role of the ESO in the ACEX and Tahiti legs and of the satisfaction levels of IODP-MI and the Lead Agencies with performance.

Meeting with IODP-MI evening 28th August 2006.

i. There was appreciation that the bulk of the science which had been delivered in the last two years during the refit of Joides Resolution by NSF and the commissioning of the Chikyu by MEXT, had come from the two MSP legs in the Arctic (ACEX) and Tahiti. Output from IODP might have seemed very meagre without these.

ii. It was clear that IODP-MI considered ECORD a fundamental and essential part of the IODP programme. While they accepted that the financial contributions were not comparable to those of NSF and MEXT, they acknowledged that the scientific input in terms of proposals, participation and scientific output generated by ECORD scientists was outstanding and was an extremely valued component of the mission. It was clearly important to the perception of IODP as a truly international exercise that ECORD should be part of it and from these considerations alone were seen as 'value for money'.

iii. Although the Co-Chiefs for the ACEX leg had been very critical of the operational side of the legs, the scientific results had been outstanding and had really made their mark both in the scientific literature(4 Nature papers) and in the general press (BBC, CNN amongst many, many others).

iv. It was felt that many lessons had been learned during the ACEX cruise and that these had in the majority of cases been put into place for the Tahiti cruise which had received very favourable reviews.

v. It was felt that participating scientists who had extensive experience of the 'luxuries' of scientific life aboard the Joides Resolution had been unable/unwilling to make the paradigm shift to the more 'ad-hoc' arrangements which were necessary and which will probably always be necessary for

future participants on an MSP leg. It was pointed out that for other ocean-going platforms, their facilities were also much less sophisticated than those on Joides Resolution but there was not significant complaint about those because expectations were more realistic.

vi. It is essential that for there is very good information future MSP missions to let scientists know realistically what facilities in terms of accommodation, laboratories, and communications facilities would be available.

Meeting with NSF and MEXT on 29th August 2006

The meeting began with Prof Morris outlining of the financial landscape within the US for NSF. She described a time of significant financial stringency as the Joides Resolution was scheduled to cost $115 for its refit and the proposed Ocean Bottom Observatory was estimated to be $300 million. The case for continuation of the IODP programme had to be strong and well-argued after 40 years of successful scientific endeavor.

She outlined the main scientific issues which she saw as of critical importance to the world. High among these were the key questions of:

Methane hydrate stability,

Detailed record of climate change

Sea-level rise

These were being addressed strongly by MSP-led cruises. Prof Peter Styles asked whether the ocean drilling programme was seen as 'sacrosanct' and she replied candidly that nothing was sacrosanct but that she considered it to be a very high priority. Moreover the case for continuation of the IODP programme would be severely weakened if ECORD was not a fundamental part of the programme. It was important for making the case to the federal government that this was a truly integrated programme.

Financial and Scientific Background

i. It was also clear that if ECORD did not provide the MSP style facility then neither NSF nor MEXT would, as budgetary constraints would not permit it and all of the scientific targets which they made possible would not be addressed.

ii. However, it was clear that while ECORD's contribution at present levels was seen as welcome by both NSF and MEXT there would be no additional

share of resources made available over and above the current levels. If new European partners joined the consortium they would not receive additional berths/ship-time facilities; they would have to come from internal re-allocation of ECORD resources.

iii. Dr Oshima confirmed that the situation in Japan was very similar; with the enormous expenditure made on the Chikyu there would be little scope for financial manoeuvre.

Science

i. There was strong consensus that the scientific contributions to IODP by ECORD were outstanding in terms of leadership, scientific cooperation and reviews. A cycle of 1 MSP per year was seen to be about right.

ii. It was also clear that many of the important scientific and commercial drilling targets were likely to be in Polar Regions and that the proposed Aurora Borealis might have a significant part to play in addition to MSP's. It was recognised that current long-term contracts on JR made it very competitive against other ships.

Relationships between IODP and ECORD

i. It was recognised again that there would have to be better education for scientists as to what might be expected from an MSP cruise. A more considered balance is required between the numbers of Technical/Scientific participants with fewer scientists involved in shipboard activities and also a clearer division of labour/esteem between shipboard and land-based scientists working on core and logs.

ii. Generally there was significant good feeling towards ECORD and its associated component parts and an overall feeling that the contributions made were excellent even if the financial underpinning left much to be desired.

Visit to ESO at BGS Edinburgh

Professor Peter Styles
Professor Jan de Leeuw
Professor Jean-Paul Montagner
Professor Arne Bjorlykke
Dr Marco Ligi
Professor Pat Shannon participated by video link

Panel visit to BGS

Most of the panel visited the European Science Operator at BGS Murchison House, Edinburgh and the Marine Facility at Loanhead on 12 September 2006 and talked with key members of staff particularly Dr Dan Evans and Mr. Ali Skinner. The Panel then held a meeting to review progress and allot tasks and had a video conference with Professor Pat Shannon at the University of Manchester where he was External Examining.

Findings of the Panel Visit to ESO

There was extensive discussion about the interaction between ESO and shipboard scientists on the two MSP cruises ACEX and Tahiti.

i. It was obvious from these discussions that relationships between what were clearly seen as 'two parties' on ACEX had not been cordial or constructive. Notwithstanding this, the scientific results had been outstanding leading to four Nature papers and remarkable new insight into past polar climate. Access to the Co-Chief's reports had not been possible for this leg although the REVCOM had clearly laid out many "lessons to be learnt" especially with regards to communication both before during and after the cruise.

ii. The Tahiti cruise was felt by BGS to have been a very productive and successful cruise and that, although there had been difficulties these had been resolved by cooperation and understanding between the scientists and staff.

THE SCIENTIFIC IMPACT OF ECORD

Evaluation of the activities of both ECORD as whole and individual countries within ECORD must take into account scientific excellence in the context of financial contribution, utilising the quality and relevance of the work carried out based on publicly-available publication

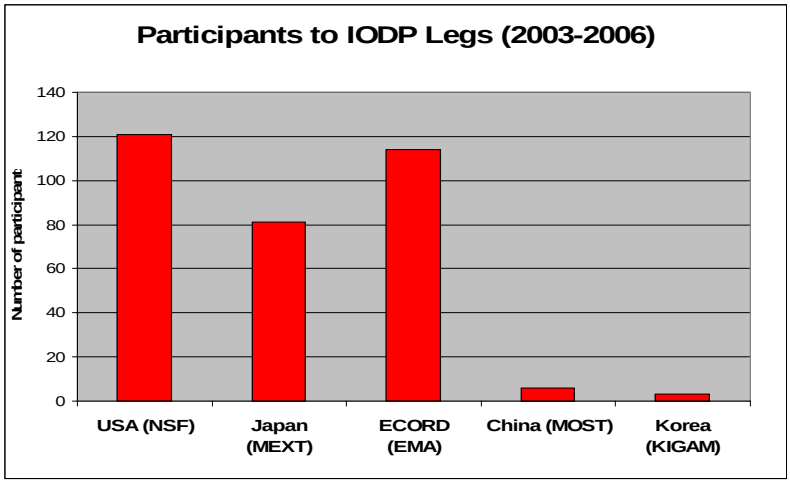
The following analysis compares scientific productivity and quality of ECORD and the other research institutions within IODP (NSF-United States, MEXT-Japan, MOST-China and KIGAM-Korea [1]

Budget (M US$)	IODP	ECORD
Fiscal Year 2004	47	6
Fiscal Year 2005	76	14
Fiscal Year 2006	76	14

ECORD (M EURO)	35,962	Contribution (%)
Spain	0,850	2,4
France	8,500	23,6
Sweden	1,973	5,5
Ireland	0,240	0,7
Finland	0,199	0,6
Denmark	1,500	4,2
Germany	9,250	25,7
Switzerland	0,850	2,4
United Kingdom	8,500	23,6
Netherlands	0,680	1,9
Portugal	0,270	0,8
Belgium	0,060	0,2
Iceland	0,090	0,2
Canada	0,450	1,3
Austria	0,200	0,6
Norway	1,700	4,7
Italy	0,650	1,8

Budgetary Spend by ECORD participants from 2004 to 2006

[1] We are especially grateful to Dr Marco Ligi who assembled the data and carried out the bibiliometric analyses presented here



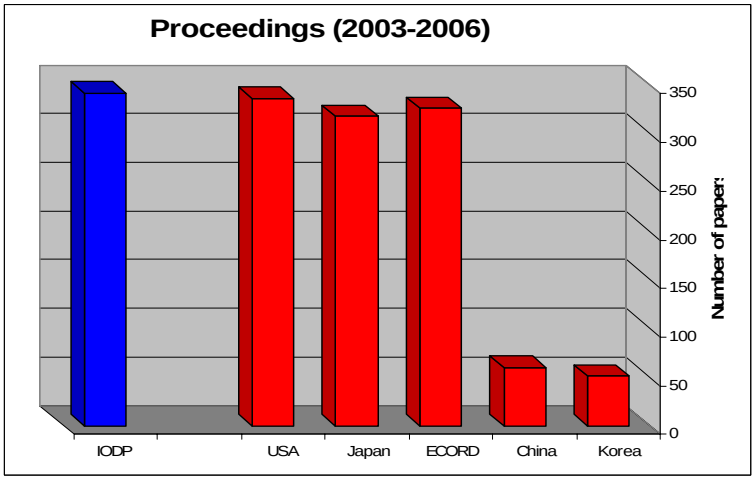
Participants from the IODP community 2003 to 2006

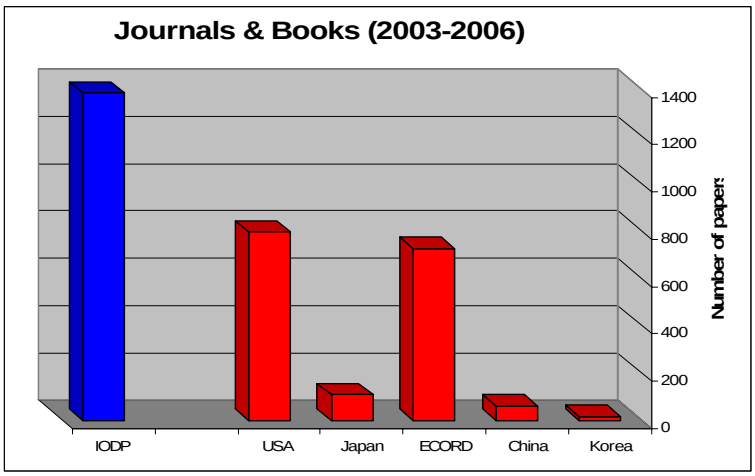
Publications	2003	2004	2005	2006	Total
IODP	605	622	301	197	**1725**
USA	412	391	175	153	**1131**
Japan	147	146	38	94	**425**
ECORD	356	408	136	151	**1051**
China	38	22	15	46	**121**
Korea	32	28	4	3	**67**

Proceedings	2003	2004	2005	2006	Total
IODP	123	114	21	84	**342**
USA	123	113	16	84	**336**
Japan	118	96	20	84	**318**
ECORD	123	114	5	84	**326**
China	12	10	0	38	**60**
Korea	30	21	0	0	**51**

Journals & Books	2003	2004	2005	2006	Total
IODP	482	508	280	113	**1383**
USA	289	278	159	69	**795**
Japan	29	50	18	10	**107**
ECORD	233	294	131	67	**725**
China	26	12	15	8	**61**
Korea	2	7	4	3	**16**

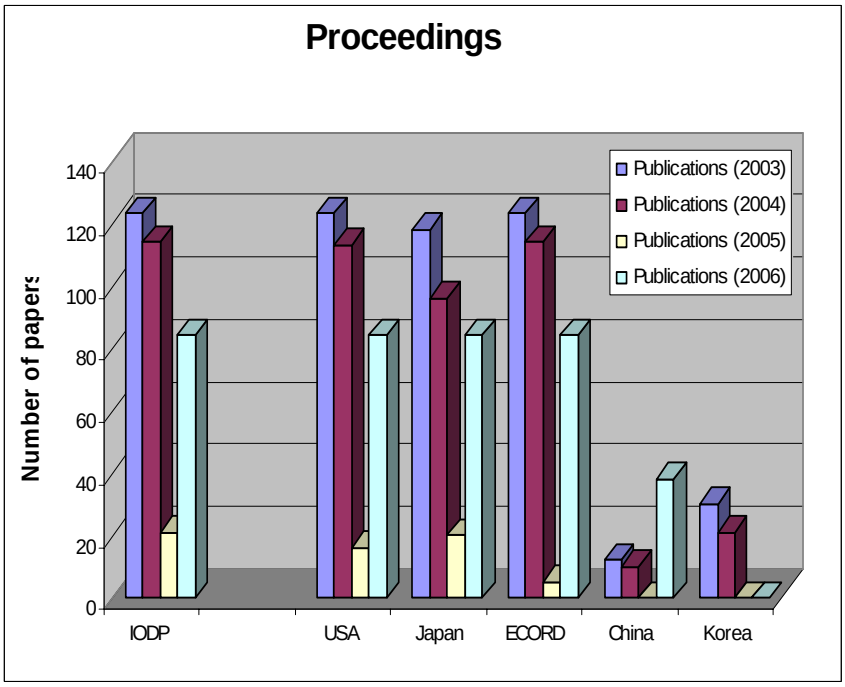
Total Publications by the IODP community IODP

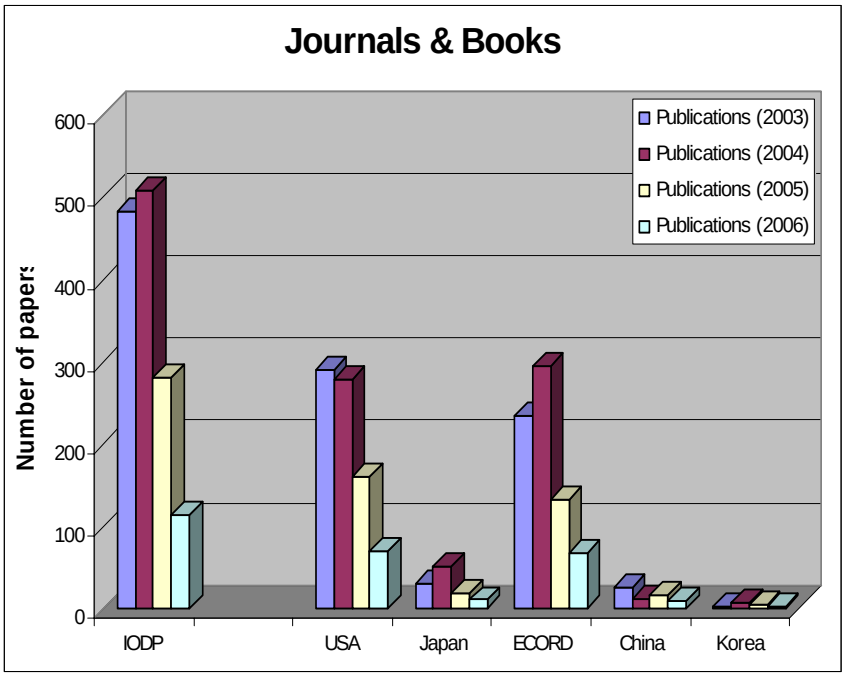




a) Number of articles published in IODP Proceedings by IODP participants

b) Number of articles published in international journals, books and proceedings of international meetings during 2003-2006 by IODP participants





Publication Rate by Year by IODP community participants

Methodologies for assessing scientific excellence

There are numerous methods for assessing the scientific merit and impact of peer-reviewed scientific publication and a number of them have been used here:

Total publications.

The total publications are given by the sum of articles in IODP Proceedings, JCR, International journals and books, and proceedings at international conventions.

Advantage:

Measures productivity.

Disadvantage:

Does not measure importance or impact of papers.

Attribution [2].

JCR publication index

This indicator shows the number of publications issued in journals classified by ISI in the Science Citation Index, Social Science Citation Index and Arts and Humanities Citation Index

Total number of citations

Advantage:

Measures total impact.

Disadvantage:

[2] Publications have been assigned to the institution of affiliation of the researcher/s author/s according to the full counting criterion: i.e. a publication authored by two researchers belonging to two different institutions was counted for each of the two institutions

Gives undue weight to highly cited review articles versus original research contributions.

Average Impact factor

The impact factor (IF) is available for all publications registered in the Journal of Citation Report.

The IF is given by the ratio between the number of citations obtained by the specific article published in a journal in the two previous years and the total of articles of the same journal published within the same time period.

Therefore the IF measures the average frequency with which an article is cited within a defined two year period.

Mean citation rate

This is the average citation rate per publication and is obtained by dividing the number of citations gained by articles in ISI journals by the number of articles.

Advantage:

Allows comparison between institutions of different sizes within IODP.

Disadvantage:

Rewards low productivity and penalizes high productivity.

New citations per year

This indicator **(*c*)** shows the number of new citations per year earned by an article every subsequent year.
In a simple linear model, assuming that an institution publishes ***p*** papers per year, and that each published article earns, on average, *c* new citations per year every subsequent year, the total number of citations N after n+1 years is:

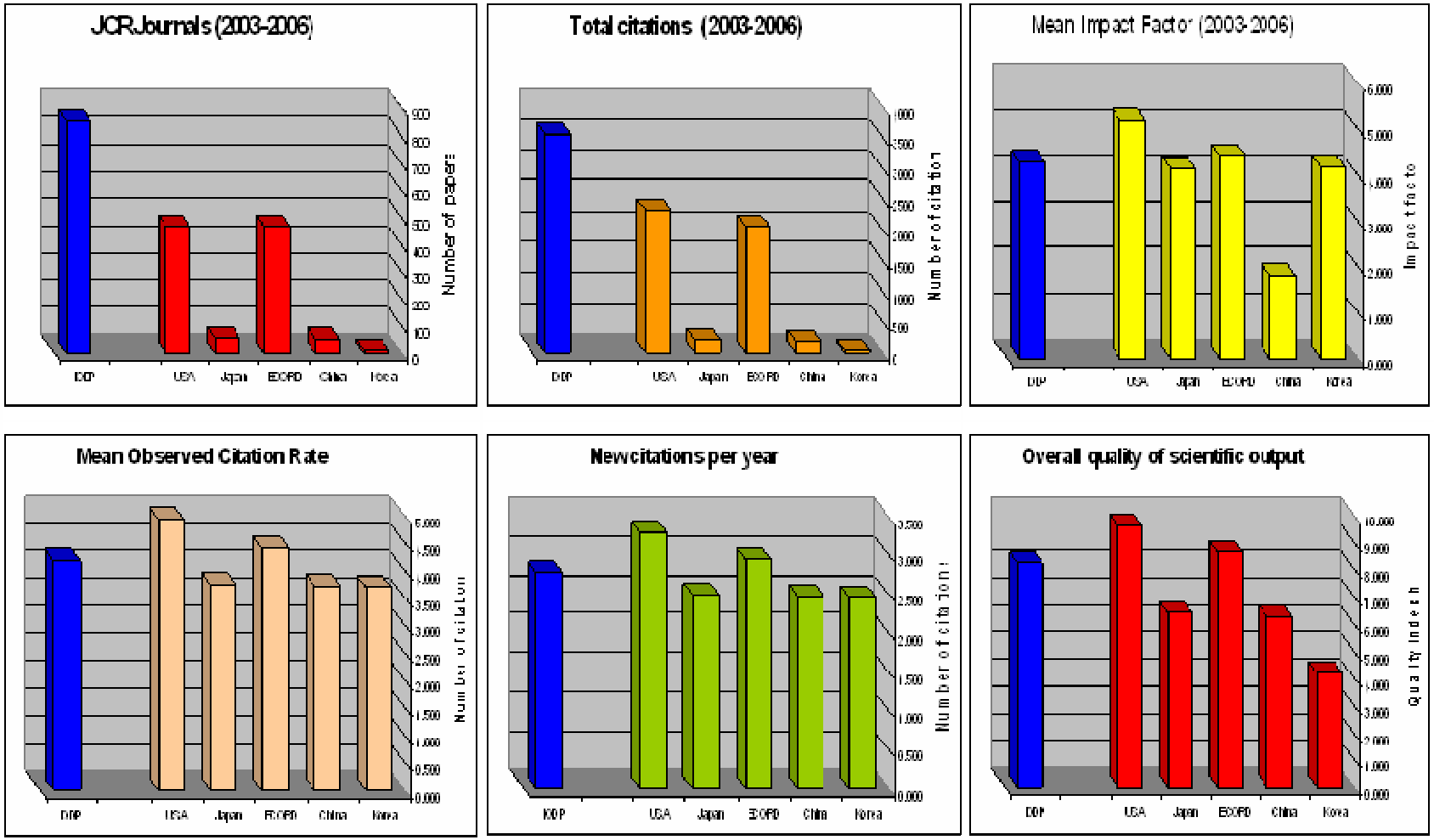
$$N = \sum^{n} p\ c\ \mathbf{k} = [p\ c\ n(n+1)]\ /2; \quad \text{therefore} \quad c = 2\ N/[p\ n(n+1)];$$

Quality Index (***h***)

This indicator, proposed by Hirsch (2005), is a single, particularly useful number, which gives an estimate of the importance, significance and broad impact of cumulative research contributions:

$$\mathbf{h = c\ n/[1+c/p];}$$

COMPARISON OF SCIENTIFIC IMPACT WITHIN IODP



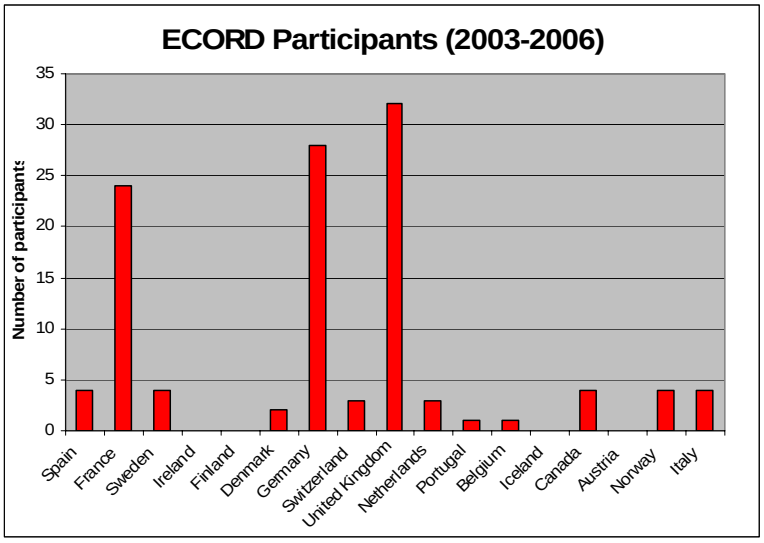
Comparison of various indices of scientific excellence for IODP and its constituent partners

IODP Overall Scientific Impact

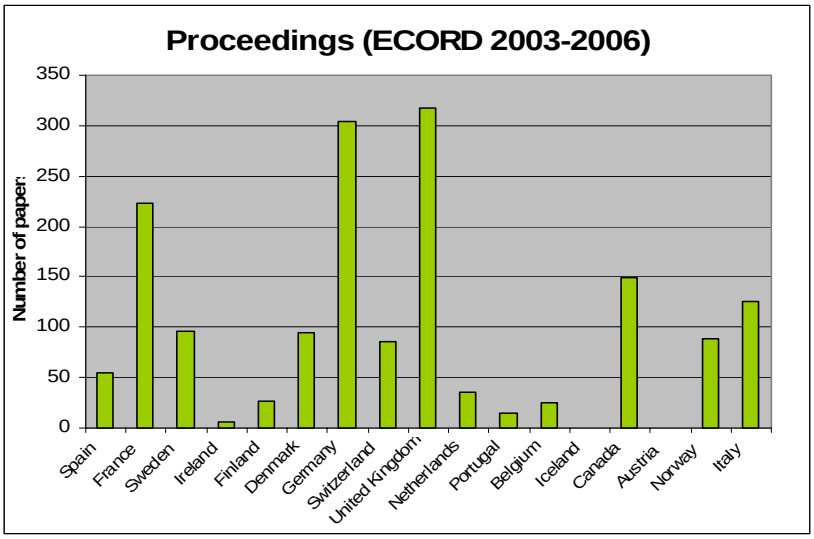
The high value of the IODP mean impact factor of 4.3 suggests a large number of articles published in very high-impact journals (25 in Nature and 34 in Science) testifying the high-level of the research output of the Ocean Drilling Program.

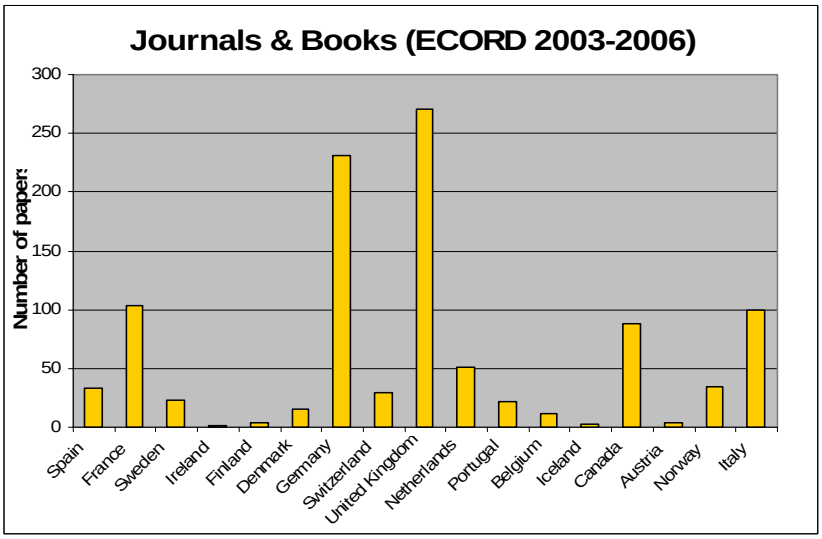
ECORD publications have overall impact and quality values slightly above the IODP mean values, slightly lower than the USA but still very good indeed.

ECORD Participation and Publication record



The number of participants in IODP as function of member country

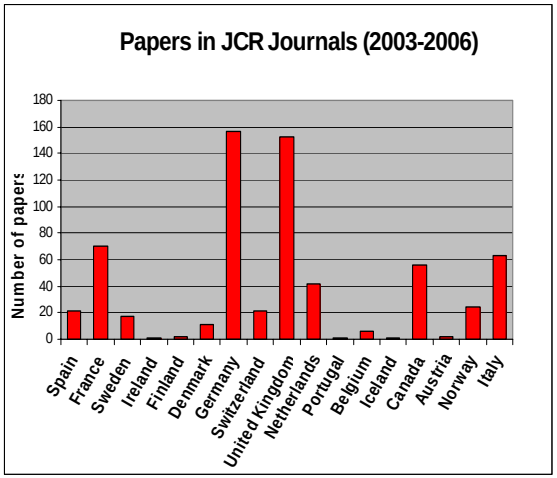


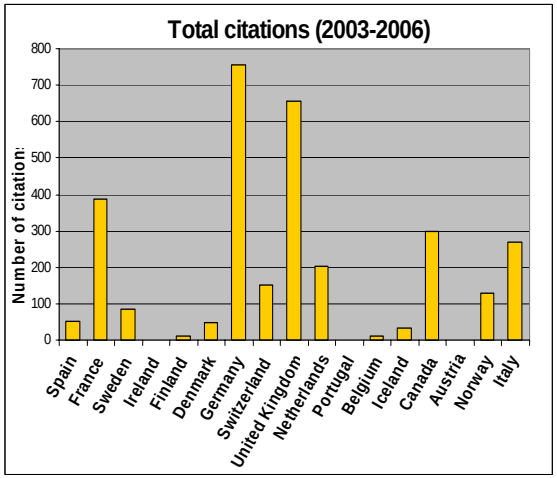


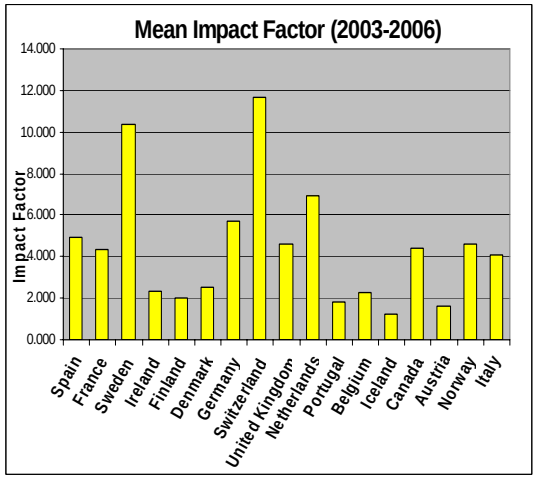
Total publications by participants in IODP as function of member country

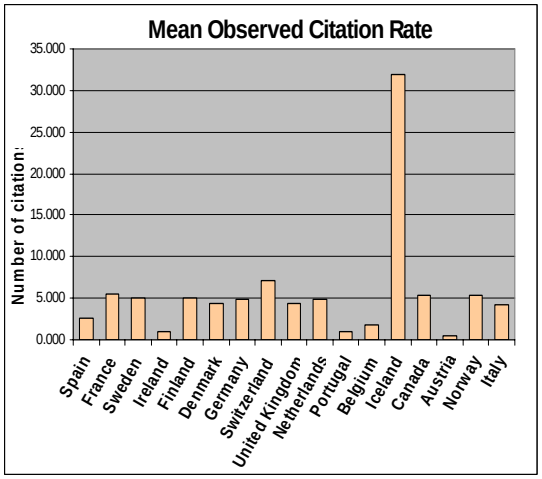
Both the total number of journal publications and number of proceedings correlate with the number of participants from each country as would be expected

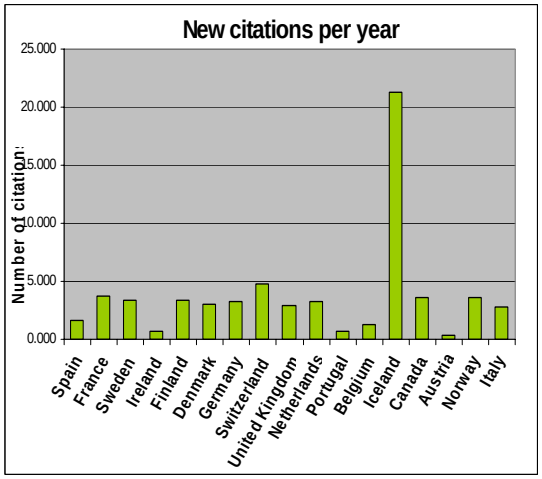
COMPARISON OF SCIENTIFIC IMPACT WITHIN ECORD

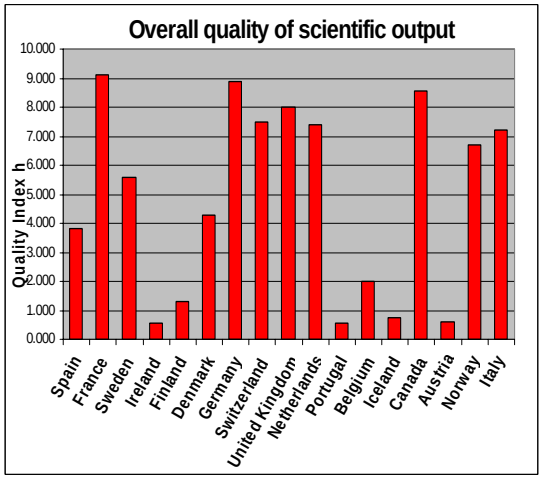












OVERALL SCIENTIFIC PICTURE

These bibliometric indicators clearly show Germany, United Kingdom and France ahead of all other ECORD partners, in proportion to their economic contributions to ECORD (~75% of the total).

Although the number of published articles appears to show France with lower scientific productivity than Germany and the United Kingdom, this is due to the fact that during this period, published articles reflect the end of ODP, when France was not a full member but contributed only 2/3 of a membership and in fact France rates the highest for overall scientific quality.

It is important to recognize the role played in IODP Science by the smaller ECORD countries; thus this group, comprising Austria, Belgium, Denmark, Ireland, Iceland, Italy, Finland, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and Canada, with a total financial budget that amounts to ~25% of ECORD contribution to IODP, had a combined science production higher than the major partners of ECORD (Germany, United Kingdom and France.

As mentioned previously **ECORD** publications have overall impact and quality values slightly above the IODP mean values, slightly lower than the USA but at a mean impact factor of more than 4, which is still very high.

OPERATIONAL MATTERS

i. Within the ECORD organization the ECORD Science Operator (ESO) is the responsible body for the preparation and execution of Mission-Specific Platform expeditions (MSP). The British Geological Survey (BGS) has been contracted as the most important institution to fulfill these tasks. The MSP approach to drill sites which JOIDES Resolution or the Chikyu cannot target must be considered as a unique and new approach for the whole ocean scientific community.

ii. Seagoing scientists, particularly those involved with IODP, are used to long-term technical planning and preparation to strict and immutable schedules for cruises on well-known Research Vessels. However, the concept of ECORD is such that planning and preparation of cruises must be flexible due to the (non) availability of ad-hoc commercial platforms and the nature of the contracts between ECORD and the companies renting out these platforms in the context of the very limited ECORD budgets which typically leads to changes of schedule.

iii. It is therefore understandable that during the first ECORD activity in the Arctic Ocean based on this relatively new MSP philosophy difficulties were experienced in delivering the high expectations of the ship-board scientists, despite the relatively benign sea and weather conditions and the excellent and very hard working ship crews.

iv. Many lessons should be learnt from this first ECORD expedition, principally about the need for excellent reciprocal communication prior to, during and after the cruise and a better understanding of scientific needs and also the constraints imposed within the context of operational exigencies. A long list of these lessons, were presented in the REVCOM for this leg.

v. It is also highly desirable that the Chief Scientist should have participated in a sea-drilling (preferentially ODP) cruise, and that they and the Expedition Leader are located on the same ship during multi-ship expeditions (like ACEX) and that both have proper concern for excellent productive communication on scientific, logistic and pastoral issues.

vi. The Panel were unable to obtain full access to all available documents (notably Co-Chief reports for ACEX) although we requested them several times from IODP. We are therefore not in the position to fully evaluate MSPs operation and recommend that a full evaluation of that part of ECORD's activity (MSP's) is carried out after the next, New Jersey, leg when procedures will have matured and bedded down.

vii. However, although there were clearly significant and justified causes for concern about operational issues during the Arctic leg we feel that the scientific success and evident atmosphere of mutual cooperation revealed by discussion with the Co-Chief of the Tahiti cruise bode well for the future. However, the bespoke nature of MSP's means that there is no room for complacency as new challenges will present themselves every time.

CONCLUSIONS

i. ECORD has clearly provided value for money as it gets excellent access to IODP resources for a fraction of the cost of full participation. However, it is clear that this is the best deal that ECORD will ever get and that if new partners join no addition berths will be made available. ECORD should develop a closer cooperation with the European Commission and have a long term goal of EU funding.

ii. IODP consider the scientific input in terms of proposals, participation and scientific output generated by ECORD scientists as outstanding and an extremely valued component of the mission.

iii. ECORD has produced excellent science at a level which is comparable with the USA in quantity and quality.

iv. MSPs are an essential component of ocean science and could be the bridge to a very fruitful cooperation with the Continental Drilling Programme. Some of these targets would not be addressed by IODP via NSF (Joides Resolution) or MEXT (Chikyu).

v. ECORD Participation is probably an essential political component to the continued funding of IODP by NSF and probably MEXT.

vi. The ECORD administrative structure is complex. While we can see that it mirrors the committee structure of IODP, the overhead in time, cost and bureaucracy is very large and we feel that it leaves itself vulnerable to communication failure.

vii. In particular, the moving of ESSAC every two years is likely to lead to serious administrative problems in the reasonably near future. We think a higher priority to quality in the selection of scientist and projects is important although we recognise the wish to be democratic and permit participation by all

contributing countries but the level of resource and depth of support which is required to be committed in addition to that available from ECORD may not be forthcoming in all cases.

viii. We recommend thought is given to streamlining the ESSAC structure, perhaps with a central executive body to which national representatives are seconded for a period rather than a wholesale transfer of operations from office to office with the associated down-time, loss of corporate memory and disruption to participants.

ix. The targets which MSP's can address are of great interest to a much wider range of scientist (glaciologists, geomorphologists, coastal engineers and a plethora of others) than are captured by the Ocean Science community alone. ECORD needs to decide how it will engage and involve this community in future science proposals and planning. ECORD needs to have a strategy and a policy.

x. It is unclear how ECORD will cooperate/relate/interface with the proposed Aurora Borealis and possible other Polar Research vessels as have been proposed by Russian scientists. ECORD needs to have a strategy and a policy for this.

xi. As the Panel were unable to obtain full access to all available documents concerning MSP legs we recommend that a full evaluation of that part of ECORD's activity (MSP's) is carried out after the next, New Jersey leg when procedures will have matured and bedded down. However, we feel that the scientific success and evident atmosphere of mutual co-operation revealed by discussion with the Co-Chief of the Tahiti cruise bode well for the future. However, the bespoke nature of MSPs means that there is no room for complacency as new challenges will invariably present themselves each time.

SUMMARY OF FINDINGS

i. During a period when both JOIDES Resolution and Chikyu were unavailable for IODP it has fallen to ECORD through MSPs to implement the scientific objectives of ocean drilling. The resounding scientific success and new understanding of climate change issues which were obtained from both ACEX and Tahiti are testimony to the important role which it plays within the IODP structure.

ii. ECORD and its associated scientists are producing high-quality, international research in ocean science. It clearly represents excellent value for money and although we can see potential issues with the somewhat cumbersome management structure we find it to be an outstanding example of good international cooperation. We would wish to see funding continue for it and would very much welcome further approaches to EU Framework 7 for additional support for what is clearly an essential component in understanding the critical processes of climate evolution, the deep biosphere and geodynamics.

Workshops on Marine Research Drilling (Magellan Workshop Series)

Drilling through an active caldera, offshore Campi Flegrei, Eastern Tyrrhenian margin

&

International Continental Drilling Program (ICDP)

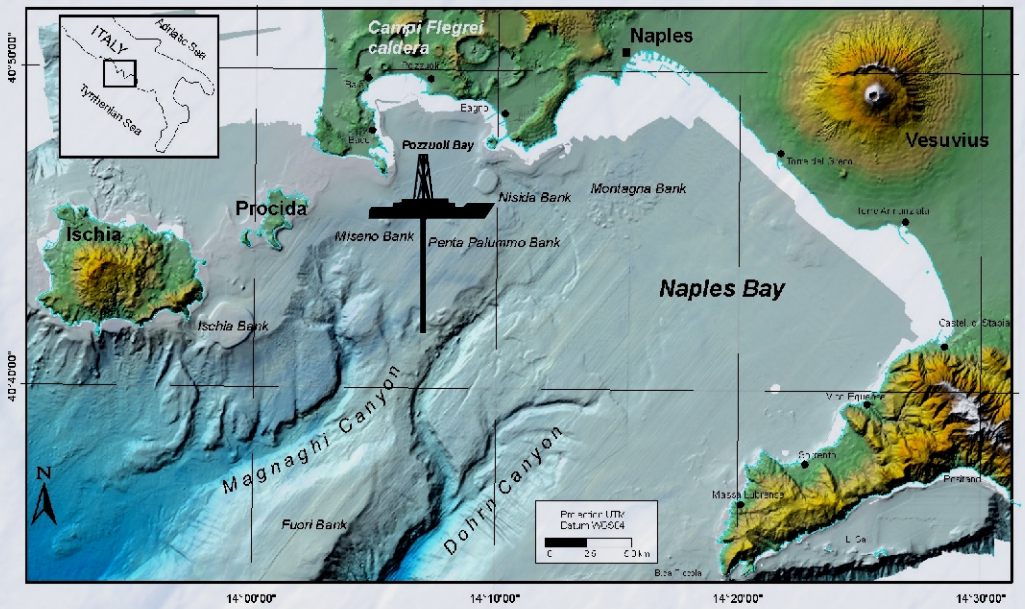
Campi Flegrei Caldera Deep Drilling Workshop

Napoli, 13-15 November 2006

Conference Centre - Città della Scienza, Via Coroglio, 57 - 80124 - Napoli

&

University of Napoli Federico II (Mineralogy Museum), Via Mezzocannone, 8 - 80128 - Napoli



FINAL REPORT

M. Sacchi

Co-sponsored by

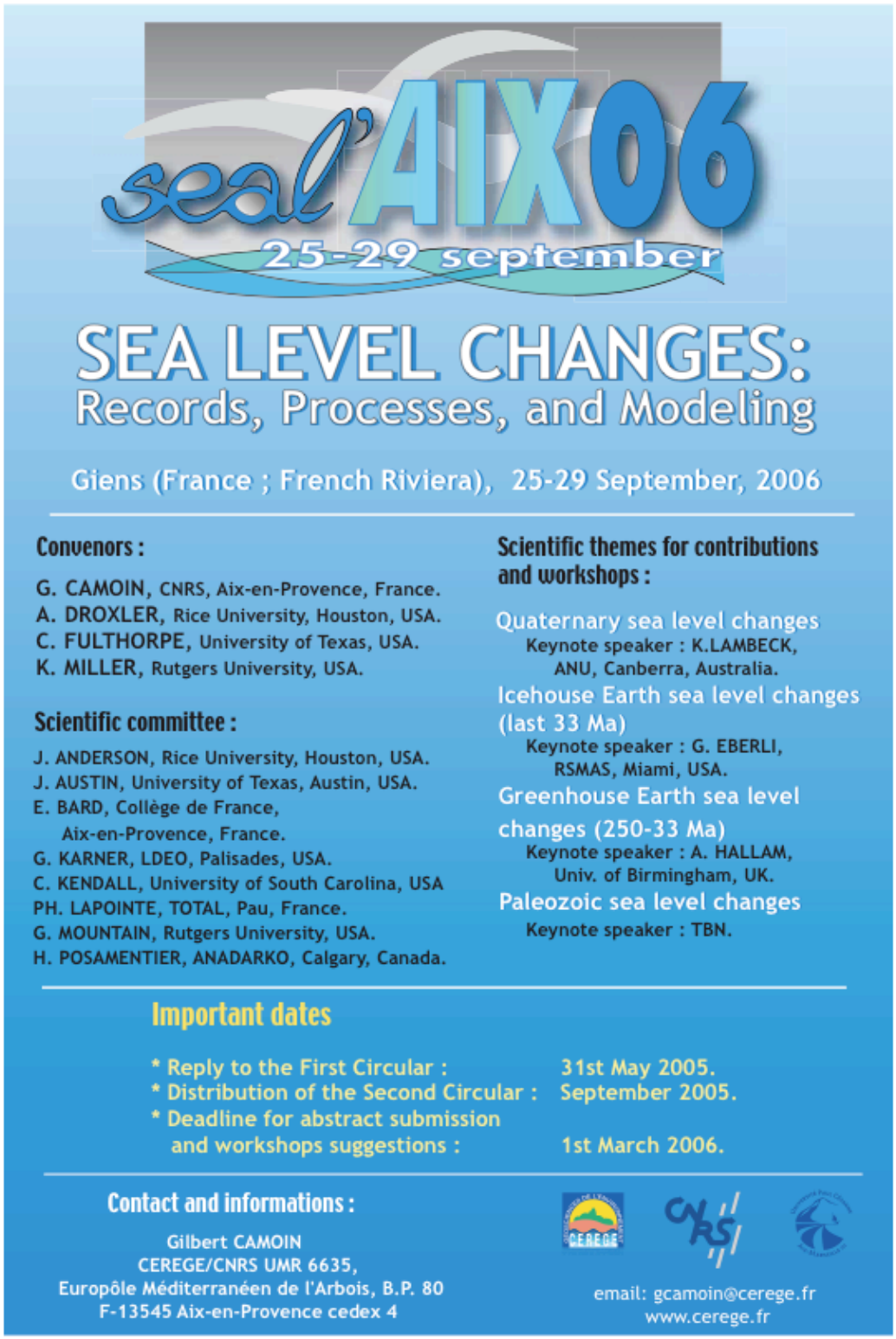
Institute for Coastal Marine Environment
Italian Research Council (CNR)

University of Napoli Federico II

Ordine dei Geologi
della Campania

European Consortium
for Ocean Research Drilling

Appendix 5.2: SealAIX'06 workshop report



SEA-LEVEL CHANGES :

RECORDS, PROCESSES AND MODELING

(SEALAIX'06)

Giens (France); September 25th-29th, 2006

From the 25th to the 29th of September 2006, a multidisciplinary international symposium on "Sea-level changes : Records, Processes and Modeling" was organized by Gilbert F. Camoin (CNRS-CEREGE, France), André W. Droxler (Rice Univ., USA), Craig Fulthorpe (Univ. Texas at Austin , USA) and Kenneth G. Miller (Rutgers Univ., USA). The international symposium attendees lived for five days in a secluded vacation village located along the spectacular Mediterranean rocky coast line in Giens, French Riviera, France. The organization of the Symposium benefited from the participation of the Scientific Committee members : J. Anderson (Rice Univ., USA), J. Austin (Univ. Texas at Austin , USA), E. Bard, (Coll. France, France) , G. Karner (EXXON, USA), C. Kendall (Univ. South Carolina, USA), Ph. Lapointe (TOTAL, France), G. Mountain (Rutgers Univ./LDEO, USA), H. Posamentier, ANADARKO, Canada).

This Symposium was sponsored by the International Association of Sedimentologists (IAS), the Society for Sedimentary Geology (SEPM), the Association des Sédimentologistes Français (ASF), the Centre National de la Recherche Scientifique (CNRS), TOTAL, and the Region of Provence-Alpes-Côte d'Azur.

The meeting brought together 160 researchers from 21 countries with different expertise and research interests (sedimentology, geochemistry, geophysics, climatology, modelling, tectonics, geomorphology, paleoceanography, biology). Travel and living expenses of 17 students, post-docs and young scientists were partially covered by the IAS, the SEPM and the Symposium itself.

The scientific contributions presented during the Symposium have covered the records and modeling of sea-level changes (amplitude and timing), as well as related sedimentary processes concerning a range of time windows from the Paleozoic to modern times, in a variety of depositional environments (e.g. reef systems, carbonate platforms, siliciclastic, and mixed margins, marginal seas, coastal and marsh environments, tidal flats, delta complexes etc.) occurring at various latitudes and in various tectonic settings (continental margins, volcanic islands, uplifted areas). The great majority of those studies were based on a multi-disciplinary and multi-proxy approach.

The Symposium has been structured around four themes corresponding to distinctive modes of the Phanerozoic Earth System : the Quaternary sea level changes with well developed high latitude ice sheets in both hemispheres, the Icehouse Earth sea level changes with a single major south hemisphere ice sheet (the interval between 3-33 Ma), the Greenhouse Earth sea level changes (250-33 Ma), and the Paleozoic sea level changes. Each of the four thematic sessions included one or two keynote addresses, invited talks, poster presentations (including highlights of the poster session in plenary session), and a workshop on current knowledge, future issues, and controversies regarding sea level records, processes, and modeling.

The first day (Sept. 25) was dedicated to last deglacial and recent sea-level changes with keynote address by A. Cazenave (CNES, France) and talks by A. Vött, K. Statteger, L. Fleitout, E. Gischler, G. Lericolais, R.G. Fairbanks, Y. Yokoyama, S. Jorry, J.P. Liu, J.B. Anderson, G.A. Milne, and Y. Saito.

A session on sea-level changes during the last glacial cycles occupied the second day (Sept. 26) with a keynote address by Kurt Lambeck (ANU, Australia) and talks by A. Simms, A. Thomas, M. Siddall, S. Goshal, S. Berné, P. Whitehouse, P. Kindler, W. Yim, E. Rohling, A. Dutton, B. Olson, and J.J.G. Reijmer.

The third day (Sept. 27) included two thematic sessions on the Icehouse Earth sea level changes (i.e. the last 33 Ma) and the Paleozoic sea level changes with keynote addresses by G. Eberli (RSMAS, USA) and B. Haq (NSF, USA) and talks respectively by G. Mountain, B. Van Vliet-Lanoë, A. Tripati, F. Fournier, J. Kenter, and P. Lapointe.

On the fourth and fifth days (Sept. 28 and 29), oral sessions have been devoted to the Greenhouse sea-level changes with a keynote address by A. Hallam (Univ. of Birmingham, UK) and talks by K.G. Miller, M.D. Simmons, C. Robin, J.-P. Cogné, E. Procter, R. Speijer, N. Rameil, M. Aurell, J. Spring, P. Schulte, and M. Bachmann, G. Dromart, D. Bosence, S. Hesselbo and E. De Man.

On the last afternoon (Sept. 29), an open discussion was organized to summarize the outcomes of the daily workshops.

A total of 75 posters were presented during the full length of the Symposium.
Extended abstracts are included in a 233-page abstract volume published by the Association des Sédimentologistes Français. Three special issues of Global and Planetary Change, Marine Geology , and Basin Research will include full papers related to this Symposium.
Some of the members of the scientific community working on sea level issues will gather again in October 2007 in Salt Lake City (JOI/USSAC/DOSECC/IODP/ICDP/CHEVRON where a workshop on "Drilling to Decipher Long-Term Sea-Level Changes and Effects") will be convened by C. Fulthorpe, K.G. Miller, A.W. Droxler, G. Camoin and S. Hesselbo.

Appendix 5.3: Reports from previous workshops

Investigating Continental Break-Up and Sedimentary Basin Formation

Sponsored by IODP-MI
Pontresina, Switzerland, 15-18 September 2006

Donna Shillington, National Oceanography Centre, Southampton

In September 2006, fifty-five scientists from all over the world gathered in Pontresina, Switzerland for an IODP Workshop on continental breakup (Coffin et al., 2006). The purpose of this meeting was discuss strategies for pursuing research on continental rifting and breakup using the platforms of the IODP: the new Japanese riser ship *Chikyu*, the US riserless ship formerly known at the *JOIDES Resolution*, and the mission-specific platforms of the European Consortium for Ocean Research Drilling (ECORD). Continental rifting throughout Earth's history has resulted in a broad range of margins with variable architectures, sedimentation, and amounts of magmatism. Consequently, a complete understanding of rifting cannot be addressed at only one or two locations. Furthermore, the processes that accommodate extension appear to change through time, from the initiation of extension to late-stage rifting and rupture, thus requiring investigations of rifts at different stages in their evolution. The meeting participants decided that the best way to advance our understanding of rifting with drilling was to develop a proposal for an IODP mission, which will be lead by John Hopper (Texas A&M, USA). An IODP mission represents an integrated strategy from the scientific community for addressing a key part of the IODP Science Plan that requires multiple drilling legs.

The meeting was organized by Dale Sawyer (Rice University, USA) and Millard Coffin (University of Tokyo, Japan) to bring together observational scientists and numerical modelers from both academia and industry who are studying various aspects of rifting. Key-note speakers gave overviews of magmatic (Sverre Planke, Volcanic Basin Petroleum Research, Norway) and magma-poor rifting (Timothy Reston, University of Birmingham, UK), the role of IODP in addressing scientific questions regarding rifting (Tony Watts, Oxford University, UK), and the drilling capabilities of the IODP platforms (Greg Myers, IODP Management International). Other participants also gave presentations on their research and ideas for drilling. Gianreto Manatschal (University of Strasbourg, France) lead a field trip to examine the exhumed mantle rocks of the ancient Adriatic margin of the Tethys ocean, an example of a highly extended, magma-poor margin. Further discussions took place both in breakout groups and as an entire group. The scientific questions that arose in presentations, during the field trip and in discussions could be divided into six themes: 1) rift initation, 2) tectonic and dynamic aspects of rift development, 3) magmatic aspects of rift development, 4) sedimentary, paleoenvironmental, and oceanographic aspects of rift evolution, 5) initiation of seafloor spreading, and 6) consequences and impact. As these themes cover the fundamental processes and consequences of rifting, they will serve as a framework for designing the mission proposal. The participants also made a tentative list of key localities for drilling extensional systems, including the active rifts of Gulf of California and Woodlark Basin, highly magmatic margins (e.g., the conjugate east Greenland-Norweigian margins or the Western Australian margin), the highly extended, magma-poor margins of Newfoundland-Iberia, and the margins of the South Atlantic. A mission break-up proposal is currently under development by a team lead by John Hopper and will be submitted for the 1 April 2007 IODP deadline.

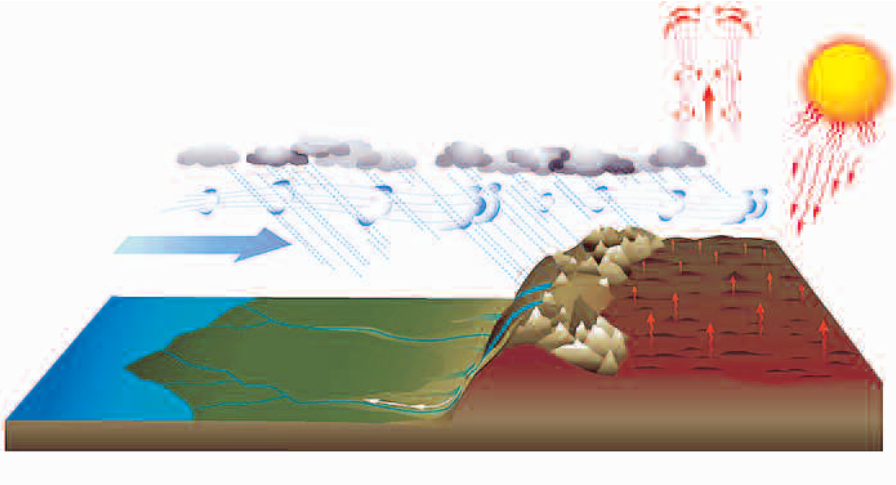
COFFIN, M F, SAWYER, D S, RESTON, T J, and STOCK, T M. 2006. Continental Breakup and Sedimentary Basin Formation. EOS, Vol. 87, 528-529.

Planning Climate–Tectonic Drilling in the Asian Marginal Seas Kochi, Japan, June 2006

Peter Clift (School of Geosciences, University of Aberdeen)

Understanding the evolution of the global climate system is a major scientific goal for Integrated Ocean Drilling Program (IODP). While the influence of orbital forcing on climate has been the subject of numerous earlier, high–resolution drilling legs the influence that the solid Earth has had on climate development is less well documented. Together with the opening and closure of oceanic gateways the uplift of orogenic plateaus is believed to have a major impact on regional and even global climate, a hypothesis underlined by increasingly sophisticated numerical modelling. Of all the proposed interactions the effect of topographic uplift of the Tibetan Plateau on the intensity of the Asian monsoon is regarded as the classic example of climate–tectonic coupling. In its simplest form it is suggested that rapid uplift of Tibet, possibly triggered by loss of dense mantle roots, caused monsoon intensification recorded in the Arabian Sea and South Asia around 8 Ma. However, advances in palaeo–altitude studies across the Tibetan Plateau make this intensification had to correlate in detail with solid Earth processes because southern and central Tibet appear to have been close to their modern altitude by at least 15 Ma and possibly as early as 35 Ma. Unfortunately existing monsoon records in South Asia only extend to around 18 Ma, making detailed correlation of climatic and tectonic histories impossible over truly tectonic timescales. The new drilling capabilities of IODP compared to Ocean Drilling Program (ODP) now allow this science to progress, because for the first time the community has the technology to recover climatic and erosional records from the thick sedimentary sequences that have accumulated on the Asian margins during the Cenozoic.

A proper resolution of how solid Earth tectonism controls monsoon intensity requires long duration monsoon climate records, coupled with matching tectonic and erosion reconstructions. Six proposals presently exist in the IODP system addressing this issue, spanning a variety of timescales and geographic regions. The Bengal Fan attracts particular attention as the world's largest sediment body and possible repository of enough carbon to have strongly affected



Cenozoic global climate. Quantifying the rate of sediment and carbon burial on the Bengal Fan is central to understanding climate–tectonic interactions in Cenozoic Asia. Although studying "core" areas of the monsoon is important this does not diminish the need for drilling in "far field" regions, which are particularly sensitive to changes in the strength and extent of the monsoon. The Arabian Sea has long been a key area for monsoon studies because it was in this region, on the Oman margin, that the initial indications for an 8 Ma monsoon were derived following ODP Leg 117. As a result the erosion record preserved in the Indus submarine fan can be readily interpreted using the existing climate records, which nonetheless need to be extended to tectonic timescales, i.e., as old as the India–Asia collision ~50 Ma, not the 14 Ma available at present.

At the other end of the monsoon's sphere of influence scientific drilling is planned in the Sea of Japan. However, in NE Asia it is the winter rather than summer monsoon that dominates the marine sedimentary record, because the westerly jet transports eolian dust from the deserts of central Asia into the Sea of Japan and North Pacific. In addition, the enclosed nature of the Sea of Japan makes its oceanography highly sensitive to continental run–off, supplied by river swollen by summer monsoon rains. Future IODP operations target both the relationship between winter and summer monsoon strength, as well as the links between East and South Asian monsoons. Although both monsoons are influenced by Tibetan topography the East is also affected by the intensity of the Western Pacific Warm Pool, itself a Miocene feature, while the South Asian monsoon is modelled as being partly controlled by African topography, and localized uplift in the Karakoram.

Monsoon drilling has been planned for several years and is largely based on the results of ODP operations in the Arabian and South China Seas (Legs 117 and 184). Workshops on East Asia ocean–continent interactions and the Indian Ocean submarine fans were convened in 2002 and 2003 respectively. More recently a workshop sponsored by UKIODP, JOI and JAMSTEC was held in June 2006 in Kochi, Japan to discuss plans for climate–tectonic drilling in SE Asia. This region is of special interest because it is an area where the summer monsoon is especially strong, and the rivers of the region incise the edge of the Tibetan Plateau, but crucially the clastic sediment budget is not influenced by the immense sediment flux from the Himalaya, which masks Tibetan erosion into the Indian Ocean. The proposed drilling strategy is based on the idea that plateau uplift must influence the rate of erosion because of gorge incision and as a result of monsoon intensification. The meeting reviewed recent research advances in the marine geology of the South China Sea, as well as the tectonics of eastern Tibet. Existing plans proposed to IODP were discussed, together with needs for further proposals to fill gaps in the existing

proposals. Proposed drilling targets the temporal evolution of the delta and fan sediments of the Mekong and Red Rivers, as these record the evolving continental climate and the erosional response to a changing monsoon. Changing provenance of the rivers can also be used to examine the change in regional topography. It has been suggested that the unusual, non–dendritic drainage patterns seen in eastern Tibet and SW China relate to the disruption of an ancestral river system that was forced to reorganize as regional topographic gradients changed and headwaters were transferred from one river basin to another. Several of major rivers now discharging sediment into deltas in the South China Sea including, the Mekong, Red and Pearl Rivers are central to the evolving drainage model. Drill sites within their offshore deposits will test the nature and timing of this drainage evolution through detailed provenance studies.

Future workshops aimed at IODP climatic–tectonic science are now planned. 26–28th September 2007 will see a European Magellan workshop on climate–tectonic drilling hosted at the University of Bremen, Germany. European scientists are at the forefront of the science and this workshop is designed to bring this community together to best exploit the opportunities for advance within the framework of IODP. The meeting is also open to the wider ocean and Earth science community in an attempt to involve new workers, both in marine and terrestrial geology. Because monsoon–tectonic studies necessarily draw on both marine and terrestrial data the meeting will invite those working on the geology of continental Asia, as well as the marginal seas to develop a coherent and integrated science plan. The results of the Magellan workshop will further shape a mission proposal for climate–tectonic drilling across Asia. The "Monsoon and Tectonics" mission, submitted in spring 2007 aims to bring together the six existing monsoon–related proposals into a single science plan, spanning the entire geographic range of the monsoon, as well as providing long duration climate records. A dedicated, IODP–funded workshop designed to provide further community input to the mission plan is being planned for early 2008, to be held in Shanghai, China. Climatic–tectonic drilling represents a key area of study that will ensure the success of IODP and fulfilment of its stated science plan. At the same time this initiative provides multiple research opportunities for UK–based scientists to contribute to a truly interdisciplinary science project that will require contributions from a wide range of sub–disciplines within the Earth, ocean and atmospheric sciences.

Scientific drilling of the Chicxulub Impact Crater
Joint IODP/ICDP workshop
GeoForschungsZentrum, Potsdam, Germany, 11–12 September 2006

Joanna Morgan (Imperial College London)

The purpose of this workshop was to discuss future drilling of the Chicxulub impact crater, with the objective of advancing our understanding of Chicxulub, large impact craters in general, and the mass extinction event 65 million years ago. Fifty scientists from eleven countries attended the workshop. The UK participants included Joanna Morgan and Gareth Collins (Imperial), Penny Barton (Cambridge University), and Charles Cockell (Open University). During the first day 10 keynote speakers reviewed the current state–of–knowledge, showed results from previous drilling, and presented new seismic data acquired across the crater in 2005. On the second day we discussed potential new drill sites, their scientific priority and associated logistics.

Summary of Presentations on Day 1

The Chicxulub impact structure, Mexico, is unique in the terrestrial impact record. The Chicxulub catastrophe represents a critical event in the evolution of the Earth. Understanding Chicxulub's formation is, thus, critical to understanding its immediate effects on the Earth's environment and ecology. Chicxulub is also unique in the larger planetary context in that it is the only known large terrestrial impact basin with a demonstrable topographic peak ring. Peak rings are a diagnostic characteristic of large impact structures on the other terrestrial planets, but details of their nature are limited to information based on remote sensing from planetary missions. Understanding peak ring formation is particularly important as numerical models suggest that peak–ring diameter is diagnostic of impact energy.

Chicxulub is the best–preserved large impact crater on Earth, and the only known terrestrial impact structure to have impactites within the crater, proximal ejecta deposits outside the crater, and distal ejecta deposits around the entire globe. Hence, the entire impactite and ejecta sequences of a large impact event with global consequences for the Earth are available for examination.

A wealth of geophysical data now exist across and beyond the crater structure, which, along with a number of oil industry drill holes and a drilling campaign by UNAM (Universidad Nacional Autónoma de México) and ICDP, have provided invaluable insight into the structure of Chicxulub (Figure 1). Participants agreed that, following the successful Yaxcopoil–1 (Yax–1) drilling in 2002 and NERC/NSF funded seismic experiment in 2005, we now had a better understanding of this impact structure, and were well placed to identify future targets for a focused drilling campaign.

Summary of Discussions on Day 2

Two holes were identified as critical in advancing our understanding of cratering mechanisms: one onshore through the melt sheet in the central basin and one offshore through the structure's topographic peak ring (Figure 1). The offshore hole is targeted at understanding peak rings, for which there is currently no direct knowledge of their material make–up or precise formational mechanism. The onshore hole is targeted at understanding impactite formation and emplacement at a large impact structure, and at determining the total volume of melt produced by this impact. This will improve energy–scaling laws, which are poorly defined for large crater sizes but vital for assessing the environmental effects of this impact.

The proposed offshore IODP hole is aimed at providing understanding of the internal structure of the peak ring and the nature of important inward–dipping seismic reflectors (Figure 1). The minimum depth of this hole was considered to be 3km. The lithologies expected include ~700m of post–impact sedimentary fill, and 2.3km of peak–ring forming material. At depths of >2.35km the hole will intersect a suite of dipping reflectors that can be traced downward and inward from the outer edge of the peak ring to the inner edge of the slumped blocks at depth. If the peak ring material displays inverted stratigraphy, as predicted by some numerical models, these reflectors may represent the boundary between outward collapsed materials from an originally

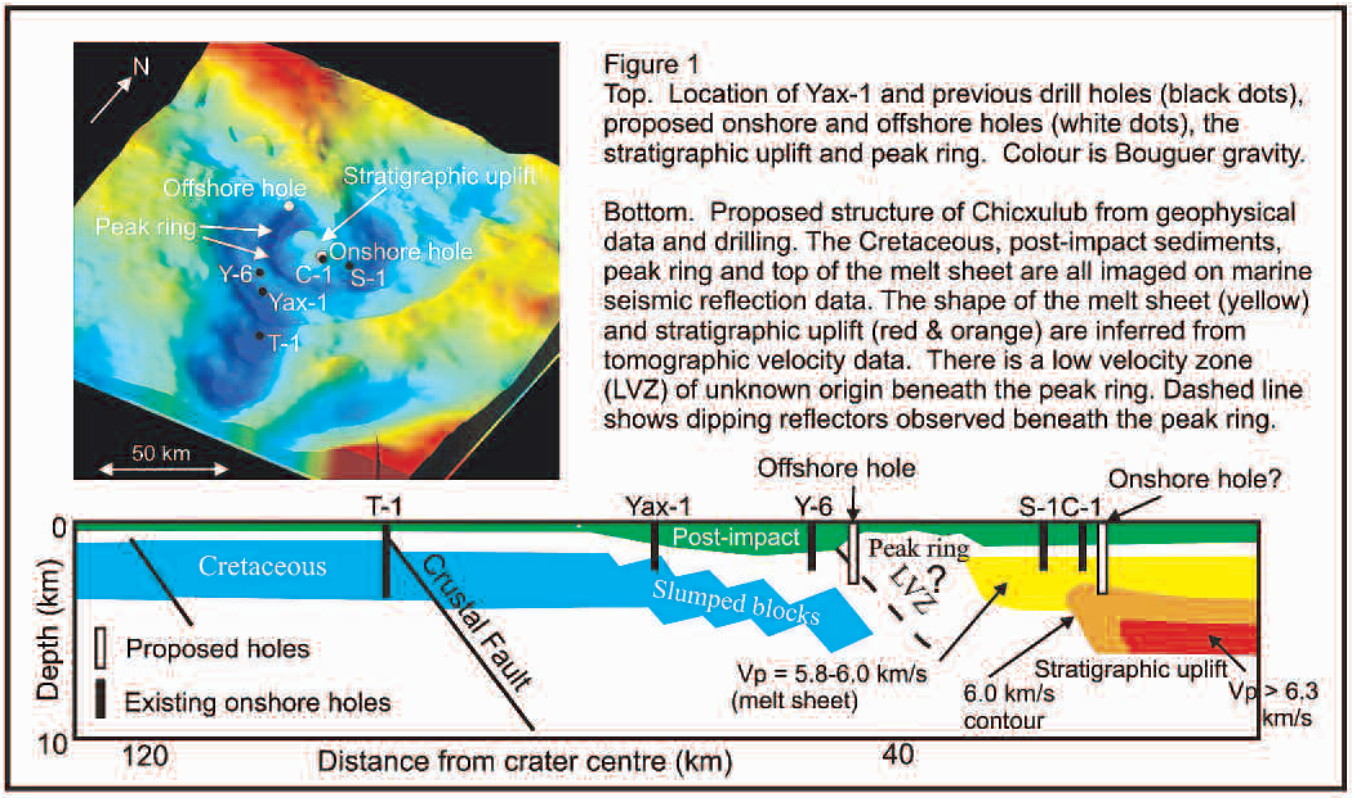


Figure 1
Top. Location of Yax-1 and previous drill holes (black dots), proposed onshore and offshore holes (white dots), the stratigraphic uplift and peak ring. Colour is Bouguer gravity.

Bottom. Proposed structure of Chicxulub from geophysical data and drilling. The Cretaceous, post-impact sediments, peak ring and top of the melt sheet are all imaged on marine seismic reflection data. The shape of the melt sheet (yellow) and stratigraphic uplift (red & orange) are inferred from tomographic velocity data. There is a low velocity zone (LVZ) of unknown origin beneath the peak ring. Dashed line shows dipping reflectors observed beneath the peak ring.

overheightened central uplift and inward collapsed materials from the transient crater rim. This hole will, therefore, determine the fundamental character of the lithologies above and below the dipping reflectors, the physical state of the peak ring material, the cause of the seismic reflectivity, and the fundamental properties of a peak ring structure.

The proposed onshore ICDP hole is near the crater centre through the entire impactite sequence, in particular the suevite, the underlying coherent melt sheet, the crater floor materials, and the crystalline rocks of the stratigraphic uplift (Figure 1). The minimum depth of this hole was also considered to be about 3 km, to ensure penetration of the entire melt sheet. Major scientific targets of this hole are to mineralogically and geochemically characterize the entire suevite and coherent impact melt rock sequence, and to determine variations in the amount, composition and degree of shock of clasts in both of these impactite layers with depth (to be compared with results of ICDP drilling at Yax–1). We will also investigate the degree to which the coherent melt sheet is differentiated, search for a projectile component, and document the lithologies above and below the melt sheet, including any mineralization due to post–impact hydrothermal activity. Core logging and physical properties measured within the hole, together with existing seismic, magnetic, and gravity data, will facilitate the production of a well–constrained 3D geophysical model of the interior of the crater, including a much improved estimate of total impact melt volume.

In both holes we will encounter thick sequences of post–impact rocks, and these will be used to reconstruct the sedimentological history and paleo–sea level and paleo–climate changes throughout the Cenozoic, including post–impact subsidence and modification of the original crater topography. Biota analysis will allow us to study the post–impact recovery of life and also provide an understanding of how the deep subsurface biosphere can be influenced by geological and geochemical changes induced by impact long after the impact itself. Geochemical data will be used to investigate the nature and timing of impact–generated hydrothermal systems, which are predicted to be significant within the peak ring and central basin.

There was unanimous support for a joint IODP–ICDP planning and execution of the entire drilling efforts, including sample and data handling.

Actions taken following the workshop

In October 2006 we submitted an addendum to drilling proposal IODP–548 outlining the scientific targets of the peak ring hole, and in January 2007 we submitted new site survey data to the IODP databank. In January 2007 we submitted a full proposal to ICDP to request financial support for the onshore hole.

Acknowledgments

The workshop was jointly sponsored by the International Continental Scientific Drilling Program (ICDP) and the Integrated Ocean Drilling Program Management International, Inc. (IODP–MI). NERC IODP provided travel support for U.K. participants.

In Brief

PAGE 538

Arctic continues warming trend The Arctic continued to show signs of warming in 2001–2005, according to a report authored by a group of international scientists and released on 16 November by the U.S. National Oceanic and Atmospheric Administration. These signs include a continued reduction in the extent of sea ice, which reached a record minimum in 2005. An increase in the northward transport of ocean heat through the Bering Strait in 2001–2004 is believed to be a factor in the loss of sea ice. The State of the Arctic Report also documented increasing permafrost temperatures and increasing greenness of tundra vegetation. The report is available online at http://www.arctic.noaa.gov/

—SARAH ZIELINSKI, Staff Writer

Twin satellites to study Sun Twin satellites of the Solar Terrestrial Relations Observatory (STEREO) mission, launched by NASA on 25 October, promise to provide scientists with three-dimensional views of the Sun and solar wind. The satellites also will help with exploring the origin, evolution, and effects of coronal mass ejections (CMEs). CMEs can hurtle billions of tons of solar plasma into interplanetary space, which can disrupt satellite systems, radio communications, and power grids. CMEs also can pose hazards to space-faring astronauts. STEREO's satellites will monitor CMEs in three dimensions, with one spacecraft flying behind the Earth at a slightly wider orbit and another flying ahead at a slightly narrower orbit, allowing for depth perception. Instrument packages mounted on each satellite also will observe properties of solar particles and track radio disturbances that move from the Sun to the Earth. Data will be used to help predict adverse space weather events. For more information, see http://www.nasa.gov/mission_pages/stereo/main/index.html

—MOHI KUMAR, Staff Writer

MEETINGS

Mission Moho: Formation and Evolution of Oceanic Lithosphere

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The formation and evolution of the oceanic lithosphere is the dominant process in the chemical differentiation and physical evolution of our planet. Plate tectonic processes completely repave the ocean basins every 100–200 million years. Lithosphere formation encompasses the transfer and transformation of material and energy from Earth's mantle to the crust and from the crust to the ocean and atmosphere. Independent of sunlight, the evolving ocean crust supports life in unique seafloor and subseafloor habitats that may resemble Earth's earliest ecosystems. From its formation until its return to the mantle by subduction, the evolving oceanic lithosphere interacts with seawater, sequesters water and other materials, and ultimately recycles them back into the mantle.

Mission Moho is the culmination of a four-decade quest by the Integrated Ocean Drilling Program (IODP; http://www.iodp.org) and its predecessors (Ocean Drilling Program, Deep Sea Drilling Project) to increase our understanding of the oceanic lithosphere through deep scientific drilling. The Moho (Mohorovičić discontinuity) is a seismically imaged interface assumed to represent the transition between the Earth's crust and its pristine mantle. To date, this elusive frontier has been a symbolic goal for many geologists but beyond the reach of available technology. With the recent commissioning of IODP's new riser-drilling vessel, D/V *Chikyu*, the technically challenging goal of drilling to and through the Moho has become feasible.

The Mission Moho workshop was convened to provide guidance on the scientific and operational framework of a 'Mission Moho' for IODP, by redefining scientific objectives and proposing elements of a global strategy to understand processes that drive the formation and evolution of the oceanic lithosphere. The Mission Moho project will provide the scientific framework and encourage the technical development that will ultimately allow scientists to drill to and beyond this 'last frontier.'

The journey to the Moho will involve a huge technological and logistical effort, but the rewards will be manifold. As progressively deeper and more technically challenging drill holes probe and sample the ocean crust, scientists will be able to examine the primal architecture of the ocean crust and ultimately sample Earth's uppermost mantle, the driver of plate tectonics.

Mission Goals

Current understanding of the deep structure and composition of ocean crust, although limited, has been increasingly influenced by data and samples from a relatively small number of boreholes in areas where deep crustal rocks have been exposed at the seafloor by faults. Since the early 1970s, the standard model of a uniformly layered ocean crust has evolved. Continuous investigations using ocean drilling and other marine geological tools have led to a more detailed and spatially variable picture of crustal architecture.

Ocean crust created at fast-spreading ridges appears to be uniformly layered and relatively homogeneous, reflecting a relatively uniform mode of accretion. In contrast, ocean crust created at slow- and ultraslow-spreading ridges is spatially heterogeneous over distances as small as a few hundred meters.

For example, at some ridge segment centers in the northern Atlantic, magmatic processes dominate, and accretionary processes resemble those of fast-spreading ridges. Toward segment ends, however, accretion is much more heterogeneous, and even discontinuous. In such areas, the ocean crust consists of a mixture of serpentinized peridotite and gabbroic intrusions, locally capped by lavas with or without sheeted dikes. Because of this heterogeneity, workshop participants recognized that the primary Mission Moho objective of full crustal penetration must be supplemented by studies of spatial and tem-

poral variability if a comprehensive understanding of the origin and evolution of the ocean lithosphere is to be achieved.

Despite the heterogeneity of oceanic lithosphere, a clear consensus emerged among workshop participants: that drilling a deep, full crustal penetration hole through the Moho and into the uppermost mantle at a single site is the first priority and that Mission Moho planning should focus on achieving this goal as soon as it is feasible.

Drilling and sampling a complete crustal section will enable scientists to accurately estimate the bulk composition of the crust; understand the extent and intensity of hydrothermal exchange between the ocean crust and seawater; establish the chemical connections between the lavas that erupt at the seafloor and the melts that leave the mantle; more accurately estimate the chemical flux returned to the mantle by subduction; test competing models of lower crustal magmatic accretion; calibrate regional seismic measurements and the layered-crust models derived from them; better understand the origin of magnetic anomalies; and determine cooling rates of the lithosphere. Only by sampling across the crust-mantle boundary will we be able to define, at least in one place, the geological meaning of the Mohorovičić discontinuity; determine the in situ composition of the uppermost mantle and its deformation; and address details of the physics and chemistry of mantle melt migration.

There was also a clear consensus that the first full-penetration hole should be in fast-spread ocean crust. Although only 20% of the modern mid-ocean ridge system is fast-spreading (> 80 millimeters per year), more than 50% of present-day ocean crust (representing 30% of the Earth's surface) was created at fast-spreading ridges. Well-developed theoretical models encompassing several possible styles of magmatic accretion at fast-spreading ridges already are available. Hence, an understanding of accretion processes based on one site might reasonably be extrapolated to describe a significant portion of the Earth's surface.

Workshop participants also agreed that complementary studies of slow-spread lithosphere will be essential to fully understand the architecture of the ocean crust. Studies that explore crustal structure and the nature of the Moho in slow-spread lithosphere will supplement the vision gained from fast-spread crust. Wherever studied, slow-spread crust is laterally heterogeneous. Crustal sections often are complicated by fault-emplaced, serpentinized peridotites of mantle origin.

Despite this complexity, the (seismically defined) Moho usually is well defined. Current hypotheses are that the Moho in slow-spreading environments is (1) the boundary between residual (after melting) upper mantle rocks and an intrusive igneous crust, (2) a broader zone of interlayered ultramafic and mafic rocks, (3) an alteration front caused by deep penetration of water (serpentinization), or (4) any combination of these three. Carefully targeted deep drilling is needed to assess these hypotheses and related questions, including the role of serpentinization in modifying seismic signatures, and especially in the transition from 'crustal' to the higher 'mantle' seismic velocities of around eight kilometers per second.

The extent to which existing or planned drilling projects in slow-spread crust should be included in a Mission Moho was not resolved at the workshop. Criteria for inclusion of such projects will have to be defined by a mission proponent team.

Mission Strategy

It is imperative that any site chosen for a deep penetration hole be thoroughly investigated and characterized geophysically, geologically, geochemically, and petrologically, meeting participants agreed. Boreholes are spatially limited, and they need to be understood in their broader context. Spatial context for IODP holes is provided by appropriate site surveys, which can occur before or after drilling. Essential complementary knowledge can be gained by field studies in dismembered pieces of oceanic lithosphere found on land (ophiolites), in particular the Oman ophiolite, and by IODP drilling in tectonically exposed lower crustal and upper mantle rocks.

Drill holes in such windows of opportunity provide important 'shortcut' access to environments otherwise difficult to access. Studies of accretion processes, hydrothermal alteration, and physical properties in these areas will lead to improved models and better experimental designs as we progress to deeper and deeper holes.

Penetrating the entire ocean crust will require the enhanced well control provided by riser-drilling technology. The world's only scientific riser D/V (drilling vessel) *Chikyu* ('Earth' in Japanese; http://www.jamstec.go.jp/chikyu) currently is undergoing system integration tests. *Chikyu*'s first multiple platform IODP project involving both riser and riserless drilling is scheduled in the Nankai Trough beginning in September 2007. For eventual penetration of the oceanic fast-spread crust, a technically challenging modification of the riser from the current 2500-meter maximum depth to 4000–4500 meters will be required.

The construction of such deep-water riser capability recently was included as one of five domestic science and technology high priorities by the Japanese government. Even with this depth capability being available sometime after 2010, the journey to the Moho will be long and the number of potential sites–on seafloor that is old enough (>15 million years) and therefore cold enough for deep drilling in fast-spread crust is limited.

IODP recently has established deep holes at two complementary sites. Hole U1309D (1415 meters below seafloor) has recovered a complex series of gabbroic rocks from slow-spread Atlantic Ocean crust. Hole 1256D (1507 meters below seafloor) has, for the first time, penetrated the entire pillow basalt and sheeted dike sequence in super-fast-spread crust of the eastern Pacific Ocean, terminating in the transition between sheeted dikes and underlying gabbros. Both holes remain open and very likely will be deepened in coming years.

Site 1256 is a potential location for a deep penetration crustal hole and much can be learned from continued drilling at this site. At the same time, potential alternative sites need to be identified and evaluated before a final full crustal penetration site is selected.

The Mission Moho Workshop, cosponsored by IODP Management International, the Joint Oceanographic Institutions, Ridge 2000, and InterRidge, was held 7–9 September 2006 in Portland, Ore. A full report of the meeting will be available online at http://www.iodp.org in early December.

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Global Look at Salt Giants

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Water basins with narrow outlets can preserve vast thicknesses of evaporites, known as salt giants, which are thought to form when marginal basins or subbasins are cut off from the main oceanic basin and the water evaporates. Sea salt precipitates and is deposited on the basin floor. They are potential frontiers for challenging research on structural, tectonic, biogenic, and fluid dynamic evolution. These structures are of global importance because they strongly affect the structural, chemical, and biological evolution of sedimentary basins.

Salt giants are also key indicators of regional environmental changes. Thick sequences can strongly influence the structural, chemical, and biological evolution of a host sedimentary basin. Fluid inclusions within salt may retain so far unknown ice-core-like microbial habitats of great importance. Some of the world's most important hydrocarbon reservoirs are related to salt structures. Quantitative understanding of salt dynamics and associated fluid flow and structural slumps is also necessary to assess geohazards and hydrocarbon exploration and production risks.

Despite their global occurrence and general importance within the Earth system, there is an almost total lack of knowledge of the early processes that formed salt giants in deep-sea basins. The petroleum industry regularly drills thick evaporite sequences but usually only in places where the evaporites have been massively remobilized. There is no complete stratigraphic record of any thick deep-sea evaporite basin in a relatively undeformed state. This needs to be rectified, and we are now proposing a future campaign of academic drilling by the Integrated Ocean Drilling Program (IODP) using the new riser ship, the *Chikyu* (Japanese for Earth).

This article identifies future research needs, including a detailed description of research goals of a proposed IODP expedition to the Mediterranean, critical to further research on salt giants.

New Concepts for Salt Giant Evolution: A Global Perspective

In the global context, drilling a relatively young salt giant (one less than 6 million years old) provides a unique opportunity to understand the impact of highly ductile salt layers on the early structural evolution of sedimentary basins. Recently released two- and three-dimensional seismic reflection data show that young salt giants can have a layer-cake-like structure and thus may retain a coherent stratigraphic record in contrast to structures such as salt inclusions and dykes. Evaporites and enclosed layers of eroded rocks may trap fluids that could then influence the mechanical behavior of a salt giant. Even without external forcing, young salt giants seem to be extremely mobile during salt precipitation.

Scientific drilling is an essential tool to calibrate available seismic data in order to help understand the geological processes related to salt giant evolution. Recent publications provide compelling evidence of fluid flow throughout >1000-meter-thick evaporite sequences [*Gradmann et al.*, 2005; *Netzeband et al.*, 2006]. Seismic characteristics of evaporitic sequences suggest the existence of different densities and compositions and thus of different evaporite cycles and environmental conditions. The cyclicity is controlled by sea level and mean salinity; for instance, the precipitation of rock salt requires more than twice the salinity than when gypsum precipitates.

Such facies variation is likely to be expressed in microbially associated communities because the flux of saline fluids, nutrients, dissolved organic matter, and sulfates, and sulfides likely combines to influence the microbiological habitat above and below the salt as well as within. Boundaries within and between regions of different evaporate composition, called 'active interfaces,' may provide stimuli for microbial life. Active interfaces may also exist at the lower and upper evaporite sequence boundaries.

A high salt content may lead to improved preservation of reactive organic matter between the evaporitic layers, which themselves contain sulfate (e.g., gypsum/anhydrite), and to enhanced preservation directly above these layers, where sulfate-depleted pore water and organic-rich sediment can exist. Intense

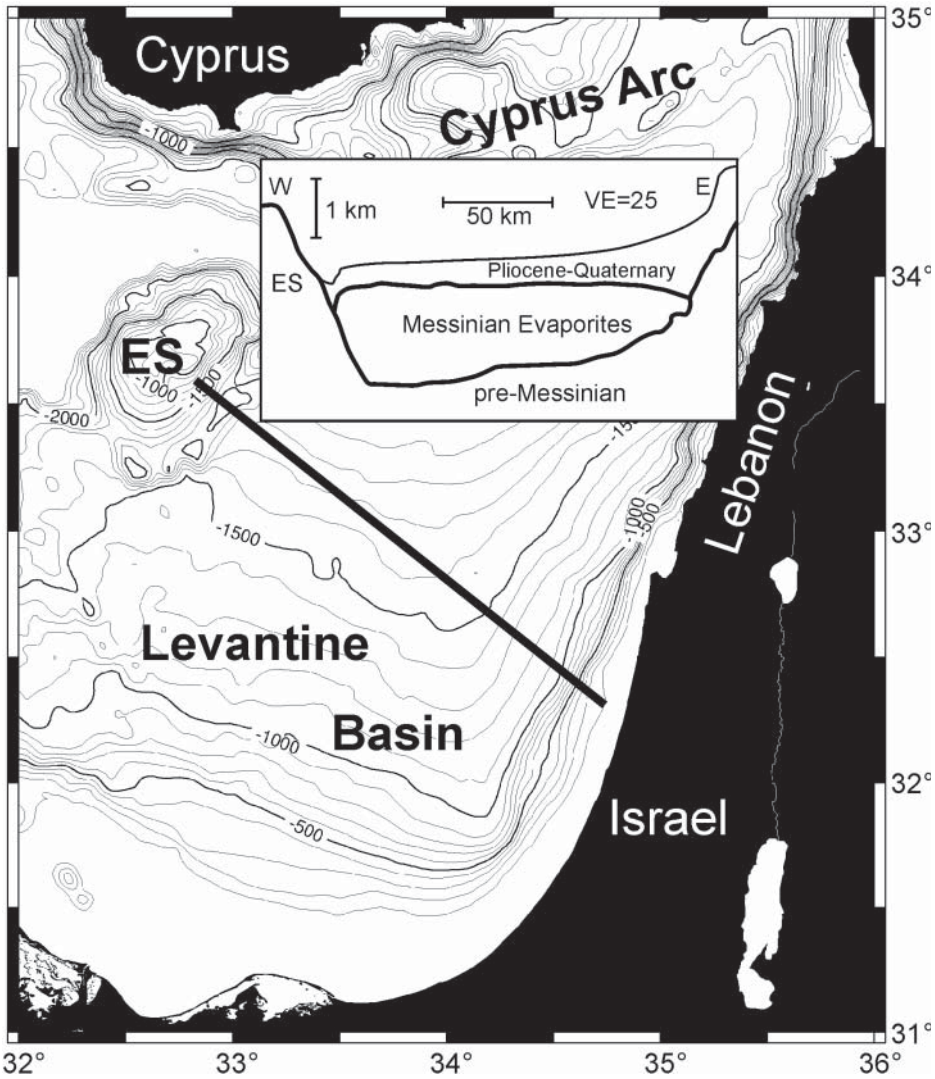

Fig. 1. Map of the Levantine Basin with cross section showing the up to 2-kilometer-thick Messinian evaporites between the Israeli shelf and the Eratosthenes Seamount (ES) [after Netzeband et al., *2006]. The overburden is between 2 and 4 million years old (of Pliocene-Quaternary age). VE represents the degree of vertical exaggeration.*

By C. Hübscher, J. Cartwright, H. Cypionka, G. J. De Lange, A. Robertson, J.-P. Suc, and J. L. Urai

microbial activity is anticipated at the interface between anhydrite and reactive organic matter, as seen in specific gypsum deposits on land. Although major methane accumulations are not expected below layered salt giants, some methane is likely to be present. Any methane or anhydrate-sulfate at an active microbial interface would represent an attractive food source.

Salt giants are also potential, but still unexploited, climate archives. Repeated cycles of evaporitic/nonevaporitic deposition can be viewed as an ice-core-like archive of microbial life that was captured during cycles of paleoenvironmental change. Research that catalogs climate signatures from salt giant cores is important, as it may potentially fill in gaps in regional climate records.

However, all existing models and theories were derived from geophysical measurements or theoretical considerations. The true physical, chemical and biological nature of young salt giants is speculative and has to be verified or falsified by ground truthing methods such as drilling.

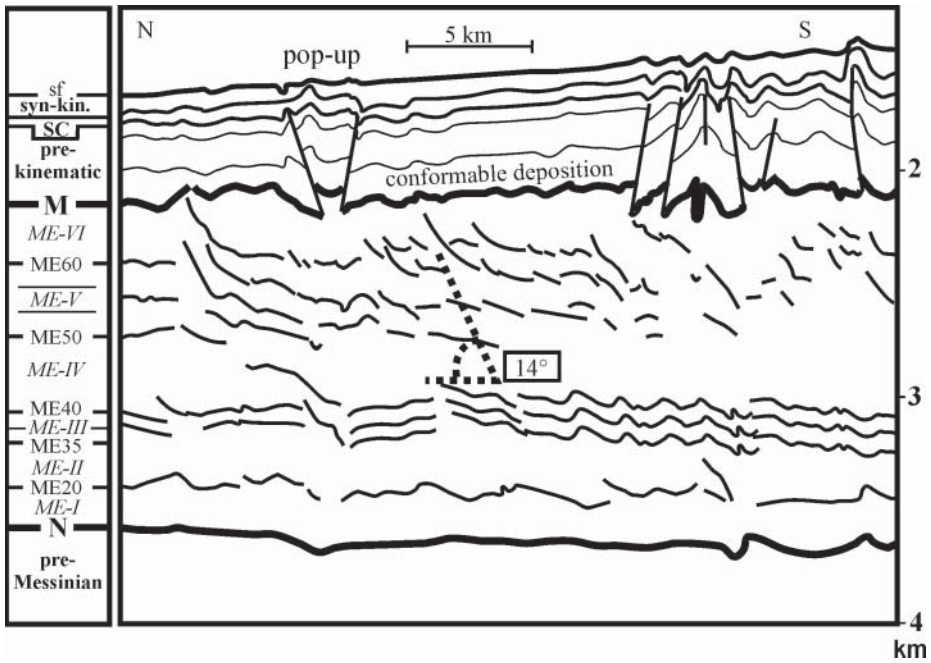

Fig. 2. Line drawing of pre-stack depth migrated seismic section showing intraevaporitic sequences labeled ME-I to ME-VI [after Netzeband et al., *2006]. M marks the top of the Messinian evaporates, and N marks the base. Each of the intraevaporitic sequences is independently deformed by folds and (thrust) faults. Horizons are labeled ME20 to ME60 according to* Bertoni and Cartwright *[2007]. Sf represents the seafloor, and syn-kin refers to synkinematic layers deposited during a phase of deformation. The Pliocene-Quaternary overburden is subdivided into a prekinematic and postkinematic succession. The layer labeled SC correlates with a slump complex off Israel [*Frey-Martinez et al., *2005].*

Drilling the Messinian Salt Giant

With the aim of stimulating international interest in salt giant research, a meeting was convened in Hamburg, Germany, during 10–13 October 2006, as a Magellan Workshop sponsored by the European Science Foundation. This meeting brought together scientists from a wide variety of disciplines related to salt giant research in order to kick off joint efforts for a future salt giant drilling proposal within IODP. The participants agreed that the coring of a complete evaporite sequence is prerequisite for an understanding of the tectonic setting, stratigraphy, biosphere, and fluid dynamics. Individual working groups also outlined the basic requirements for a proposal for the IODP to study a juvenile salt giant for the first time.

A major goal of the workshop was to identify the most promising site to drill a salt giant for the first time. It is preferable to drill a young salt giant because its preservation and record are likely to be better than that of an older deposit. The world's youngest salt giant is the Mediterranean Messinian evaporite that was deposited during the Messinian Salinity Crisis (MSC) that occurred roughly between 5.3 and 6.0 million years ago (Figure 1). The MSC was triggered by closure of the marine gateway from the Mediterranean to the Atlantic as the African and Eurasian plates converged. During the MSC the sea level dropped more than 1 kilometer, representing a drastic environmental change. In addition to the deposition of Messinian evaporites in several deep Mediterranean basins, evaporate sequences up to several hundred meters thick accumulated in smaller peripheral basins. Some of these marginal basins were later uplifted by tectonic processes and are now subaerially exposed and easily accessible for study. However, these marginal basins are no substitute for the study of a true salt giant still in its original submarine setting.

Present understanding of the Messinian paleoenvironment is based almost entirely on the study of exposures in the uplifted peripheral basins (e.g., Crete, Sicily, Cyprus). However, such marginal basins represent only approximately 5% of all Messinian evaporites in contrast to the deep-basinal evaporites of the Mediterranean. Existing models of salt giant precipitation based on these marginal evaporites are quite disparate. Some workers envision successive precipitation, first in marginal basins and only later toward the central basin where the salt giant was deposited. Others favor evaporite deposition moving rapidly and progressively from the marginal basin to the deep basin. A third view is that marginal and deep basinal evaporites are contemporaneous.

The only way that these competing models can be tested is by scientific drilling of a Messinian salt giant. A complete core through the Messinian salt giant would provide a complete record of material behavior and environmental change prior to, during, and after the Messinian.

The semienclosed Levantine Basin in the easternmost Mediterranean is considered to represent the best natural laboratory for an investigation of a young salt giant. This salt giant is virtually free of a major tectonic overprint. The impact of differential sediment load on salt dynamics (e.g., lateral salt flow) can therefore be studied under well-constrained conditions. On the basin margin off Israel, the thickness of the sediment cover varies from about 1000 meters (northern Israel) to about 3000 meters (the Nile alluvial fan). Toward the center of the basin, the thickness decreases to less than 500 meters. Recently published high-quality academic two-dimensional seismic reflection data and industry three-dimensional seismic data reveal a detailed anatomy of up to six seismic sequences (ME-I to ME-VI; see Figure 2) within the basin [*Netzeband et al.*, 2006; *Bertoni and Cartwright*, 2007]. Each of these six intraevaporitic sequences exposes an individual deformation pattern like folds and faults. However, the sediment overburden deposited between 4 and 2 million years ago (of Pliocene-Quaternary age) is not affected by the deformation. The structural evolution of the evaporites obviously predates the onset of this overburden sedimentation and occurred contemporaneous with the evaporite precipitation during the Messinian Salinity Crisis. This deformation of young salt giants during the precipitation phase has been observed for the first time.

The Pliocene-Quaternary overburden is subdivided into a prekinematic and postkinematic succession. The layer labeled 'SC' in between correlates with a slump complex off Israel [*Frey-Martinez et al.*, 2005]. If the seismic data can be calibrated by future scientific coring and well logging, early deformation features and other aspects (e.g., microbiology and environmental change) can be thoroughly investigated.

A single, preferably continuous, drill core through the approximately 2-kilometer-thick Messinian evaporite sequence in the Levantine Basin would allow the evolution of a salt giant to be unraveled, and this would shed important new light on fundamental aspects of the Earth system. Such a drill program would greatly advance our understanding of the Mediterranean salt giant, and also of geologically much older counterparts elsewhere.

Acknowledgment

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Future Climate of the North Pacific Ocean

PAGES 178, 182

Major changes in species distribution and abundance in North Pacific marine ecosystems are often correlated with climatic shifts in the twentieth century. Species affected in the past include halibut in the Gulf of Alaska, sardine near Japan, and various species along the Oregon/California coast [*Chen and Hare*, 2006; *Zhang et al.*, 2004; *Peterson and Schwing*, 2003]. Because these changes can affect the fishing industry, we have investigated possible future climate patterns in the North Pacific based on the evaluation of 22 coupled atmosphere-ocean general circulation models (GCMs). These GCMs were made available to the science community for independent evaluation in preparation for the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC).

This analysis of a reduced set of 10 models, which simulate the variability of twentieth-century North Pacific sea surface temperatures (SST) reasonably well, finds that anthropogenic impacts on future North Pacific climate will be as large as those of natural climate variability in 30–50 years under a midrange greenhouse gas emissions scenario. The spatial pattern of the future warming trend will be more uniform than the main pattern of climate variability from the twentieth century, suggesting that existing climate-ecosystem-fisheries relationships might not be robust long into the 21st century. According to the models, the North Pacific climate system will likely enter into an unprecedented state with regard to near-surface ocean temperatures sometime during the first half of the 21st century.

In comparison with the IPCC Third Assessment Report, both the spatial resolution and physics of GCMs in AR4 have improved. For example, there is less or no reliance on prescribed ocean conditions, mobile sea ice, and improved parameterizations of clouds/radiation and land/atmosphere fluxes (www-pcmdi.llnl.gov/ipcc/info_for_analysts.php). We consider a middle-range IPCC greenhouse gas emissions scenario, A1B, and note that there are small differences between scenarios for the first half of the 21st century.

North Pacific Temperature and Climate Patterns

One tenet of global change has been that the impact from anthropogenic forcing in northern latitudes might manifest as a shift in the frequency distribution of the major existing patterns of atmospheric circulation variability such as the North Atlantic Oscillation or Pacific North American pattern [*Palmer*, 1999]. However, a recent study [*Van Ulden and van Oldenborgh*, 2005] shows that part of the projected temperature change in Europe may not be directly related to changes in major atmospheric circulation

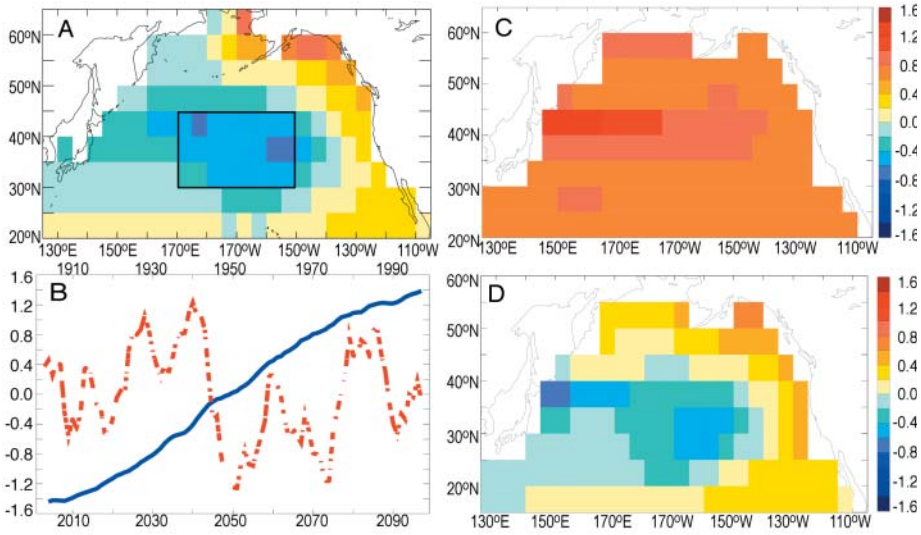

Fig. 1. (a) The first leading empirical orthogonal function (EOF) pattern of the North Pacific winter (November–March) sea surface temperature (SST) anomalies for 1901–1999 based on Hadley Centre SST analysis (i.e., the Pacific Decadal Oscillation (PDO)). (b) Principal component (PC) time series corresponding with the pattern in Figure 1a for the twentieth century (dashed curve, time axis on top). The solid line is the PC series for the 21st-century mean model projections (time axis on bottom). (c) The first leading EOF pattern of winter SST for the period of 2001–2099 based on the ensemble mean of 10 models: CGCM3.1(T47), CGCM3.1(T63), CCSM3, ECHO-G, GFDL-CM2.0, GFDL-CM2.1, MIROC3.2(hires), MIROC3.2(medres), MRI-CGCM2.3.2, and UKMO-HadCM3. The corresponding model mean PC series is shown by the solid curve in Figure 1b (time axis on bottom). (d) The mean of the second leading EOFs for the 21st-century model projections. The PDO structure in Figure 1a is clearly present in this pattern, and it has spatial correlation with the twentieth-century observed PDO at 0.82. The box in Figure 1a outlines the region of SST projections shown in Figure 3.

By J. E. Overland and M. Wang

Life, Earth and Environmental Sciences (LESC)

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EXTENDED REPORT

to ECORD, IODP and the workshop participants

Generated by:
Angelo Camerlenghi, Roger Urgeles, Gemma Ercilla
with contributions from workshop participants

December 22 2006

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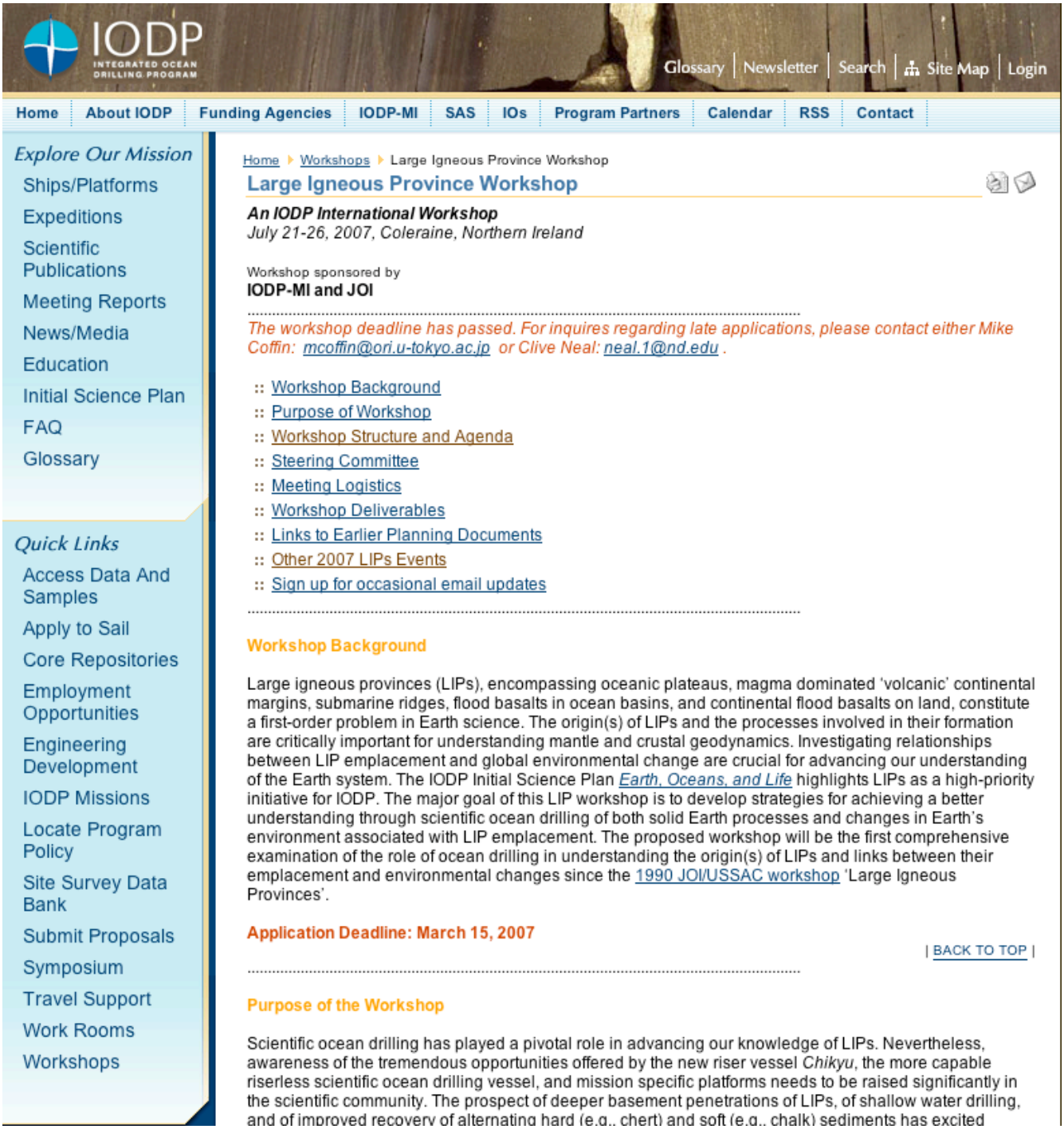
Appendix 5.4: Forthcoming workshops



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Large Igneous Province Workshop

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The workshop deadline has passed. For inquires regarding late applications, please contact either Mike Coffin: mcoffin@ori.u-tokyo.ac.jp or Clive Neal: neal.1@nd.edu .

:: Workshop Background
:: Purpose of Workshop
:: Workshop Structure and Agenda
:: Steering Committee
:: Meeting Logistics
:: Workshop Deliverables
:: Links to Earlier Planning Documents
:: Other 2007 LIPs Events
:: Sign up for occasional email updates

Workshop Background

Large igneous provinces (LIPs), encompassing oceanic plateaus, magma dominated 'volcanic' continental margins, submarine ridges, flood basalts in ocean basins, and continental flood basalts on land, constitute a first-order problem in Earth science. The origin(s) of LIPs and the processes involved in their formation are critically important for understanding mantle and crustal geodynamics. Investigating relationships between LIP emplacement and global environmental change are crucial for advancing our understanding of the Earth system. The IODP Initial Science Plan *Earth, Oceans, and Life* highlights LIPs as a high-priority initiative for IODP. The major goal of this LIP workshop is to develop strategies for achieving a better understanding through scientific ocean drilling of both solid Earth processes and changes in Earth's environment associated with LIP emplacement. The proposed workshop will be the first comprehensive examination of the role of ocean drilling in understanding the origin(s) of LIPs and links between their emplacement and environmental changes since the 1990 JOI/USSAC workshop 'Large Igneous Provinces'.

Application Deadline: March 15, 2007

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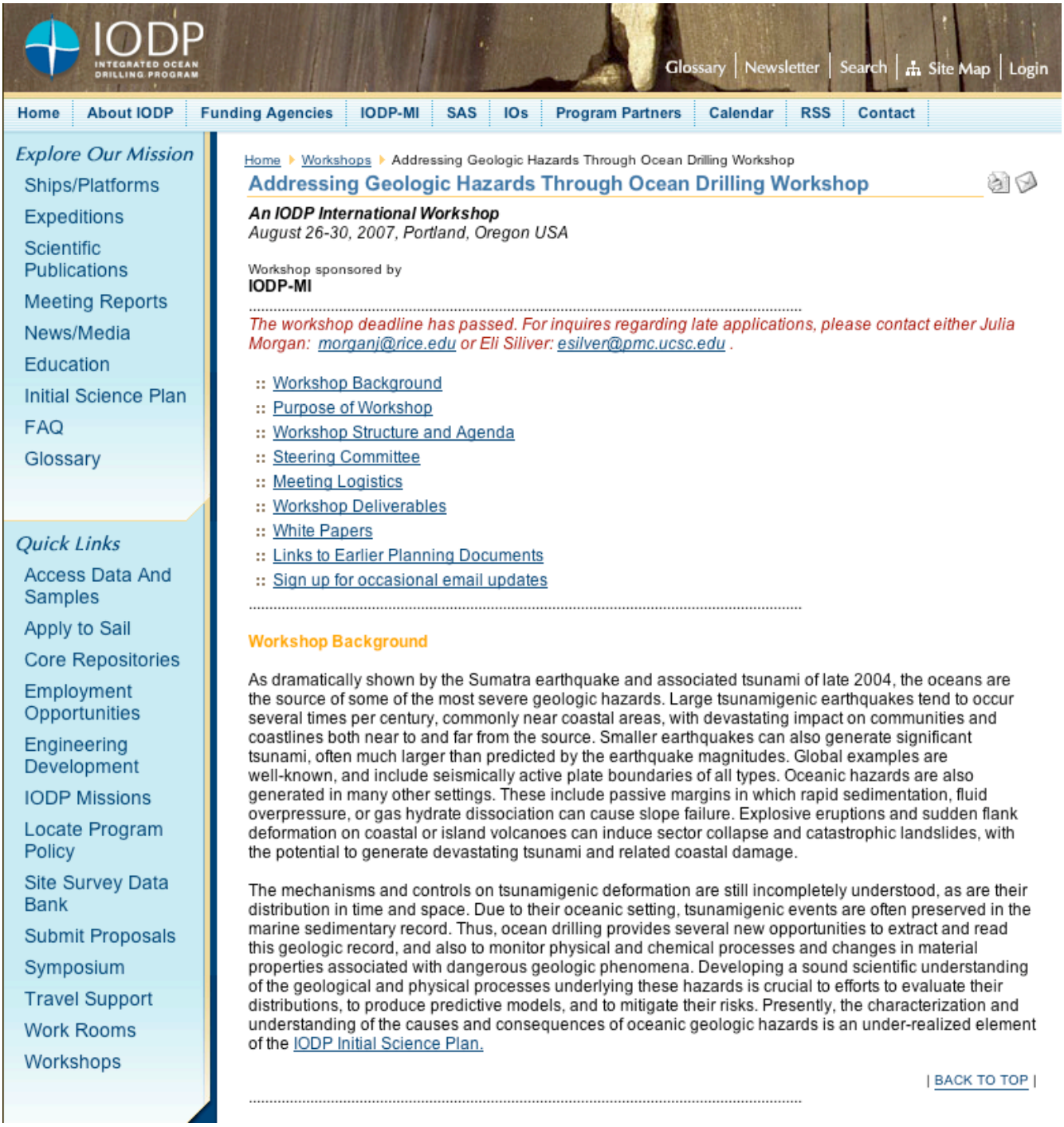
Purpose of the Workshop

Scientific ocean drilling has played a pivotal role in advancing our knowledge of LIPs. Nevertheless, awareness of the tremendous opportunities offered by the new riser vessel *Chikyu*, the more capable riserless scientific ocean drilling vessel, and mission specific platforms needs to be raised significantly in the scientific community. The prospect of deeper basement penetrations of LIPs, of shallow water drilling, and of improved recovery of alternating hard (e.g., chert) and soft (e.g., chalk) sediments has excited

Appendix 5.4: Forthcoming workshops



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Home ▸ Workshops ▸ Addressing Geologic Hazards Through Ocean Drilling Workshop

Addressing Geologic Hazards Through Ocean Drilling Workshop

An IODP International Workshop
August 26-30, 2007, Portland, Oregon USA

Workshop sponsored by
IODP-MI

The workshop deadline has passed. For inquires regarding late applications, please contact either Julia Morgan: morganj@rice.edu or Eli Silver: esilver@pmc.ucsc.edu .

:: Workshop Background
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Workshop Background

As dramatically shown by the Sumatra earthquake and associated tsunami of late 2004, the oceans are the source of some of the most severe geologic hazards. Large tsunamigenic earthquakes tend to occur several times per century, commonly near coastal areas, with devastating impact on communities and coastlines both near to and far from the source. Smaller earthquakes can also generate significant tsunami, often much larger than predicted by the earthquake magnitudes. Global examples are well-known, and include seismically active plate boundaries of all types. Oceanic hazards are also generated in many other settings. These include passive margins in which rapid sedimentation, fluid overpressure, or gas hydrate dissociation can cause slope failure. Explosive eruptions and sudden flank deformation on coastal or island volcanoes can induce sector collapse and catastrophic landslides, with the potential to generate devastating tsunami and related coastal damage.

The mechanisms and controls on tsunamigenic deformation are still incompletely understood, as are their distribution in time and space. Due to their oceanic setting, tsunamigenic events are often preserved in the marine sedimentary record. Thus, ocean drilling provides several new opportunities to extract and read this geologic record, and also to monitor physical and chemical processes and changes in material properties associated with dangerous geologic phenomena. Developing a sound scientific understanding of the geological and physical processes underlying these hazards is crucial to efforts to evaluate their distributions, to produce predictive models, and to mitigate their risks. Presently, the characterization and understanding of the causes and consequences of oceanic geologic hazards is an under-realized element of the IODP Initial Science Plan.

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Appendix 6.1: ECORD representatives on IODP SAS committees and panels, and their rotation schedules

Science Advisory Structure Executive Committee (SASEC)

Gerold Wefer	Germany	gwefer@marum.de	*last meeting July 09?**
Michael Bickle	UK	mb72@esc.cam.ac.uk	*last meeting July 09?**

Science Planning Committee (SPC)

Jan Behrmann	Germany	jbehrmann@ifm-geomar.de	*last meeting Aug 09*
Gilbert Camoin	France	gcamoin@cerege.fr	*last meeting Aug 09*
Chris MacLeod	UK	macleod@cardiff.ac.uk	*last meeting Aug 07*
Rolf Pedersen	Norway	rolf.pedersen@geo.uib.no	*last meeting Mar 08*

Science Steering and Evaluation Panel (SSEP)

Jan Backman	Sweden	backman@geo.su.se	*last meeting Nov 07*
Timothy Elliott	UK	tim.elliott@bris.ac.uk	*last meeting May 09*
Frédérique Eynaud	France	f.eynaud@epoc.u-bordeaux1.fr	*last meeting May 08*
Achim Kopf	Germany	akopf@uni-bremen.de	*last meeting Nov 09*
Benedicte Menez	France	menez@ipgp.jussieu.fr	*last meeting Nov 08*
Jens Konnerup-Madsen	Denmark	jenskm@geol.ku.dk	*last meeting May 08*
Heiko Pälike	UK	heiko@noc.soton.ac.uk	*last meeting Nov 09*
Rüdiger Stein (co-chair)	Germany	rstein@awi-bremerhaven.de	*last meeting May 07*

Scientific Technology Panel (STP)

Christophe Basile	France	christophe.basile@ujf-grenoble.fr	*last meeting Jul 07*
Warner Brückmann	Germany	wbrueckmann@ifm-geomar.de	*last meeting Jan 10*
Georges Gorin	Switzerland	georges.gorin@terre.unige.ch	*schedule unconfirmed*
Mike Lovell (Chair)	UK	mike.lovell@le.ac.uk	*last meeting Jul 08*

Site Survey Panel (SSP)

Gilles Lericolais	France	gilles.lericolais@ifremer.fr	*last meeting Feb 09*
Christoph Gaedicke	Germany	gaedicke@bgr.de	*last meeting Jul 09*
Roger Searle	UK	r.c.searle@durham.ac.uk	*last meeting Jul 07*
Holger Lykke-Andersen	Denmark	hla@geo.au.dk	*last meeting Jul 09*

Environmental Protection and Safety Panel (EPSP)

Michael Enachescu	Canada	michaele@mun.ca	*no fixed rotn schedule*
Philippe Lapointe	France	philippe.lapointe@total.com	*no fixed rotn schedule*
Bramley Murton	UK	bjm@soc.soton.ac.uk	*no fixed rotn schedule*
Dieter Strack	Germany	ddhstrack@aol.com	*no fixed rotn schedule*

Engineering Development Panel (EDP)

Maria Ask	Sweden		*schedule unconfirmed*
Roland Person	France	roland.person@ifremer.fr	*last meeting Jun 08*
John Thorogood	UK	john.thorogood@uk.bp.com	*last meeting Jun 09*
Lothar Wohlgemuth	Germany	wohlgem@gfz-potsdam.de	*last meeting Jun 09*

Prof. Dr. Kai-Uwe Hinrichs
Division of Organic Geochemistry, Head
Department of Geosciences & DFG-Research Center Ocean Margins
University of Bremen, PO Box 330 440
D-28334 Bremen, Germany

Tel: 0421-218-65700
Fax: 0421-218-65715
Email: khinrichs@uni-bremen.de
WWW: http://www.rcom.marum.de/English/Kai-Uwe_Hinrichs.html

GENERAL INFORMATION:

I am heading the *Organic Geochemistry Group,* which currently consists of one professor, one senior research associate, two postdoctoral scientists, ten graduate students (7 PhD, 3 MSc), two laboratory technicians, and one administrative assistant. Our current research focuses on the exploration of processes and microbes in the deep subsurface biosphere, methane biogeochemistry, life in extreme environments, development and application of new analytical techniques, prokaryotic membrane lipid taxonomy, and the study and reconstruction of paleoenvironments.

PROFESSIONAL PREPARATION:

2/1994: Diploma (equiv. to M.Sc.), major in Chemistry, thesis in Organic Geochemistry, Institute for Chemistry and Biology of the Marine Environment (ICBM), University of Oldenburg, Germany, Advisor: J. Rullkötter

5/1997: Ph.D., ICBM, University of Oldenburg, Germany, thesis in Organic Geochemistry, Advisor: J. Rullkötter

10/1997 – 7/2000: Postdoctoral Fellow/Investigator, Department of Geology & Geophysics, Woods Hole Oceanographic Institution (WHOI), Molecular-Isotopic Biogeochemistry, Advisor: J.M. Hayes

APPOINTMENTS:

5/2004 – present: Full Professor (W3, with tenure), Dept. of Geosciences, University of Bremen

3/2004 – present: Adjunct Scientist, Dept. of Geology & Geophysics, Woods Hole Oceanographic Institution

10/2002 -4/2002: Associate Professor (C3, with tenure), Dept. of Geosciences, University of Bremen

7/2000 – 12/2002: Assistant Scientist, tenure-track, Dept. of Geology & Geophysics, WHOI

10/1997 – 6/2000: Postdoctoral Investigator/Fellow, Dept. of Geology & Geophysics, WHOI

6/1997 – 8/1997: Guest Investigator, Dept. of Geosciences, University of Bremen, Germany

3/1994 – 5/1997: Research Assistant, ICBM, University of Oldenburg

Selected Professional Activities:

■ Shipboard experience: Organic Geochemist on ODP Legs 155, 201 (co-proponent); shipboard participant on Meteor expedition 67/2b with ROV *Quest* (April 2006), Gulf of Mexico, Chapopote asphalt volcanism; RV *Point Lobos* and ROV *Ventana* (1999), methane seeps, Eel River Basin, California. ■ Rappatteu, *Deep Biosphere* session at COMPLEX Meeting, Vancouver, 1999; Rappateur, ESF Workshop *Investigating Life in Extreme Environments*, Nov 2005, Barcelona ■ Co-PI on NASA Astrobiology *Institute Subsurface Biospheres* at URI/WHOI (2001-2007); ■ Scientific committee, International Meeting on Organic Geochemistry (IMOG), 2007, Torquay, UK ■ Elected, Conference chairman, IMOG, 2009, Bremen ■ Review Panel member, NASA Astrobiology Institute Cycle 2, Washington DC, June 2003

■ Editorial activities: Member of the Editorial Board of *Geology*, 1/2004-12/2006; Associate Editor, *Organic Geochemistry*, May 2006 - present

Honors and Awards

■ Invited speaker/session chair at five Gordon Research Conferences: Origin of Life (July 2000); Organic Geochemistry (July 2002); Chemical Oceanography (Aug 2002), Organic Geochemistry (Aug 2004), Session chair: Organic Geochemistry (Aug 2006), Speaker at the 1ST JAPANESE-GERMAN FRONTIERS OF SCIENCE SYMPOSIUM (A. v. Humboldt Stiftung, Mainz, Jan 2005):
■ Nominating host of *A. v. Humboldt Research Award* winner Prof. R.E. Summons, MIT, 12/2007 – 8/2008
■ Fellow at the Hanse Institute of Advanced Study, Delmenhorst, Germany (Aug 2000 – Dec 2000)
■ Two-year Research Fellowship by the Deutsche Forschungsgemeinschaft (1997)

Departmental service, Dept. of Geosciences and DFG-Research Center Ocean Margins

■ Chair of the departmental PhD committee (2004 – present), ■ Chair of the departmental committee of MSc program Marine Environmental Geosciences (2004 – 2005), ■ Coordinator and Head of RCOMs Summer Student Fellowship Program (2004 – present), ■ Co-Chair (jointly with Prof. Bohrmann) of RCOM Research Areas “Seepage of fluid and gas” (2004-2006) and “Biogeochemistry” (jointly with Dr. Zabel; 2006 – present)

Peer-reviewed publications (* designates contributions related to ODP/IODP)

***** Fredricks, H.F., **Hinrichs, K.-U.** (2007) Data report: Intact membrane lipids as indicators of subsurface life in Cretaceous and Paleogene sediments from Sites 1257 and 1258. *Proceedings of the Ocean Drilling Program, Scientific Results* Vol. 207, doi:10.2973/odp.proc.sr.207.112.2007.

***** Heuer V., Elvert M., Tille S., Krummen M., Prieto Mollar X., Hmelo L.R., **Hinrichs K.-U.** (2006) Online $\delta^{13}C$ analysis of volatile fatty acids in sediment/porewater systems by liquid chromatography-isotope ratio-mass spectrometry. *Limnology and Oceanography-Methods,* 4, 346-357.

***** Birgel, D., Thiel, V., **Hinrichs, K.-U.**, Elvert, M., Campbell, K., Reitner, J., Farmer, J.D., Peckmann, J., (2006) Lipid biomarker patterns of methane-seep microbialites from the Mesozoic convergent margin of California, *Organic Geochemistry*, 37, 1289-1302.

*** Hinrichs, K.-U.**, Hayes, J.M., Bach, W., Spivack, A., Hmelo, L.R., Holm, N., Johnson, C.G., Sylva, S.P. (2006) Biological formation of ethane and propane in the deep marine subsurface. *Proceedings of the National Academy of Sciences, U.S.A.*, 14684-14689.

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***** Bice, K., Birgel, D., Meyers, P.A., Dahl, K.A., **Hinrichs, K.-U.**, Norris, R.D. (2006) A multiple proxy and modeling study of Cretaceous upper ocean temperatures and atmospheric CO_2 concentrations from tropical Atlantic foraminifera and organic matter. *Paleoceanography*, 21, PA2002, doi:10.1029/2005PA001203.

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***** Sturt, H.F., Summons, R.E., Smith, K.J., Elvert, M., and **Hinrichs, K.-U**. (2004) Intact polar membrane lipids in prokaryotes and sediments deciphered by ESI-HPLC-MS^n – new biomarkers for biogeochemistry and microbial ecology. *Rapid Communications in Mass Spectrometry*, **18**, 617-628.

Orphan, V.J., Ussler, W. III, Nähr, T., House, C.H., **Hinrichs, K.-U.**, and Paull, C. K. (2004) Geological, geochemical, and microbiological heterogeneity of the seafloor around methane vents in the Eel River Basin, offshore California. *Chemical Geology*, **205**, 265-289.

***** D'Hondt, S., Jørgensen, B.B., Miller, D.J., Batzke, A., Blake, R., Cragg, B.A., Cypionka, H., Dickens, G.R., Ferdelman, T., **Hinrichs, K.-U.**, Holm, N.G., Mitterer, R., Spivack, A., Wang, G., Bekins, B., Engelen, B., Ford, K., Gettemy, G., Rutherford, S.D., Sass, H., Skilbeck, C.G., Aiello, I.W., Guèrin, G., House, C., Inagaki, F., Meister, P., Nähr, T., Niitsuma, S., Parkes, R.J., Schippers, A., Smith, D.C., Teske, A., Wiegel, J., Padilla, C.N., and Solis Acosta, J.L. (2004) Distributions of metabolic activities in deep subseafloor sediments. *Science*, **306**, 2216-2221.

*** Hinrichs K.-U.**, Hmelo L.R., and Sylva, S.P. (2003) Molecular fossil record of elevated methane levels in late Pleistocene coastal waters, *Science*, **299**, 1214-1217.

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* **Hinrichs, K.-U.** (2001) A molecular recorder of methane hydrate destabilization. *Geochemistry, Geophysics, Geosystems,* 2, ms # 2000GC000118 (Research Letter).

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*** Hinrichs, K.-U.**, and Rullkötter, J. (1997) Terrigenous and marine lipids in Amazon Fan sediments - implications for sedimentological reconstructions. In: *Proc. ODP, Sci. Res.*, **155** (Eds. R.D. Flood, D.J.W. Piper, A. Klaus & L.C. Peterson), 539-553. Ocean Drilling Program, College Station, TX.

*** Hinrichs, K.-U.**, Rinna, J., Rullkötter, J., and Stein, R. (1997) A 160 kyr record of alkenone-derived sea-surface temperatures from Santa Barbara Basin sediments. *Naturwissenschaften*, **84**, 126-128.

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***** Budzinski, H., Garrigues, P., Bernard, G., Bellocq, J., **Hinrichs, K.-U.**, and Rullkötter, J. (1997) Identification of polycyclic aromatic hydrocarbons in sediments from the Amazon Fan: Occurrence and diagenetic evolution. In: *Proc. ODP, Sci. Res.*, **155** (Eds. R.D. Flood, D.J.W. Piper, A. Klaus & L.C. Peterson), 555-564. Ocean Drilling Program, College Station, TX.

*** Hinrichs, K.-U**., Rullkötter, J., and Stein, R. (1995) Preliminary assessment of organic geochemical signals in sediments from Hole 893A, Santa Barbara Basin, offshore California. In: *Proc. ODP, Sci. Res.*, **146**, Pt. 2 (Ed. by J.P. Kennett, J. Baldauf & M. Lyle), pp. 201-211. Ocean Drilling Program, College Station, TX.

Selected manuscripts in progress

Hinrichs, K.-U., Fredricks, H.F., Schubotz, F., Lipp, J.S., Batzke, A., Biddle, J.F., Brenchley, Cypionka, H., J.E., House, C.H., Inagaki, F., Molyneaux, S., Küsel, K., Summons, R.E., Takai, K., Van Mooy, B., Teske, A., Systematic diversity of intact polar lipids in prokaryotes. In preparation.

Technical reports & extended abstracts.

*** Hinrichs, K.-U.**, Rinna, J., and Rullkötter, J. (1995) Sterol compositions in sediments of the Santa Barbara Basin, California: Assessment of their potential for paleoenvironmental reconstructions. In *Organic Geochemistry: Developments and Applications to Energy, Climate, Environment and Human History.* (Eds. J. O. Grimalt & C. Dorronsoro), pp. 244-246. A.I.G.O.A., San Sebastian, Spain.

***** Flood, R., Piper, D.J.W., Klaus, A. & Shipboard Scientific Party. (1995) *Proc. ODP. Init. Repts.* **155**. Ocean Drilling Program, College Station, TX

***** Hinrichs, K.-U., Rinna, J. & Rullkötter, J. (1998) Late Quaternary paleoenvironmental conditions indicated by marine and terrestrial molecular biomarkers in sediments from the Santa Barbara Basin. In: *Proceedings of the Fourteenth Annual Pacific Climate (PACLIM) Workshop, April 6-9, 1997*, *Interagency Ecological Program, Technical Report 57* (Eds. R. C. Wilson & V. L. Tharp), 125-133. California Department of Water Resources, Sacramento, CA.

***** Rinna, J., Günter, U., **Hinrichs, K.-U.**, Mangelsdorf, K., van der Smissen, J.H., & Rullkötter, J. (2000) Temperature-related molecular proxies: Degree of alkenenone unsaturation and average chain length of *n*-alkanes. In: *Proceedings of the Sixteenth Annual Pacific Climate (PACLIM) Workshop, May 24-27, 1999*, *Interagency Ecological Program, Technical Report 65* (Eds. G.J. West & V. L. Buffaloe), 133-140. California Department of Water Resources, Sacramento, CA.

Boetius, A., Jørgensen, B.B., Amann, R., **Hinrichs, K.-U.**, Lochte, K., MacGregor, B., & Voordouw, G. (2002) Microbial systems in sedimentary environments of continental margins. *Ocean Margin Systems* (Eds. G. Wefer *et al.*), Springer Verlag, Berlin-Heidelberg, 479-495.

***** D'Hondt, S, Jørgensen, B.B., Miller, J. & ODP Leg 201 Shipboard Scientific Party. (2003) Proc. ODP, Init. Res. **201**, online: http://www-odp.tamu.edu/publications/201_IR/201ir.htm.

***** Dickens, G.R., Schroeder, D., **Hinrichs, K.-U.** & ODP Leg 201 Shipboard Scientific Party. (2003) The pressure core sampler (PCS) on Ocean Drilling Program Leg 201: General operations and gas release. Proc. ODP, Init. Res. 201, online: http://www-odp.tamu.edu/publications/201_IR/VOLUME/CHAPTERS/IR201_03.PDF.

star	Surname	Forename	Position	Country	Degree	Date	Expertise
***	Kaksonen	Anna	Researcher	Finland	PhD	2004	micro bio.
***	Bourlange	Sylvain	Lecturer	France	PhD	2003	logging, PP, structural, DHM
***	Destigneville	Christine	Lecturer	France	PhD		inorg. Chem
***	Fabbri	Olivier	Professor	France	PhD	1989	structural
***	Famin	Vincent	Lecturer	France	PhD	2003	inorg. Chem, met. Pet., struct
***	Géli	Louis	Researcher	France	PhD	1985	geophys, hydrol, PP, seismo, DHM
***	Henry	Pierre	Researcher	France	PhD	1991	geophys., PP., DHM
***	Lallemant	Siegfried	Professor	France	PhD	1984	co-chief, structural
***	Louis	Laurent	Lecturer	France	PhD		PP
***	Behrmann	Jan	Professor	Germany	PhD	2003	structural, PP
***	Blazejak	Anna	Postdoc	Germany	PhD	2005	microbio
***	Hensen	Christian	Postdoc	Germany	PhD	1996	inorg. Chem
***	Kopf	Achim	Professor	Germany	PhD	1995	co-chief
***	Riedinger	Natascha	Postdoc	Germany	PhD	2005	microbiol, inorg & org Chem, sed
***	Stegmann	Sylvia	PhD. Student	Germany	MSc		PP, sed.
***	Zimmermann	Katja	PhD Student	Germany	MSc	2007	inorg. Chem., sed.
***	Monna	Stephen	Researcher	Italy	MS	1993	seismol.
***	Vannucchi	Paola	Researcher	Italy	PhD	1998	structural
***	Kandilarov	Aleksandre	Ph. D student	Norway	M.S.	2005	geophys.
***	Claesson	Lillemor	PhD student	Sweden	BSc	2004	inorg. Chem, hydro.
***	Skelton	Alasdair	Professor	Sweden	PhD	1993	inorg. Chem, pet., met. Pet., struct
***	Girault	France	PhD student	Switzerland	MSc	2005	paleont. Si
***	Strasser	Michael	PhD student	Switzerland	MSc	2003	PP, sed.
***	Burgess	Catherine	PhD student	UK	Msci.	2003	paleont., pf, bf, mega
***	Calves	Gerome	PhD student	UK	MSc	2004	geophys, petroleum, DHM ,sed, struct
***	Kender	Sev	PhD student	UK	MSc	2003	paleont. Pf, bf
***	McNeill	Lisa	Lecturer	UK	PhD	1998	structural, DHM
***	Peck	Victoria	Postdoc	UK	PhD	2006	sed., paleontol., pf, bf
***	Sas	Julia	PhD student	UK	BSc	2002	micro. Bio.
***	Tudge	Joanne	PhD Student	UK	MGeol	2005	logging, phys. Prop.
**	Andreani	Muriel	Postdoc	France	PhD	2003	met. Pet., structural
**	Conin	Marianne	MSc student	France	BSc	2006	petrol. Phys. Props. Structural, DHM
**	Mahieux	Geoffroy	Lecturer	France	PhD	2000	sed.
**	Doan	Mai Linh	Postdoc	France	PhD	2005	geophys., hyrdro., seismol., DHM
**	Hepp	Daniel	Research asst	Germany	MSc		phys. Prop., sed.
**	Kutterolf	Steffen	Postdoc	Germany	PhD	2001	inorgan chem, seismol,struct, pet
**	Bigi	Sabina	Researcher	Italy	PhD	1993	structural
**	Fantoni	Laura	PhD student	Italy	MS	2005	structural
**	Martin	Silvana	Professor	Italy	PhD	1982	structural, pet., met. Pet.
**	Meneghini	Francesca	Postdoc	Italy	PhD	2004	structural
**	Remitti	Francesca	Postdoc	Italy	PhD	2006	structural
**	Zanchetta	Stefano	Postdoc	Italy	PhD	2006	met. Pet., structural
**	Piñero	Elena	PhD student	Spain	MSc	2005	sedimentology
**	Akaa	Orji	PhD student	UK	MSc	2005	petrol., logging, petrologist, sed.
**	Hoang	Long	Ph.D. Student	UK	MSc	2005	geophys., sed.
**	Medley	Helen	Research asst	UK	MRes	2000	paleoceanography
**	Nicholson	Uisdean	PhD student	UK	MSc	2005	geophys, petrol, DHM, pet, sed, struct
**	Osborne	Anne	PhD student	UK	MSc	2005	inorg. Chem.
*	Pirlet	Hans	PhD student	Belgium	MSc	2006	sed.
*	Hämäläinen	Jyrki	Researcher	Finland	MSc	1998	sed.
*	Geraud	Yves	Lecturer	France	PhD	1991	phys. Prop., structural
*	Hüpers	Andre	PhD student	Germany	MSc	2004	inorg. Chem, PP, sed.
*	Klump	Jens	Postdoc	Germany	PhD	1999	inorg. Chem., PP, DHM, sed.
*	Moerz	Tobias	Lecturer	Germany	PhD	2001	geophyS, PP, sed, Struct, DHM
*	Stipp	Michael	Lecturer	Germany	PhD	2001	structural
*	O'Toole	Ronan	Researcher	Ireland	BSc		structural, geophys, DHM met. Pet
*	Lanci	Luca	Researcher	Italy	PhD	1995	paleomag.
*	Lanfranchi	Alessandro	PhD student	Italy	MS	2005	sed.
*	Monticelli	Damiano	Professor	Italy	PhD	2002	inorganic chem
*	Rey	Daniel	Lecturer	Spain	PhD	1992	paleomag., sed.
*	Evenstar	Laura	PhD student	UK	BSc	2003	sed.
*	Whittle	Rowan	PhD Student	UK	MSc	2003	paleont. Megafossils
	Mukhopadhyay	Prasanta	Lecturer	Canada	PhD	1971	organic chem, petroleum
	Collot	Julien	PhD student	France	MSc		geophys., structural
	Petitpierre	Laurent	PhD student	France			sed., structural
	Buatier	Martine	Professor	France	PhD	1989	sed.
	David	Christian	Professor	France	PhD	1991	PP
	Menendez	Beatriz	Lecturer	France	PhD	1992	PP
	Paulick	Holger	Postdoc	Germany	PhD	2000	ig. pet, met. pet.
	Beccaro	Paola	Postdoc	Italy	PhD	2003	paleont., radiolarians
	Bosica	Barbara	MSc student	Italy	BSc	2003	structural
	Casellato	Cristina	PhD student	Italy	MS	2005	paleont. Nanno
	D'Arcangelo	Stefania	MSc student	Italy	BSc	2005	structural
	De Bernardi	Bianca	Postdoc	Italy	PhD	2006	paleont. Nannos
	Ghiselli	Alice	PhD student	Italy	MS	2004	structural
	Saturni	Alexander	Undergraduate	Italy	MSc	2006	sed.
	Bijl	Peter	Undergraduate	Netherlands	BSc	2005	paleont. Palynology
	Freixo Leote	Catarina	PhD student	Portugal	MSc	2006	inorg. Chem., hydro.
	Guerreiro Pereir	Catarina	MSc student	Portugal	BSc		microbio
	Laginha Pereira	Patrícia	MSc student	Portugal	BSc		geophys.
	Pólvora	Sérgio	PhD student	Portugal	Msc	2006	inorg. Chem, org. chem., sed.
	Gruskovnjak	Astrid	PhD student	Switzerland	PhD	2006	inorg. Chem, pet., met. Pet, sed.
	Haapaniemi	Anna	Research asst	UK	MSc	2004	paleont., pf
	Pham	Tuan	PhD student	UK	MSc	1999	petroleum

star	Surname	Forename	Position	Country	Degree	Date	Order of pref	Expertise
***	Dezileau	Laurent	assoc prof	France	PhD	2000	no pref	inorganic geochem
***	Sabatier	Pierre	postgrad	France	MS	2006	no pref	inorg.geochem; sed.
***	Gussone	Nikolaus	postdoc	Germany	PhD	2003	1, 2	sed., inorg. Geochem.
***	Holbourn	Ann	postdoc	Germany	PhD	1996	2, 1	Sed., paleo., forams pf & bf
***	Romero	Oscar	postdoc	Ger/Spain	PhD		2, 1	geochem; silicoflagellates;
***	Westerhold	Thomas	postdoc	Germany	PhD	2003	1, 2	Sedimentologist:
***	Raffi	Isabella	assoc prof	Italy	Ital Laurea	1997	1, 2	Paleo. Nannos
***	Sluijs	Appy	postdoc	Netherlands	PhD	2006	no pref	Palynology, Sedimentology
***	Anthonissen	Erik	postgrad	Norway	MSc	2003	1, 2	Paleo. Forams, pf, bf.
***	Backman	Jan	professor	Sweden	PhD	1980	no pref	Paleontologist - nannofossils
***	Jackett	Sarah-Jane	postgrad asst	Switzerland	MSc	2000	no pref	Paleo. Radiolaria, sed.
***	Bown	Paul	Professor	UK	PhD	1986	1	Plaeo. Nannos
***	Lear	Caroline	lecturer	UK	PhD	2000	no pref	Sedimentologist
***	Palike	Heiko	Lecturer	UK	PhD	2002	1, 2	Corr.
***	Wilson	Paul	reader	UK	PhD	1995	Eoc/Olig	Geochemist: onSedimentolo
**	Herrle	Jens	professor	Canada	PhD	2002	2	sed., strat.corr.
**	Dallmayr	Remi	Engineer	France	MSc	2004	no pref	phys.props.
**	Bornemann	André	postdoc	Germany	PhD	2004	1, 2	paleont.-nannofossils; sed.
**	Lueer	Vanessa	postgrad	Germany	MSc	2004	no pref	Paleo. Radiolaria, sed.
**	Schmidt- Schierhorn	Friederike	?undergrad	Germany	BSc	2007	1	measurements
**	Weber	Michael	Lecturer	Germany	PhD	2002	no pref	Properties
**	Agnini	Claudia	postgrad	Italy	MS	2003	1, 2	PALEONTOLOGY-
**	De Bernardi	Bianca	post Doc	Italy	PhD	38757	no pref	paleont. Nannos
**	Dinares-Turell	Jaume	postdoc	Italy	PhD	1999	no pref	Logging; paleomag.
**	Petrizzo	Maria	asst prof	Italy	PhD	1999	no pref	Paleo. Planktonic forams
**	Brinkhuis	Henk	assoc prof	Netherlands	PhD	1992	no pref	Paleont. Dinos, sed.
**	Gallego-Torres	David	postgrad	Spain	PhD	Due 2007	no pref	org. and inorg. Geochem
**	Bodin	Stéphane	postgrad asst	Switzerland			no pref	inorganic geochem., sed.
**	Becker	Julia	postdoc	UK	PhD	2005	no pref	sed., strat.corr
**	Carter	Paul	postgrad	UK	MSc	2003	no pref	Benthic forams
**	Clarke	Leon	lecturer	UK	D. Phil.	2001	Eoc/Olig ?1	Physical Properties Specialist;
**	Dickson	Alexander	postgrad	UK	MSc	2004	2	sed
**	Dunkley Jones	Tom	postgrad	UK	MSc	2000	Olig ?2	geochem; phys.props.; sed.
**	Edgar	Kirsty	postgrad	UK	Msci	2004	1, 2	Phys.props.; sed.
**	Moremon	Rebecca	postgrad	UK	MGeol	2006	no pref	Sedimentologist
**	Perkins	Jennifer	postgrad	UK	MSci	2006	2, 1	forams, pf
**	Spofforth	David	postgrad	UK	MSc	2005	no pref	Strat. Corr.
**	Tripati	Aradhna	postdoc	UK	PhD	2002	no pref	Corr.
*	Belmecheri	Soumaya	Engineer	France	MS	2005	2, 1	strat.corr; megafossils
*	Hathorne	Edmund	postdoc	Germany	PhD	2004	no pref	Inorg. Geochem
*	Riedinger	Natascha	Dr.rer.nat	Germany	PhD	2005	1	Geochem, organic geochem.
*	Rincon	Daniel	postgrad	Germany	MSc	2005	no pref	biologist
*	Ghiselli	Alice	postgrad	Italy	MS	2004	no pref	structural
*	Rusciadelli	Giovanni	assoc prof	Italy	PhD	1996	no pref	Sed
*	Gonzalez-mora	Beatriz	postgrad	Spain	BSc	2003	no pref	pf.
*	Osborne	Anne	postgrad	UK	Msci	2005	1, 2	Geochem
*	Peck	Victoria	postdoc	UK	PhD	2006	no pref	Sed.; Paleo. Forams, bf, pf
0	Trehin	Ambre	?undergrad	France	BSc	2006	no pref	inorg. Geochem; org.
0	Casellato	Cristina	postgrad	Italy	MS	2005	no pref	Paleontologist nannofossils
0	Jovane	Luigi	postdoc	Italy	PhD	2006	no pref	Paleomag., strat. Corr.

ECORD
European Consortium for Ocean Research Drilling

Newsletter #8

IODP
INTEGRATED OCEAN DRILLING PROGRAM

n°8
April, 2007

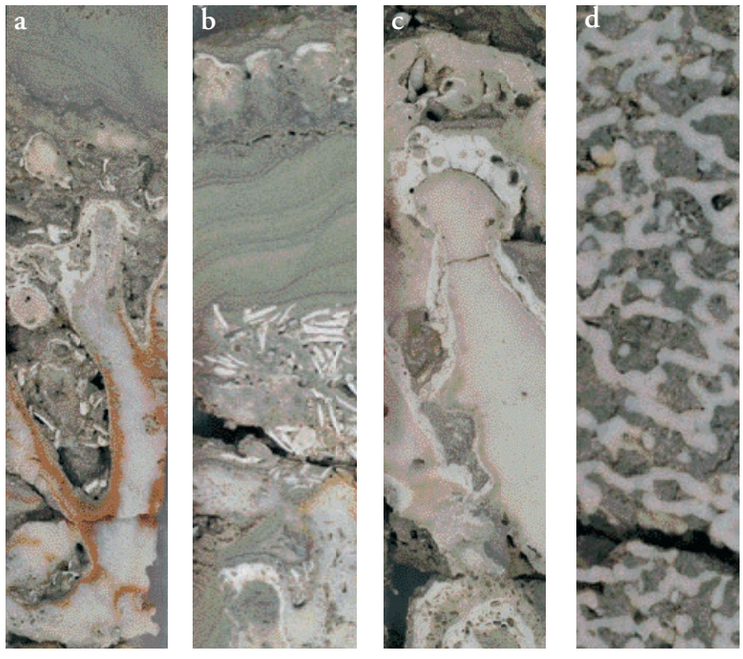
CONTENTS

Message from the ECORD Council Chair

The year 2007 is a very important one for IODP and for ECORD. Towards the end of this year, the program will come up to "full speed" when both the Japanese *R/V Chikyu* and the refurbished US *R/V JOIDES Resolution* will be available for IODP. This is accompanied by an increase in program costs, meaning that ECORD is asked to increase their contribution to IODP by more than 50%, from 14 Million USD to more than 22.4 Million USD per year. However, I have no doubt that the increase in scientific possibilities fully justifies this increase in costs. At the same time, it is not easy for any ECORD member to accommodate these significant expenses. The ECORD structure has prepared a solid foundation for positive national decisions in ECORD member countries: 1. An independent, international review of ECORD has been conducted, of which Catherine Mével reports in this issue (*see page 5*). 2. ECORD has increased its efforts to secure funds from the 7th Framework Programme of the European Commission (FP7). In order to do the latter, the Deep Sea Frontier Initiative was launched, of which ECORD, the Ocean Margins community and the Sea Floor Observatories community represent the three major pillars. There is a good chance that this Initiative will receive substantial funding in the second half of FP 7. This will, however, work only if you as participating or interested scientists approach your national funding agency and express your interest in ECORD. Additionally, the funding agency officers must talk to their national delegates in the appropriate panels of the European Commission, so that ECORD finds its slot in the work programme of FP7. With a strong lobby, ECORD has all chances to further increase its weight in IODP. Your help is required to make this idea come true – no matter whether you are a scientist or a funding programme officer.

Sören Dürr, ECORD Council Chair, March 2007

Drilled cores recovered during the Tahiti Sea Level Expedition



Close-up photographs of, a, b and c, coralgal-microbialite frameworks composed of branching and columnar corals (light grey and red borders), laminated microbialites (grey) and angular Halimeda segments (white) where coral colonies are encrusted by coralline algae (white). Branching coralline algae are shown on photo d.
(All photographs are ECORD/IODP).

Dan Evans

Downpipe Seabed Camera developed for Expedition 310 Tahiti Sea Level

In order to comply with the IODP Reef Drilling Guidelines and the ECORD Science Operator's environmental policy a downpipe camera was developed to allow the expedition to search the coral reef seabed for suitable drill sites to core, before any contact was made with the reef.

Topside Control Unit | Subsea Umbilical on Reel | Downhole Camera & Light

Figure 1 shows the elements of this camera system which is now available for other similar work (Photo ESO/ECORD by D. Smith).

Using a dynamically positioned (DP) drillship with a very close positioning tolerance (better than 3m radius at all times) the vessel was able to stay above the planned coring location without any anchors or other reference items being placed on the reef surface.

Figure 2. The DP Hunter, the dynamically positioned drilling platform used during the Tahiti Sea Level Expedition (Photo ESO/ECORD by I. Pheasant).

A conductor pipe for the drillstring, tipped with a drilling and re-entry template as shown in Figure 3 was then run down to a few metres above seabed and the down pipe camera lowered through the pipe to survey the scene below the template - all of this before contact was made with the seabed.

Figure 3. Views of the Drilling and Re-Entry Template (DART) which connects the ship to the seabed. The diameter of the dart cutting edge is 1.8m and the cutting edge is 30mm thick (Photos ESO/ECORD by D. Smith).

Photos recovered by the camera were then interpreted to allow consideration of the site for coring.

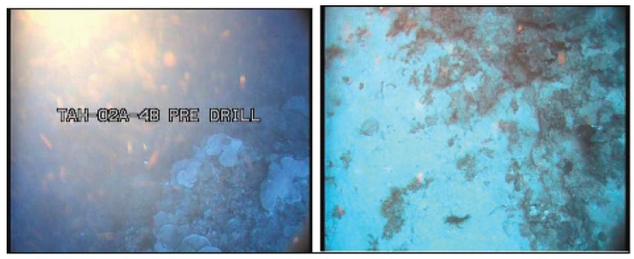


Figure 4 (left) shows an area where it was not suitable to core – live coral heads and a thriving community. The site was moved, using the camera to view and re-positioning the ship using the DP to the area shown in Figure 4 (right) (Photos ESO/ECORD).

Post drilling monitoring was also carried out to evaluate the effect of the coring on the surface of the reef. In most cases very little, if anything, could be seen, in others the 'drilling imprint' of the seabed template and the physical core hole could be seen, possibly with some of the coral 'cuttings' produced when the core bit cut into the reef material.

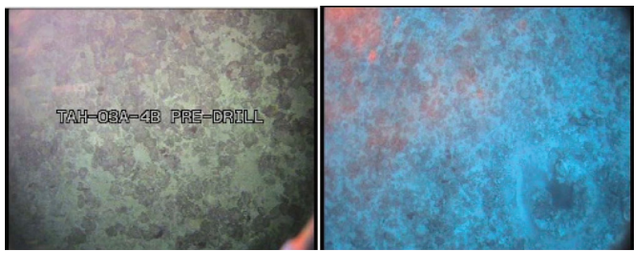


Figure 5 (left) shows the acceptable seabed pre-drill image. Figure 5 (right) shows the area after coring has taken place and shows the white ring of the template cutting edge and the dark area of borehole within it (Photos ESO/ECORD).

The camera has allowed a very quick and efficient method of evaluating the seabed conditions prior to coring, and also to record the post-coring effects when the site is abandoned. Because of the precise corehole positioning it is also possible to conduct longer term evaluations of the site should this be required as the post coring photos can be compared with others taken by divers, ROV's etc. at a later date.

Further details can be obtained from the ECORD Science Operator at www.eso.ecord.org.

Alister Skinner, ESO Operations Manager and Dave Smith, British Geological Survey Marine Operations and Engineering.

ECORD Science Operator News

ECORD Science Operator delegation visits Australia to prepare for IODP drilling.

In mid-February 2007, the ECORD Science Operator (ESO) held a meeting in Townsville, Queensland with the Great Barrier Reef Marine Park Authority in order to initiate the permitting process for IODP drilling on the Great Barrier Reef (GBR). ESO was represented by Alister Skinner (Operations Manager) and Dan Evans (Science Manager), who were accompanied by Jody Webster of James Cook University, who was a scientist on the Tahiti Sea Level Expedition and is leading the site survey work for the GBR expedition. Also at the meeting was David Falvey, who is now Executive Director for Physics, Chemistry & Geoscience at the Australian Research Council. The meeting was successful and ESO is now moving ahead with its application for drilling, hopefully to take place during the September-November weather window of 2008.

Great Barrier Reef - Image credit: NASA/ GSFC/LaRC/JPL, MISR Team.

While in Townsville the delegation also began its local outreach campaign by visiting the North Queensland Conservation Council and the Australian Institute for Marine Science. Australian scientists are continuing their determined efforts to enable them to gain membership of IODP, and it is hoped that the GBR expedition will aid this process.

The objectives of the proposed GBR expedition are linked to the Tahiti Sea Level Expedition that took place during 2005, as both involve the study of reef settings that are located in tectonically inactive areas that are far away from glaciated regions. In areas such as these, there is potential to obtain detailed information about sea-level change during the period 20,000 to 10,000 years ago, when ice covered large areas of the northern hemisphere.

Geotechnical survey of the New Jersey Shallow Shelf Expedition has started.

The preparatory work for this expedition continues and a contract for the seabed survey and geotechnical work preparatory to contracting any potential jack-up type platform should be underway in the week commencing 26th March. Alpine Ocean Seismic Survey Inc. have been contracted by BGS on behalf of ECORD to undertake sidescan sonar, boomer, magnetometer and vibrocoring over the areas of the expedition core sites. This will allow foundation and environmental parameters to be evaluated and forwarded to the preferred drilling contractor for rig evaluation. Assistance in this geotechnical programme is being given by the New Jersey State Geological Survey who provided seabed data which helped refine the contract specification and who will be participating in the offshore survey work. Rutgers University will also assist by analysing subsamples of the vibrocores for C1-C5 gas to meet a baseline requirement for the IODP Environment, Pollution and Safety Panel.
Following this survey additional geotechnical work may still be required and this is currently the subject of other discussions.
An operational meeting was held at Rutgers University on 20-21st March with expedition participants and the preferred drilling contractor in order to evaluate anticipated lithlogies and known onshore drilling problems from similar formations. An operational plan for casing, coring and logging was determined and will be refined over the ensuing weeks. It is anticipated that all contracts will be in place to allow a mid-June start to the scientific part of the expedition and planning for this is well underway.

Information about the New Jersey Shallow Shelf Expedition 313 is available at:
www.eso.ecord.org/expeditions/313/313

ESO has a new website and a new logo.

At the end of 2006, the ECORD Science Operator (ESO) launched its new website, which can be accessed through the ECORD web portal (**www.eso.ecord.org**). The ESO website hosts all information related to mission-specific platforms (MSPs), such as the role of MSPs within the IODP structure and the important function of the Onshore Science Party that follows each expedition. The website has a page for each MSP expedition, where general information about the objectives and participating scientists can be found, as well as links to the scientific publications and reports. During the forthcoming New Jersey Shallow Shelf Expedition, regular progress reports will be available on the ESO website.
To coincide with the launch of the new website, the ESO logo has been re-designed to incorporate the ECORD logo.

ECORD Science Operator

Alister Skinner, ESO Operations Manager, Dan Evans, ESO Science Manager and Alan Stevenson, ESO Outreach Manager.

IODP - Canada Workshop in Montréal

A workshop sponsored by the Canadian Consortium for Ocean Drilling (CCOD) was held February 23-24, 2007 in Montréal. It was hosted jointly by the Montréal Earth Observatory (MEO), the GEOTOP-UQAM-McGill Research Centre, and the Department of Earth and Planetary Sciences of McGill University, and organised by Anne de Vernal (GEOTOP-UQAM), Michael Riedel (McGill), and Hélène Gaonac'h (MEO & GEOTOP).

The objectives of the workshop were (1) to inform the Canadian Scientific Community about research opportunities within the Integrated Ocean Drilling Program (IODP), (2) to provide a summary of the IODP science themes and the new capabilities of IODP as a three-platform program, (3) to present highlights of the first phase of IODP drilling, and (4) to identify Canadian priorities for ocean drilling expeditions and develop a strategy for the preparation of IODP proposals.

About fifty participants from the east to west coasts of Canada attended the workshop, in addition to representatives from the management bodies of IODP and the European Consortium for Ocean Research Drilling (ECORD) to which Canada is affiliated. Kathy Gillis (U. Victoria), chair of the CCOD (*encircled in Photo 1*), opened the workshop and presented a historical perspective of the Canadian participation to ODP

and IODP. Greg Myers (IODP) presented the state-of-the-art technology for coring, drilling and sampling on IODP platforms with special emphasis on the riser vessel and CORK technology. Catherine Mével and Benoît Ildefonse from ECORD presented the overall structure of the European Consortium, an overview of the scientific themes of IODP, and the structure of IODP as it relates to drilling proposals.

Several presentations highlighting the results of the first phase of IODP were made. Michael Riedel presented results of IODP Expedition 311 "Cascadia Margin Gas Hydrate" and NEPTUNE. Neil Banerjee (Western Ontario) gave an overview of drilling expeditions into the lower ocean crust (cf. Science 312: 1016-100, 2006). Anne de Vernal reported on the ongoing work on the Pleistocene records of the North Atlantic expedition 303/306 aiming at recovering high resolution climate records. Jens Matthiessen (AWI, Germany) presented some highlights of the Arctic Coring Expedition 302 *(Photo 2)* and mentioned proposal in preparation for further expeditions in the Arctic Ocean. Finally, Ulrich Wortmann (U. of Toronto) presented prospective areas of research for deep biosphere investigation from drilling with IODP technology and Jacques Locat (U. Laval) addressed the question of geohazards.

Core inspection aboard the icebreaker Oden, Jens Matthiessen (left) and Alexander Krylov (photo ECORD/IODP).

The second day started with a discussion of how to prepare a successful IODP proposal. This was followed by general discussion and break-out groups, in the theme areas of Gas Hydrates, Paleoceanography, and Solid Earth Cycles, aimed at identifying opportunities for participation in the development of new and current proposals, and the research priorities and opportunities of the Canadian community within IODP.

Kathy Gillis, Anne de Vernal, Michael Riedel & Hélène Gaonac'h (IODP Canada)

Catherine Mével

News from the ECORD Managing Agency

IODP is about to enter its second phase. In 2008, the three platforms will be operating simultaneously, to the benefit of the science community. However, as explained by the Council chair in his message (*see cover page*), this will result in a major increase in the cost of the program. To assist member organisations in the process of increasing their contribution, the Council decided to carry out an ECORD-wide evaluation of the benefits to the consortium of participation in IODP. A committee composed of independant experts was set up in the spring of 2006 and worked throughout the summer and the fall. The ECORD evaluation committee has now accomplished its task. A first draft of the report was presented to the ECORD Council at its last meeting in November, and the report was published in January 2007. Overall, this report is very positive. The findings are summarised in these two concluding remarks :

"During a period when both *JOIDES Resolution* and *Chikyu* were unavailable for IODP it has fallen to ECORD through MSPs to implement the scientific objectives of ocean drilling. The resounding scientific success and new understanding of climate change issues which were obtained from both ACEX and Tahiti are testimony to the important role which it plays within the IODP structure."

"ECORD and its associated scientists are producing high-quality, international research in ocean science. It clearly represents excellent value for money and although we can see potential issues with the somewhat cumbersome management structure we find it to be an outstanding example of good international cooperation. We would wish to see funding continue for it and would very much welcome further approaches to EU Framework 7 for additional support for what is clearly an essential component in understanding the critical processes of climate evolution, the deep biosphere and geodynamics. "

The report also points out some weaknesses in the ECORD organisation. These remarks are taken very seriously by the Council. Possible avenues for improvement are being discussed and should result in actions in the near future.

In conclusion, the clear documentation of the major input of ECORD scientists and operator on IODP will be extremely useful to ECORD member organisations. I express Council's appreciation to the members of the external evaluation committee for their time and dedication to deliver an extremely valuable report.

Catherine Mével, EMA Director

ECORD member countries: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom

ECORD Education and Outreach Activities

IODP E&O Task Force

The ECORD Outreach team met up with their Japanese and US colleagues at the IODP E&O Task Force meeting held in Bremen in October 2006. Due to the number of expeditions scheduled during 2007-2008, the meeting focused mostly on the outreach and communications plans of the New Jersey Shallow Shelf expedition (implemented by the ECORD Science Operator-ESO) and the five expeditions of the NanTroSEIZE project (implemented by the Center for Deep Earth Exploration-CDEX and the US Implementing Organization-USIO).

Education

Eve Arnold will convene seventy European teachers at the ECORD Teachers Workshop to be held during EGU 2007 in Vienna. The goal of the ECORD Workshop is to provide teachers with information and material that can be used to enhance science classes for school students and to illustrate the excitement found in ocean research drilling. Scientific talks designed specifically for school teachers by leading IODP scientists highlight selected ocean drilling research topics important for humanity (such as gas hydrates, natural hazards and natural climate variations). The workshop also provides teachers with background speeches introducing the IODP drilling vessels and IODP-ECORD web sites tutorials.

In addition to this workshop, ESSAC sponsors and organises two ECORD Summer Schools, one in Urbino, Italy and the other in Bremen, Germany (*see pages 6 & 10*) and the ECORD Distinguished Lecturers Programme (*see page 8*).

ECORD on-line

Education and Outreach activities have been reorganised with new topics accessible from the homepage of the ECORD web site including:

- **Education** - All activities for students and teachers
- **Press & Media** - Press releases, Media conferences and Press coverage of the ECORD activities,
- **Promotional materials** - all ECORD publications and events promoting ECORD.

ECORD on-line contacts:

- **ESSAC - ESSAC Office, essac@Cardiff.ac.uk,**
- **ESO, Alan Stevenson - agst@bgs.ac.uk,**
- **EMA, Patricia Maruéjol - maruejol@crpg.cnrs-nancy.fr.**

Promotional Events

A Townhall meeting is jointly organised by ICDP and IODP at the European Geosciences Union General Assembly 2007-EGU 2007, on Tuesday 17 April (*see page 10*).

ECORD will attend the opening conference of the International Year of Planet Earth at UNESCO Headquarters in Paris, October 2007.

You are welcome to meet the ECORD Outreach team at the ECORD/IODP booth during EGU 2007 - 16-20 April, in Vienna and to take copies of the newest IODP-ECORD publications.

ECORD Outreach team: Eve Arnold, ESSAC, Albert Gerdes & Alan Stevenson, ESO, and Patricia Maruéjol, EMA

Chris MacLeod

ECORD *Science Support & Advisory Committee*
Updates

Elspeth Urquhart

The ESSAC Office team have had a very busy 6 months since the last newsletter in October and with the anticipated schedule of a fully operational 3-platform programme by early 2008 we expect to be even busier .

Workshops

In the latter months of 2006 five very successful workshops were held: *Scientific Ocean Drilling behind the Assesment of Geohazards from Submarine Slides*, in Barcelona, Spain; *Drilling through an Active Caldera, offshore Campi Flegrei, Eastern Tyrrhenian Margin*, in Naples, Italy; *Capturing a Salt Giant*, in Hamburg Germany - all part of the ESF Magellan Workshop Series, *Exploring Sub-Seafloor Life with the Integrated Ocean Drilling Program*, in Vancouver, Canada, part of the IODP International Workshops, and *Climate-Tectonic Drilling Studies in Southeast Asia*, an IODP-InterMARGINS workshop. Some report summaries for these are included below and all the full reports will be posted on our website at **www.essac.ecord.org/pastworkshops** as soon as they are available. Workshops that have been organised this summer so far include *Large Igneous Provinces* in Coleraine, Northern Ireland, and *Addressing Geohazards through Ocean Drilling*, in Portland, Oregon, USA both IODP International Workshops (**www.essac.ecord.org/workshopupcoming**) and three workshops from the Magellan Workshop Series (*see table page 10*).

Perhaps you are thinking of running your own workshop? If so, please contact the ESSAC Office **essac@Cardiff.ac.uk,** and submit your workshop proposal anytime. If you're not thinking of running your own workshop (no confidence, too young, too much hard work) then please think about attending some of the upcoming workshops mentioned above. If you want to go but don't have the funds you can apply for support through **www.iodp.org** or contact us at the ESSAC office as we have occasional funding schemes for workshop attendance.

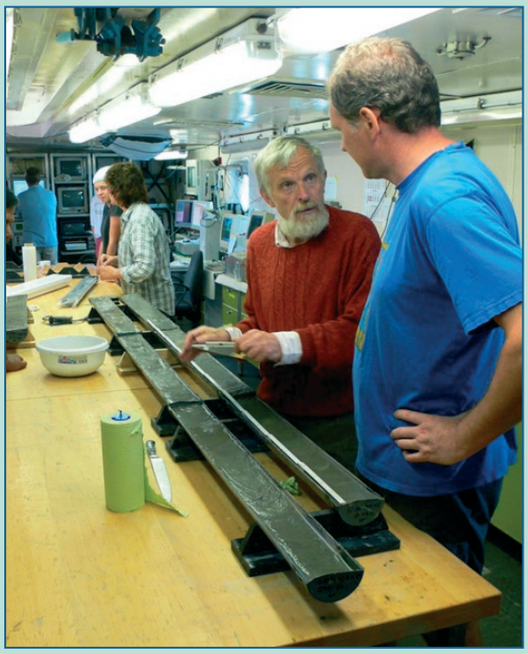
Expeditions

There have been two calls during the last 6 months, one for the **NanTroSEIZE** expeditions and one for the **Equatorial Pacific** expeditions. We were very pleased with the amount of interest in participating and the quality of the applications to date, however we do still need more help with a few areas of expertise. For example, we need more palaeoceanographic expertise for the NanTroSEIZE expeditions, so do not hesitate to tell us if you would like to participate. This year the **New Jersey Shallow Shelf Expedition 313** will begin in mid summer. We also anticipate a call for the **Bering Sea** expedition very soon. Publications from past expeditions 301-312 are available online at **www.iodp.org/scientific-publications**.

ECORD Scholarships for summer schools

As you can imagine we were swamped with applications for ECORD scholarships…. and very pleased we were too. It's very encouraging to know that so many people want to attend. Attendance at summer school is a very expensive exercise and we are very grateful to the ECORD Council for providing the ten €1000 awards. The successful applicants are:

(to continue on page 8)



Hermann Kudrass aboard the R/V Sonne, discussing with Carsten Rühlemann, during a cruise in the Bay of Bengal (SO-188) in July 2006 .

Hermann Kudrass is retiring from ECORD.

In June 2005 Hermann-Rudolf Kudrass retired from his IODP & ECORD activities. Herrud, better known as 'Herman the German' within the ocean drilling community, studied at the Universities of Freiburg and Kiel, where he attained his PhD in Geology under the supervision of Eugen Seibold. In the early seventies he received a position at the Marine Geology Department of the Federal Institute for Geosciences and Natural Resources (BGR) in Hanover. This was the starting point for a number of projects and sometimes rather adventurous expeditions, leading Hermann to several remote niches of our planet. Heavy mineral sands off Malaysia and Mozambique; gold off New Zealand; phosphates off Peru; the history of monsoon in the Bay of Bengal; geology of the South China Sea and teaching UNESCO courses in several developing countries are just some milestones in his very colourful scientific career. Hermann's first contact to ODP was in the late eighties when he served on the South Pacific Panel. Later, he became a member of the ODP Scientific Committee and Executive Committee. Hermann succeeded Helmut Beiersdorf as the coordinator of ODP-Germany in 2001, during the transition from ODP to IODP. Among his greatest credits certainly is the solid membership of Germany within ECORD, which he achieved in 2004. Within IODP, Hermann served in SPPOC and was a member of ESSAC. Leaving ESSAC in 2005 was the last step of a gradual process of Hermann's retirement from IODP, showing how important the European component of IODP is to him. Although Hermann is leaving his role in the IODP community, he has not retired yet, since 2005 he is the Head of the Division Geophysics, Marine and Polar Research at BGR.

Jochen Erbacher, ESSAC Alternate and IODP Deutschland coordinator.

Workshop Reports

Workshop for Climate-Tectonic Drilling Studies in Southeast Asia - An IODP-InterMARGINS Workshop

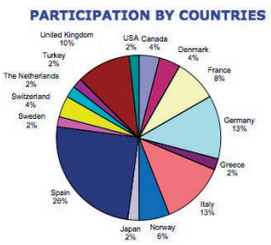
5–7th June 2006, Kochi Core Center (KU/JAMSTEC), Kochi, Japan. - *Funded by JAMSTEC, JOI, J-DESC and InterMARGINS*

Interactions between the tectonic evolution of the solid Earth and the planet's climate system have been recognized, yet are presently only understood in outline. The Asian monsoon – Himalaya-Tibetan Plateau system appears to be one of the most dramatic examples of such interactions and is ideally suited for deconvolving and unraveling the coupling that can occur between high topography and the climate system. Climate models suggest a strong linkage between Tibetan altitude and the strength of the monsoon. However, these models are largely untested. A meeting was held 5–7th June 2006 in Kochi, Japan, to discuss marine and terrestrial geoscience research on the subject of climate-tectonic studies focused in SE Asia. The meeting summarized recent research advances in the field and recommended the coordination of research activities across the region, particularly in the context of the Integrated Ocean Drilling Program (IODP). SE Asia is particularly well suited to this type of work because the Asian monsoon is strong and the rivers of the region incise the edge of the Tibetan Plateau. As a result surface uplift of Tibet drives increased erosional flux to the sea. Recent advances in the science of climate-tectonic coupling include new evidence for the monsoon experiencing a series of steps in intensification, possibly dating back to the Early Miocene ~25 Ma. Furthermore, while central Tibet appears to have been relatively high possibly back to >30 Ma, the NE and SE edges appear to have been elevated only since 10 Ma. Phases of plateau uplift or climate change must generate erosional pulses that are delivered to the deltas of the marginal seas, where they can be sampled and quantified. The importance of drilling in the Song Hong-Yinggehai Basin was recognized as an important step to testing models for climate change in East Asia. However, the erosional pulses observed can only be interpreted if the uplift and exhumation histories of the sources in SE Tibet can be reconstructed in detail and if variations in monsoonal climate can also be dated. Because of variations in the nature of the monsoon across Asia, and because the source rivers have interacted with each other in the past, drilling in the Red River fan-delta alone will be insufficient to address the science goals of the community. The meeting called for coordinated drilling in the Sea of Japan, in the East China Sea and in the Mekong delta, which in turn must be linked to related programs on the Indus and Bengal Fans in the Indian Ocean. Ocean drilling will need to be supplemented in key regions by continental coring operations, with the Hanoi Basin, the Jianghan and Subei Basins of the Yangtze River, and smaller sedimentary basins in SE Tibet particularly highlighted. Success in our scientific goals will require close collaboration between scientists in IODP member countries and those based in the region of operation.

Peter Clift, University of Aberdeen, UK, and Wonn Soh, JAMSTEC, Japan.

Scientific Ocean drilling behind the assessment of geo-hazards from submarine slides ESF Magellan Workshop Series

25–27th October2006, Barcelona, Spain



Fifty scientists and representatives of private companies, mainly from the European area (*see figure, left*), representing a wide spectrum of disciplines such as geophysics, stratigraphy, sedimentology, paleoceanography, marine geotechnology, geotechnical engineering, tsunami modelling, attended the workshop. During the workshop, it was agreed that submarine slides represent a geohazard for their destructive potential on seabed structures, for their tsunamigenic potential, and for their capability of methane gas release into the seawater and atmosphere. Scientific drilling offers a possibility to answer a number of scientific questions and test at least two existing hypotheses on basic mechanisms of submarine slides generation and of massive releases of gas. Both mega slides and smaller size slides should be addressed by drilling where slope instability is recognized as a recurrent phenomenon in the stratigraphic succession. Not only sediments that have failed should be studied, but also sediments that are presently undergoing deformation and un-failed slopes should be addressed. The drilling strategies should include classical stratigraphic drilling, dedicated geotechnical drilling, and installation of borehole observatories as well as seafloor observatories.

The outcomes of the workshops are close contacts with other ongoing international initiatives on submarine geo-hazards, and in particular with the organisation of the IODP-MI Geologic Hazards workshop held in summer 2007 (*see page 10*). An IODP pre-proposal is to be submitted in April 2007 to address a suite of medium size submarine slides in different geological environments.

Angelo Camerlenghi, Roger Urgeles, University of Barcelona, Spain, and Gemma Ercilla, ISM-CSIC with contributions from workshop participants

(came from page 6) Isabelle Gil, INETI, Portugal; Beatriz Gonzalez-Mora, University of Salamanca, Spain; Joerg Lippold, Heidelberg, Germany; Diana Magens, Alfred-Wegner Institute, Bremerhaven, Germany; Aoife O'Halloran, Trinity College Dublin, Ireland; Verity Payne, University of Leeds, UK; Jennie Perkins, Open University, UK; Deborah Skilliter, Dalhousie University, Canada; Iana Tsandev, University of Utrecht, Netherlands, and Henna Valppu, University of Oulu, Finland. If you were unsuccessful this time we would say before don't give up, apply to other sources, and apply to us again the next time". Most importantly, unsuccessful applicants should not be discouraged as the quality of applications is extremely high and competition is very fierce. We only wish we had more awards to distribute. Didn't know anything about the scholarship awards? You haven't been logging on to our website (**www.essac.ecord.org**) or you are not on our mailing list. To subscribe to the mailing list log on to the web site and take a few minutes to fill in a form at **www.essac.ecord.org/subscribe**. It's free and if you change your mind you can always unsubscribe.

Distinguished Lecturers Programme

Following the huge success of the United States Distinguished Lecturer Series we are starting our own European Programme. ECORD Council have generously agreed to fund this venture and have provided a budget for travel expenses for the lecturers. We are starting cautiously with a pilot run of just 3 lectures during 2007-2008, but we hope to expand the numbers rapidly. If you would like to host one of these lectures in your institution please let us know as soon as possible (*see the advertising notice below*). If you would like to give a lecture, i.e. be a "Distinguished Lecturer" yourself, or would like to nominate someone else then we are currently accepting applications for the 2008-2009 programme. For full details on how to be a host, how to be a lecturer, this year's titles and more see the advertising notice below or log on to **www.essac.ecord.org/dlp.**

...and finally

The inertia trap (deeper and more dangerous than the Moho) – don't fall in. ESSAC would like to hear your views about everything IODP related, what's good, what's bad, what can be improved?

It is all about communication, tell us , tell us, tell us. Don't assume we can't do anything so therefore it's not worth it etc. Perhaps we can't, but we will try – and just maybe, with your help we can change things. We are here and we are listening at essac@cardiff.ac.uk.

Chris MacLeod, ESSAC chair and Elspeth Urquhart, ESSAC science co-ordinator

The ECORD Distinguished Lecturers Programme

How to apply to host a lecture.

Applications to host a Distinguished Lecturer are accepted from any college, university, or nonprofit organization in ECORD member countries (see list of members countries below). Apply by email to essac@cardiff.ac.uk and include the name, address, telephone number and email address of a contact person. Please coordinate your application with other members of your department, and be sure to list more than one choice of speaker — this provides more flexibility in scheduling and increases your institution's chance of hosting a lecture. The ESSAC Office will then liaise directly with you to decide a suitable date and help determine the best pairing of speaker and institution. ECORD funding will cover the speaker's transportation expenses; host institutions are asked in turn to provide local transportation, housing, and meals for the speaker. Only one lecture per institution will be funded.

ECORD Member Countries:

Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Photo credits: From top to bottom, The Chikyu sails the seas (© JAMSTEC), Transit from I/V Oden to the drillship Vidar Viking during the IODP Arctic Coring Expedition (photo ECORD/IODP), 3D map of the drill sites within the Lomonosov ridge - IODP Arctic Coring Expedition (photo ECORD/IODP), the JOIDES Resolution drillship (photo ODP).

ECORD scientists participate in the drilling ship *CHIKYU*'s shakedown cruises - IODP to drill the earthquake zone off Japan.

Achim Kopf from RCOM Bremen, Germany, Christian Wilson from BGS Edinburgh, U.K. and Siegfried Lallemant from Université de Cergy, France, were amongst the scientists selected to participate.

Akim Kopf watching drilling operations aboard the Chikyu during the shakedown cruise for NantroSEIZE (photo IODP by P. Gaillot).

This summer, the shakedown cruise for the most ambitious geoscientific project on Earth, called NanTroSEIZE, started. In a multidisciplinary approach over several years, geoscientists from largely Europe, the USA, and Japan prepared to approach their main objective: to use the new research vessel *CHIKYU (see below)* to drill ca. 6 km beneath the seafloor into the zone where earthquakes generate. The project's first step took place in late summer 2006 when the lead scientists began to participate in the initial drilling and laboratory work. Achim Kopf, a professor of Marine Geotechnics at RCOM Bremen, was the first European scientist to take part in the shakedown expedition. During the cruise, the crew conducted test drilling to a depth of ca. 2000 meters below the seafloor at a site east of Japan's Shimokita Peninsula.

The project, Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE - **www.iodp.org/NanTroSEIZE**), is a multidisciplinary study of the dynamic plate interaction in southwest Japan, an area that regularly experiences large earthquakes and earthquake-generated landslides and tsunamis. In order to increase the understanding of such hazardous processes, a transect of deep drill holes will be put in over the next few years. Many of the boreholes will be equipped with state-of-the-art instrumentation to measure crucial physical parameters, some at depths of up to 6 km beneath the seafloor. These instruments can be used for earthquake warning when connected to seafloor cabled observation systems. Within the framework of the IODP, the **NanTroSEIZE** project is expected to begin its first research stage in the autumn of 2007. Multiple expeditions and stages are scheduled (*see details below*) and will involve hundreds of scientists, engineers and assistants from all over the world.

CHIKYU is the first scientific ocean drilling ship equipped with a riser system that makes it possible to drill to depths up to 7,000 meters below the ocean floor into pressurized, highly unstable rocks. Scientists plan to use the ship to drill directly into the plate boundary zone between the Philippine Sea Plate and the Eurasian continent. This was previously not possible because the so-called seismogenic zone was too deep for other drill ships to reach. With the riser system, deviated holes for instrument packages are possible even in complex geological settings like the one offshore Japan.

Achim Kopf, co-chief scientist of the NanTroSEIZE USIO Expedition #1

Expedition Stages of the NanTroSEIZE Project

Expedition CDEX #1 (*Chikyu*) - Logging While Drilling (LWD) at all the Stage 1 sites. M. Kinoshita (IFREE/JAMSTEC), H. Tobin (Univ. of Wisconsin-Madison)

Expedition CDEX #2 (*Chikyu*) - Shallow branching faults and tectonostratigraphy of the Kumano forearc basin. J. Ashi (Univ. of Tokyo) S. Lallemant (Univ. of Cergy-Pontoise)

Expedition CDEX #3 (*Chikyu*) - Coring of the incoming sediments and prism toe. G. Kimura (Univ. of Tokyo) & E. Screaton (Univ. of Florida)

Expedition USIO#1 (*SODV*) - Subduction Inputs, Achim Kopf (Bremen University) & Michael Underwood (Univ. of Missouri)

Expedition USIO#2 (*SODV*) - Kumano Basin Observatory - Demian Saffer (Penn. State University) & Won Soh (KCC/JAMSTEC).

(More information about the schedule can found at: **www.iodp.org/expeditions**)

Meeting Announcements

Forthcoming Workshops:

♦ Exploring Escarpment Mud Mount Systems and Mud Volcanoes with New European Strategies for Sustainable Mid-Depth Coring - Magellan Workshop Series, 10-13 May 2007, Rome, Italy (Convener: Sylvia Spezzaferri, silvia.spezzaferri@unifr.ch).

♦ Large Igneous Provinces Workshop - IODP-MI Workshop, 21-26 July 2007, Coleraine, Nothern Ireland.

♦ Addressing Geologic Hazards Through Ocean Drilling Workshop - IODP-MI Workshop, 26-30 August 2007, Portland, Oregon, USA.

♦ Marine Impacts and Environmental Consequences - Magellan Workshop Series , 10-13 September 2007, Oslo, Norway (Convener: Henning Dypvik, henning.dypvik@geo.uio.no).

♦ Southern African Climates, Agulhas Warm Water Transport and Retroflection and Interocean Water Exchanges - Magellan Workshop Series, 19-21 September, Kiel, Germany (Convener: Ian Hall, hall@cardiff.ac.uk).

Web links:

ESF-Magellan Workshop Series: www.esf.org/magellan
IODP-MI Workshops: www.iodp.org/workshops/

International Conferences:

♦ European Geosciences Union General Assembly - EGU 2007, 15-20 April 2007, Vienna, Austria.

♦ EurOceans 2007, 22 June 2007, Aberdeen, Scoland, UK. *www.eurocean2007.com/*

♦ Rift to Ridge '07, 28-29 June 2007 - National Oceanography Centre, Southampton, UK.
A workshop dedicated to North Atlantic rift - drift evolution under the influence of the Iceland Hotspot. *www.noc.soton.ac.uk/gg/rift_ridge07/*

♦ International Union of Geodesy & Geophysics XXIV, 2-13 July, 2007, Perugia, Italy.
www.iugg2007perugia.it/

♦ IODP Topic Symposium - North Atlantic and Arctic Climate Variability, 15-16 August 2007, Bremen, Germany.

♦ Submarine mass movements and their consequences - UNESCO-IGCP 511,1-3 October 2007, Santorini, Greece. *www.ncmr.gr/submarinemove2007*

Others Events:

♦ EGU 2007 Vienna: IODP-ECORD booth (#40-41), 16-20 April 2007, Joint ICDP-IODP Townhall meeting, Tuesday 17 April 2007, 19:00-20:00 (Room 13). *www.ecord.org/pi/egu07*

♦ ECORD Summer schools: Urbino Summer School in Paleoclimatology, 18 July-3 August, Urbino, Italy & ECORD Summer School on Paleoceanography, 13-24 August 2007, Bremen, Germany.
www.ecord.org/edu/summerschool

♦ Unesco Conference - International Year of Planet Earth, Paris, October 2007.

Submit a proposal ?
next submission deadline: October 1, 2007
How to Participate ?
Further information on ESSAC at:
www.ecord.org

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More information at www.essac.ecord.org

ECORD-Net Updates

ERA-NET
SIXTH FRAMEWORK PROGRAMME

More than three years into the ECORD-net project, and at the end of the first phase of IODP, the European Consortium for Ocean Research Drilling has reached maturity. Many of the objectives intially planned have now been accomplished. The ECORD structure is fully operational, in terms of managing funds, coordinating the scientific involment of member countries, and implementing drilling operations.
A new brochure summarizes the ECORD-net accomplishements so far. It is can be downloaded from the ECORD website at:
www.ecord.org/pub/ecord-net.pdf
However, some actions are still in progress.

Reaching out to the science community in Europe

The Magellan Workshop Series, run by ESF in coordination with the ECORD Science Support and Advisory Committee (ESSAC), is fully operational. Three new workshops, in preparation for drilling proposals, will be held this year (*see page 10*)
ESSAC has also initiated other activities, to encourage the participation of European scientists in ocean drilling :
The **Distinguished Lecturers Programme** offers the opportunity for a University or an Institute to invite one of the three selected lecturers (*see page 8)*. We encourage non-ECORD European countries to apply.
A programme of **Summer Schools** for ECORD students/young scientists starts this year (*see page 10*), with two opportunities offered. Ten ECORD scholarships to support travel expenses are open to ECORD and non-ECORD European scientists (*see pages 6 & 8*). This activity will continue in the following years, and a call for proposals to organise a summer school in 2008 will be issued this spring.
In addition, the Council has also made the decision that applications from non-ECORD European scientists to participate in IODP expeditions should be considered by ESSAC. Opening this opportunity will allow ECORD to benefit from the intellectual contribution of outstanding scientists, even though their country has not yet made the decision to join the consortium because of limited resources and small science communities.

Databases

A major goal of ECORD-net was to set up databases for the use of both managers and scientists. The database for managers will soon be posted on the ECORD website. It will provide information about the ECORD involvement in IODP, such as the expedition participants, the ECORD drilling proposals, the history of panel membership, etc.
A metadatabase for site survey information will also be made accessible. It will consist of a user-friendly portal to existing databases such as Euroseismic/EU-Seased which has been added to with new data by our Norwegian partner, DISCOS which contains valuable data from industry, and the OGS database.
Finally, following the Magellan workshop in January 2006, a geomicrobiology database will be finalised.

Deep Sea Frontier Initiative

A « foresight paper », resulting from the workshop held in Naples in June 2006, is about to be released. The Deep Sea Frontier steering committee is now getting organised to answer the FP7 call, which provides the opportunity to submit a proposal for a coordination action.
Contact: Sören Dürr (Soeren.Duerr@dfg.de) or Stefan Winkler-Nees (Stefan.Winkler-nees@dfg.de).

ECORD-Net: European Research Area for scientific drilling
Project n° ERAC-CT-2003- 510218, European Consortium for Ocean Research Drilling Network
Co-ordinator - Catherine Mével - mevel@ipgp.jussieu.fr
www.ecord.org/enet/ecord-net

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ECORD Teachers Workshop

Exploring the Ocean Floor with the Integrated Ocean Drilling Program (IODP)

EGU General Assembly 2007
18-19, April 2007, Vienna, Austria

European Geosciences Union
ECORD Teacher's Workshop
Austria Center Vienna, 18-19 April 2007

Exploring the Ocean Floor with the Integrated Ocean Drilling Program

Dear Teacher,

Welcome to the ECORD teacher's workshop at the EGU General assembly. Our goal with the workshop is to share with you the excitement of ocean drilling research, by presenting you with some of the most recent scientific results produced by this international community of marine scientists. We also hope to demonstrate for you and your students that international cooperation between scientists with different professional skills and personal cultures is not only possible, but necessary, to discover how our planet Earth functions and how humanity can best take care of it.

We have selected ocean drilling research topics that are complementary to the natural hazard sub-theme of the Geosciences in the City GIFT workshop that you have just attended, as well as some talks about the kinds of research ships that we use to carry out our explorations. The occurrence of volcanic eruptions, earthquakes and sea-level change are all well-recognized natural hazards, originating in the Earth's plate tectonic activity that is manifested by the creation and destruction of the oceanic crust. We also look at two studies of sediments deposited in the ocean focusing on sediments stability and the potential for landslides as well as microbial communities living in the deep ocean floor – the last topic perhaps a little preview of next year's GIFT proposed workshop on the carbon cycle.

These talks are just a brief introduction to the variety of science performed by IODP. There are 21 countries participating in IODP and the specialties of the scientists sailing with IODP include geology, physics, chemistry, biochemistry, microbiology, micropaleontology, engineering….. the list goes on! IODP-related web links for both classroom material and scientific results can be found at www.iodp.org - follow the education links to find movies, posters, classroom activities and much more. You will find information which will be of specific use to you in your classroom regardless of the science discipline you teach.

We would like to thank the EGU for providing for workshop costs and logistics, and the European Commission for providing financing for the ECORD workshop via an ERA-net grant to ECORD. The EGU Committee on Education (and especially Carlo Laj for leading the GIFT effort and Barbara Donner for assistance with the hotel booking) contributed by advertising and recruiting teachers to the workshop. The Department of Geology and Geochemistry at Stockholm University provided production of the workshop volume.

Within the IODP community, we would like to thank all the scientists who agreed to make a presentation for this workshop, the ECORD managing agency (especially Patricia Maruejol) for organizing and supplying supplementary material for the teachers, IODP-MI for granting copyright permission for the Scientific Drilling article reproduced in this volume, and JAMSTEC for sending us Tadashi to talk about the Chikyu.

Eve Arnold
On behalf of the ECORD-IODP community

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European Geosciences Union – General Assembly
ECORD Teacher's Workshop
Austria Center Vienna

Exploring the Ocean Floor with the Integrated Ocean Drilling Program

Wednesday, April 18

11.45 – 13.30 **LUNCH**

13.30 – 14.00 **INTRODUCTION TO THE OCEAN FLOOR AND IODP**
Eve Arnold
Department of Geology and Geochemistry
Stockholm University, Sweden

14.00 –15.00 **DRILLING INTO THE EARTHQUAKE ZONE IN THE NANKAI TROUGH, JAPAN**
Achim Kopf
Research Centre Ocean Margins (RCOM)
Bremen University, Germany

15.00 – 15.30 **COFFEE BREAK**

15.30 – 16.30 **IODP AND THE EARTH'S VOLCANISM**
Marco Sacchi
Institute for Coastal Marine Environment
National Research Council
Napoli, Italy

16.30 – 17.30 **CORAL REEF RECORDS OF SEA-LEVEL, CLIMATIC AND ENVIRONMENTAL CHANGES DURING QUATERNARY TIMES**
Gilbert Camoin
CEREGE
Aix-en-Provence, France

Thursday, April 19

08.30 – 09.15 **THE CHIKYU**
Tadashi Yoshizawa
JAMSTEC
Yokohama, Japan

09.15 – 10.15 **RAPID SEDIMENTATION, OVERPRESSURE AND CONTINENTAL MARGIN STABILITY IN THE GULF OF MEXICO**
Jan Behrmann
IFM-GEOMAR
Kiel, Germany

10.15 – 10.45 **COFFEE BREAK**

10.45 – 11.30 **MISSION SPECIFIC PLATFORMS**
Alan Stevenson
British Geological Survey
Ediburgh, United Kingdom

11.30 – 12.30 **EXPLORING THE DEEP SEA SUBSURFACE BIOSPHERE**
Judith McKenzie
ETH-Zurich
Zurich, Switzerland

12.30 **END OF WORKSHOP**

ECORD invites you to Host a Lecture

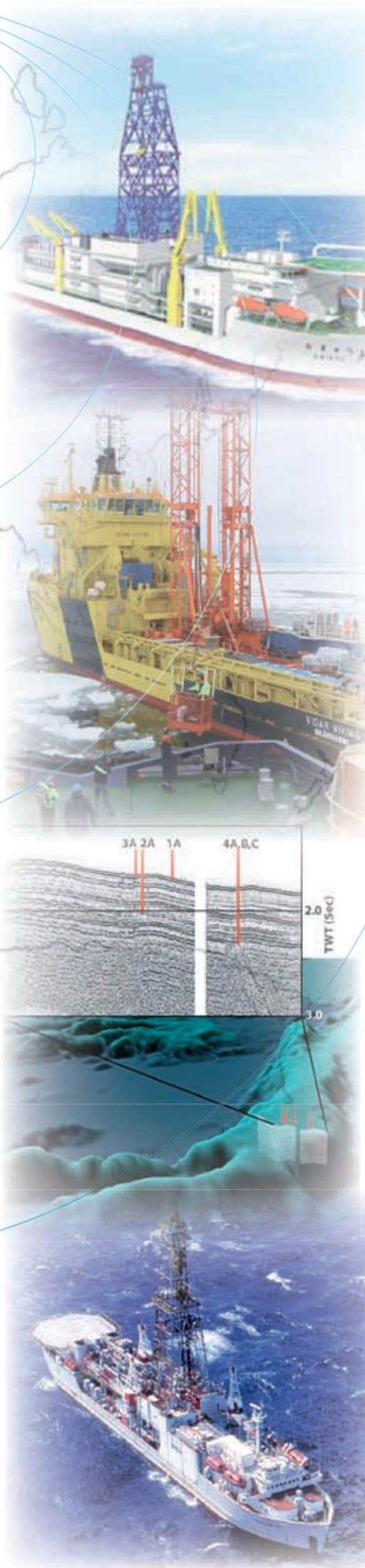
Applications to host a Distinguished Lecturer are accepted from any college, university or non-profit organisation in ECORD member countries

Dr Benoît Ildefonse Université Montpellier, France.
Building the crust at mid-ocean ridges: the scientific ocean drilling perspective
IODP Theme: Solid Earth Cycles and Geodynamic

Dr Judith McKenzie Institute of Geology, ETH Zürich Switzerland.
Exploring the Deep Biosphere beneath the seafloor with the scientific ocean drilling
IODP Theme: Deep Biosphere and Subseafloor Ocean

Dr Paul Wilson School of Ocean & Earth Science, National Oceanographic Centre, Southampton, UK.
Palaeo-greenhouses and Palaeo-icehouses: Understanding changes in global climate - the last 100 million years.
IODP Theme: The Processes and Effects of Environmental Change

Apply by email to **essac@cardiff.ac.uk**
More information at:
http://www.essac.ecord.org/



ECORD European Consortium for Ocean Research Drilling

IODP INTEGRATED OCEAN DRILLING PROGRAM

The ECORD Distinguished Lecturers Programme

Ocean-floor drilling provides essential material for the study of climate change, bio-diversity, geophysics and geodynamics. ECORD (European Consortium for Ocean Research Drilling) has been formed to join the international Integrated Ocean Drilling Program (IODP) under a single European banner alongside U.S.A, Japan, Korea and China and to provide support for mission-specific platforms (MSPs).

How to apply to host a lecture?

Applications to host a Distinguished Lecturer are accepted from any college, university, or nonprofit organization in ECORD member countries (see list of members countries to the left). Apply by email to **essac@cardiff.ac.uk** and include the name, address, telephone number and email address of a contact person. Please coordinate your application with other members of your department, and be sure to list more than one choice of speaker — this provides more flexibility in scheduling and increases your institution's chance of hosting a lecture. The ESSAC Office will then liaise directly with you to decide a suitable date and help determine the best pairing of speaker and institution. ECORD funding will cover the speaker's transportation expenses; host institutions are asked in turn to provide local transportation, housing, and meals for the speaker. Only one lecture per institution will be funded.

OR

Apply online at: **http://www.essac.org/**

ECORD Member Countries:

Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

ESSAC
ECORD Science Support & Advisory Committee

Photos credits: *From top to bottom, The Chikyu sails the seas (© JAMSTEC), Transit from I/V Oden to the drillship Vidar Viking during the IODP Arctic Coring Expedition (photo ECORD/IODP), 3D map of the drill sites within the Lomonossov ridge - IODP Arctic Coring Expedition (photo ECORD/IODP), JOIDES Resolution drillship (photo ODP).*

Appendix 7.4: ECORD summer schools

ECORD Summer School on Paleoceanography
August 13-24, 2007, Bremen, Germany
Co-sponsored by the European Consortium for Ocean Research Drilling ECORD, the Graduate School GLOMAR, and the Research Center Ocean Margins RCOM, a **two week summer school on paleoceanography** for 30 PhD students and young PostDocs is offered at the Center for Marine Environmental Sciences MARUM, University of Bremen and will take place **August 13-24, 2007**. Using the facilities of the IODP Bremen Core Repository, a practical on core logging and time-series analysis techniques will be combined with lectures and interactive discussions on the paleoceanography of the Cretaceous to Cenozoic Oceans. A focus will be put on key topics of ocean heat transport and nutrient cycles, on recent developments in integrated stratigraphy, and on recent studies of North Atlantic and Arctic Ocean climate variability.

- **Organiser:** Uta Brathauer, Gerold Wefer
- **Instructors:** TO BE NAMED
- **Location:** **MARUM**, University of Bremen, 28359 Bremen
- **Tuition fee of 100 euros, is requested.** Scholarships for travel and accommodation are available on request
- **ECORD scholarship:** Interested PhD students should send applications for scholarships to the **ESSAC Office** before **February 25, 2007**
- **Applications:** To subscribe please mail to: **gratmeyer@marum.de** before **March 31, 2007**.

The ECORD summer school in Bremen is combined with the **IODP Topic Symposium "North Atlantic and Arctic Climate Variability"**.
University Campus Bremen, Germany, 15 - 16 August, 2007.
Registration and payment logistics for the topical symposium will be organised by IODP. See more details published in March 2007 at IODP
>> more information
Poster contributions are very welcome.

Appendix 7.4: ECORD summer schools

The *Urbino Summer School in Paleoclimatology* presents

Past Global Change Reconstruction and Modelling Techniques

USSP 2007

an advanced course co-sponsored by *ECORD*, the *Darwin Center for Biogeology*, the *Institute for Marine & Atmospheric research Utrecht (IMAU)*, *IMAGES*, and the *Netherlands Research School of Sedimentary Geology*

University of Urbino July 18-August 3, 2007

The 4th Summer School of the USSP consortium will be focused on the evolution and dynamics of Cretaceous and Cenozoic climates. Experts will give lectures in the areas of stratigraphy, biogeochemical cycling, paleoceanography, climate models and integration of results.

Interactive discussions of case-studies (e.g. black shale deposition and carbon cycling including Cretaceous Oceanic Anoxic Events, Paleocene-Eocene hyperthermals and the Eocene-Oligocene transition) in classes, practicals and in the field will provide participants with an advanced working knowledge on the paleobiological and geochemical proxy data and their use in the reconstruction and modelling of past climates.

Early-registration fee (before April 1st, 2007) : Students: 550 Euros - Academic/industrial staff: 900 Euros
USSP can accept a maximum of 50 participants

For detailed information visit **www.uniurb.it/ussp**
For ECORD scholarships see the ESSAC web site at www.essac.ecord.org

USSP Instructor Pool

Gabriel Bowen Purdue University
Ken Caldeira Carnegie Institution
Margaret Collinson Royal Holloway University
Giuseppe Cortese AWI Bremerhaven
Robert DeConto Massachussets University
Gerald Dickens Rice University
Henk Dijkstra IMAU Utrecht
Elisabetta Erba University of Milan
Jochen Erbacher BRG Hannover
Martin Frank IFM-GEOMAR Kiel
Matthew Huber Purdue University
Paul Koch UC Santa Cruz
Dick Kroon University of Edinburgh
Wolfram Kuerschner Utrecht Univeristy
Lee Kump Penn State University
Luca Lanci University of Urbino
Lucas Lourens Utrecht University
Mark Pagani Yale University
Heiko Pälike University of Southampton
Paul Pearson Cardiff University
Isabella Premoli-Silva University of Milan
Isabella Raffi University of Chieti
Gert-Jan Reichart Utrecht University
Ursula Röhl University of Bremen
Eelco Rohling University of Southampton
Francesca Sangiorgi Utrecht University
Appy Sluijs Utrecht University
Howard Spero UC Davis
Catherine Stickley Norwegian Polar Institute
Ellen Thomas Yale University
Anna von der Heydt IMAU Utrecht
Tim White Pennsylvania State University
Scott Wing Smithsonian Inst. Washington DC
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Università di Urbino · ECORD · IODP · IMAU · USSP Consortium · images · NSG

Appendix 7.4b: Applicants for ECORD Scholarship scheme

Last name	First name	Position	Institution	Country	Referees	School requested
De Mol	Lies	1st yr PhD	Ghent Univ.	Belgium	Henriet, Louwye	Bremen
Pirlet	Hans	1st yr PhD	Univ. Ghent	Belgium	Henriet, Louwye	Bremen
Skilliter	Deborah	3rd yr PhD	Dalhousie	Canada	Fensome, Williams	Urbino
O'Halloran	Aoife	1st yr PhD	Dublin Univ. trinity	Eire	Nicholas, Pearson	Urbino
Valppu	Henna	?2nd yr PhD	Univ. Oulu	Finland	Strand, Korja	Bremen
Virtasalo	Joonas	Post-doc	Univ. Turku	Finland	Saarinen, Kotilainen	Bremen
Alvarez Garcia	Maria	Post-doc	University of Bremen	Germany	Sanchez, Flores	Bremen
Khelifi	Nabil	1st yr PhD	Universitat Kiel	Germany	Sarnthein, Zouari	Urbino
Lippold	Joerg	2nd yr PhD	Heidelberg Acad.	Germany	Christl, Mangini	Bremen
Magens	Diana	1st yr PhD	AWI Bremerhaven	Germany	Kuhn, 2nd ref requested	Urbino/Bremen
Rincon	Daniel	1st yr PhD	Univ. Bremen	Germany	Tiedmann, 2nd ref requested	Urbino/Bremen
Sliwinska	Katarzyna	1st yr PhD	Aarhus univ.	Germany	Heilmann-Clausen, Seidenkrantz	Urbino
Castello	Cristina	2nd yr PhD	Universita Milano	Italy	Erba, Channell, Jadoul	Bremen
Perrotta	Sonia	Post-doc		Italy	Perrone, Critelli	Urbino
Barke	Judith	1st yr PhD	Utrecht Univ.	Netherlands	Van der Burgh, Reichart	Urbino
Bijl	Peter	Masters	Utrecht Univ.	Netherlands	Sluijs, Lourens	Urbino
Bonis	Nina	2nd yr PhD	Utrecht Univ.	Netherlands	Brunnik, Kuerschner	Urbino
Gong	Zhihong	4th? Yr PhD	Utrecht Univ.	Netherlands	Dekker, Langereis	Urbino
Jilbert	Tom	3rd yr PhD	Utrecht Univ.	Netherlands	Gert de Lannge, Reichart	Urbino
KaramiArokhloo	MehdiPasha	1st yr PhD	Utrecht Univ.	Netherlands	Wortel, Dijkstra	Urbino
Kempen	Monique	1st yr PhD	Univ. Nijmegen	Netherlands	Reichart, Roelofs	Urbino
Kraal	Peter	1st yr PhD	Utrecht Univ.	Netherlands	Slomp, van Cappellen	Urbino
Ruhl	Micha	1st yr PhD	Utrecht Univ.	Netherlands	Kuerschner, Reichart	Urbino
Tsandev	Iana	2nd yr PhD	Utrecht Univ.	Netherlands	Slomp, van Cappellen	Urbino
Grasmo	Kristin	2nd yr PhD	Univ. Bergen	Norway	Haflidason, Sejrup	Urbino/Bremen
Kjennbakken	Heidi	Masters	Univ. Bergen	Norway	Haflidason, Sejrup	Bremen
Gil	Isabelle	Post-doc	INETI	Portugal	Lebeiro, Abrantes	Urbino
Ribeiro	Sofia	1st yr PhD	Univ. Lisbon?	Portugal	Brotas, Abrantes	Urbino
Hernandez	Ivan	1st yr PhD	Univ. Salamanca	Spain	Sanchez, Barcena	Urbino/Bremen
Alonso Garcia	Montserrat	Pre-PhD	Univ. Salamanca	Spain	Flores, Sanchez	Bremen
Alvarez Cifuentes	Raul	Masters	Univ. Oviedo	Spain	corrupt file - requested replacement	Urbino/Bremen
Gallego Torres	David	5th yr PhD	Univ. Granada	Spain	Martinez-Ruiz, Romero	Urbino/Bremen
Gamundi	Immaculada	1st yr PhD	Univ. Granada	Spain	Lobo, Maldonado	Bremen
Gonzalez-Mora	Beatriz	3rd yr PhD	Univ. Salamanca	Spain	Sanchez, Barcena	Bremen
Molina	Alejandra	2nd yr PhD	Univ. Salamanca	Spain	Flores, Sanchez	Bremen
Najarro	Maria	1st yr PhD	IGME	Spain	Martin-Chivelet, Rosales	Urbino
Nieto-Moreno	Vanesa	1st yr PhD	Univ. Granada	Spain	Martinez-Ruiz, Comas	Urbino/Bremen
Perez Martin	Ruben	1st yr PhD	Univ. Salamanca	Spain	Flores, Sanchez	Urbino/Bremen
Saavedra	Mariem	2nd yr PhD	Univ. Salamanca	Spain	Flores, Sanchez	Urbino/Bremen
Keller	Christina	1st yr PhD	ETH	Switzerland	Bernasconi, Weissert	Urbino
Abell	Richard	3rd yr PhD	University of Bristol	UK	Elliot, Schmidt	Urbino
Afzal	Jawad	1st yr PhD	University of Leicester	UK	Aldridge, Williams	Urbino
Bugler	Melanie	1st yr PhD	Plymouth Uni.	UK	Gehrels, Grimes	Urbino
Hernandez	Maria	2nd yr PhD	Bristol Univ.	UK	Pancost, Mills	Bremen
Payne	Verity	1st yr PhD	Univ. Leeds	UK	Rickaby, Shaw	Urbino
Perkins	Jennifer	1st yr PhD	Open Univ.	UK	Burton, James	Urbino
Tudge	Joanne	2nd yr PhD	Univ. Leicester	UK	Davies, Lovell	Bremen
White	Clare	1st yr PhD	Royal Holloway Univ. London	UK	Elders, Bosence	Urbino

Appendix 7.4c: ECORD Scholarship Awardees

Last name	first name	position	institution	country	referees	SS requested	PhD topic
Gil	Isabelle	Post-doc	INETI	Portugal	Lebeiro, Abrantes	Urbino	The oceanographic variability along the North Atlantic margins through the last 2000 yrs: climatic impacts and forcing mechanisms reconctructed from high resolution diatom records.
Gonzalez-Mora	Beatriz	3rd yr PhD	Univ. Salamanca	Spain	Sanchez, Barcena	Bremen	Climate changes in the last 250 kyr in the Mediterranean Sea.
Lippold	Joerg	2nd yr PhD	Heidelberg Acad.	Germany	Christl, Mangini	Bremen	Radionuclides in deep-sea sediments: 10Be based reconstruction of geomagnetic field and 231Pa/230Th based reconstruction of Atlantic meridional overturning circulation.
Magens	Diana	1st yr PhD	AWI Bremerhaven	Germany	Kuhn, 2nd ref requested	Urbino/Bremen	Cenozoic climate evolution in Antarctica.
O'Halloran	Aoife	1st yr PhD	Dublin Univ. Trinity	Ireland	Nicholas, Pearson	Urbino	Global climate fluctuations at low latitudes along the Indian Ocean margin during the Paleogene.
Payne	Verity	1st yr PhD	Univ. Leeds	UK	Rickaby, Shaw	Urbino	Trace metal incorporation into biomineralized carbonates: Understanding geochemical proxies and the sequestration of contaminants.
Perkins	Jennifer	1st yr PhD	Open Univ.	UK	Burton, James	Urbino	Chemical weathering response to the Mi-1 climate excursion.
Skilliter	Deborah	3rd yr PhD	Dalhousie	Canada	Fensome, Williams	Urbino	Dinoflagellates from shallow core holes from the Grand Banks, off Newfoundland; detailed taxonomy and the first event-based biostratigraphy of Cenozoic strata of the Grand Banks, Canada.
Tsandev	Iana	2nd yr PhD	Utrecht Univ.	Netherlands	Slomp, van Cappellen	Urbino	Global Impact of Terrestrial Nutrient Fluxes to the Ocean.
Valppu	Henna	?2nd yr PhD	Univ. Oulu	Finland	Strand, Korja	Bremen	History of sea level change in Late Cenozoic sedimentary sequences.