6th Meeting of the ECORD Science Steering & Advisory Committee (ESSAC)

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

6th ESSAC Meeting

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AGENDA

Friday 5th May 2006, 13:30 – 17:30
Saturday 6th May 2006, 09:30 – 17.30

1.	**Introduction**		
1.1	Welcome and logistics	(Pearce/MacLeod)	15 min
1.2	Discussion and approval of the agenda	(Pearce)	15 min
1.3	Approval of the 5th ESSAC Meeting minutes (Edinburgh)	(Pearce)	15 min
1.4	5th ESSAC Meeting minutes (Edinburgh): Matters Arising	(Pearce)	15 min
1.5	ESSAC Chair	(Pearce)	15 min
1.6	Goals of the Meeting	(Pearce)	15 min
2.	**Staffing**		
2.1	New Jersey Expedition Staffing summary	(MacLeod/Lenci)	15 min
2.2	Replacement of SPPOC (SASEC)	(MacLeod/Lenci)	30 min
2.3	SAS Representatives	(MacLeod/Lenci)	30 min
2.4	Co-chief Assignments	(MacLeod/Lenci)	30 min
3.	**Long-range Planning**		
3.1.	SPC Executive Summary	(MacLeod)	30 min
3.2.	Management Forum Executive Summary	(Pearce)	30 min
3.3	Missions: Implications for ESSAC	(Pearce/MacLeod)	30 min
3.4.	European infrastructures: Aurora Borealis	(Arnold)	30 min
4.	**Workshops**		
4.1	IODP Workshops	(Pearce)	15 min
4.2.	Developments and Implications	(Pearce)	45 min
4.3.	ESSAC Deep Biosphere Workshop outcomes	(McKenzie)	15 min
4.4.	ESF Magellan Call	(McKenzie)	15 min
5.	**Outreach**		
5.1.	Expansion of educational activities	(Arnold/EMA)	90 min
5.2.	ESSAC Database: mailing-list rules, ECORD publications	(Lenci)	15 min
5.3.	ESSAC web-site 6.4 Newsletters	(Lenci)	15 min
5.4.	ECORD Newsletters #6	(Maruejol)	15 min
5.5.	ECORD-net Geomicrobiology database updates	(Bingham/Tamburini)	15 min
6.	**ECORD Review**	(MacLeod)	30 min
7.	**Meetings**		

7.1.	Upcoming meetings incl. EuroForum	(Lenci)	15 min
7.2.	Date and Place of the Next ESSAC Meeting	(MacLeod)	15 min

8. Any Other Business

Note that Science updates and lunch with the SAS representatives will be part of the EuroForum.

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
Hans Brumsack	ESSAC delegate Germany
Gilbert Camoin	ESSAC delegate France/ESSAC vice-chair
Menchu Comas	ESSAC delegate Spain
David Hardy	ESSAC alternate Ireland
Benoit Ildefonse	ESSAC alternate France
Rachel H. James	ESSAC alternate United Kingdom
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
Dan Evans	ESO Science Manager
Teresa Bingham-Muller	ECORD-Net, Swiss National Science Foundation
Patricia Maruéjol	EMA scientific officer
Catherine Mével	EMA Director
Federica Tamburini	ECORD-Net, Swiss IODP Science Coordinator

Apologies

Kathryn Gillis	ESSAC delegate Canada
Paul Martin Holm	ESSAC delegate Denmark
Rudy Swennen	ESSAC delegate Belgium

1. INTRODUCTION

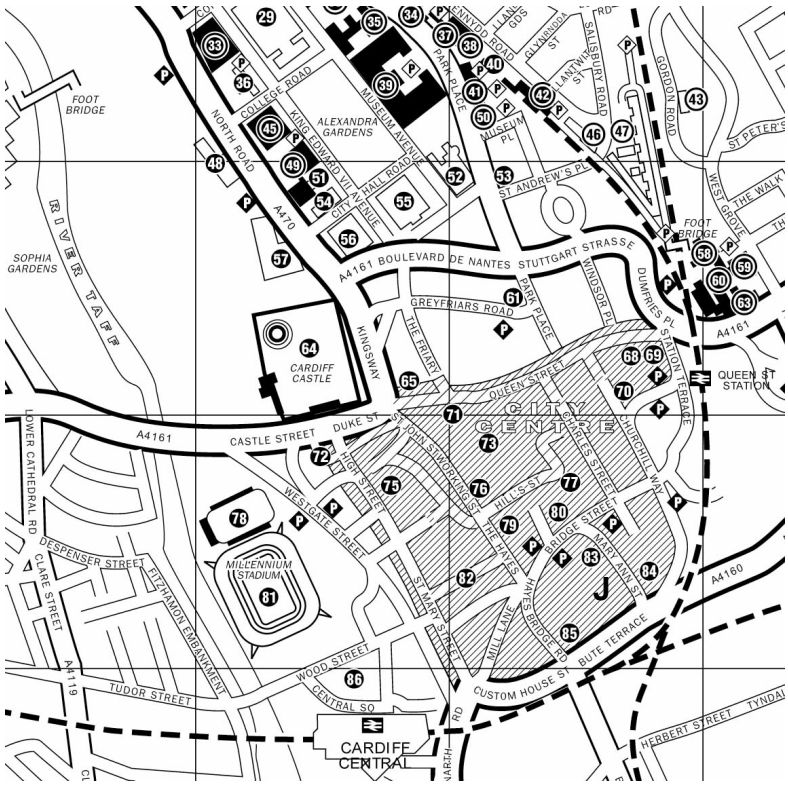
1.1 Welcome and Logistics

Things to do in Cardiff
Cardiff is a young and vibrant city of approximately 400,000 inhabitants. It expanded greatly in the 19th century, becoming one of the largest and most prosperous ports in the world by means of the shipment of coal mined from the South Wales coalfield in the mountains just to the north of the city.

Cardiff is very much the cultural as well as administrative capital of Wales. It is reputedly the fastest growing city in Europe, and the pace of development over the past decade has certainly been extraordinary. Building a barrage across the mouth of Cardiff Bay has created a huge freshwater lake popular for water sports, and the (continuing) redevelopment of the old docks area has led to creation of the trendy and popular Cardiff Bay waterfront area, with many bars and restaurants. It is also the location of the new Welsh Assembly (parliament) building, the *Senedd*, and the Wales Millennium Centre, a huge multi-venue opera house and arts centre. The centre of the city is dominated by the Millennium Stadium, a hugely impressive 75,000-seater stadium built for the 1999 rugby World Cup tournament and which is the largest retractable-roof structure in western Europe and the largest sports venue in the UK.

We have put this brief guide together to give you a few suggestions for things to do in and around Cardiff. It is far from exhaustive and much more information is available on-line (via any Google search) or from tourist information centres/hotel receptions.

Orientation
The centre of Cardiff is quite compact. Queen Street is the main shopping area, a pedestrianised street running E-W from Cardiff Castle (at its western end). Cardiff Queen Street railway station lies at its eastern end. Park Place leads northward off Queen Street up to the National Museum of Wales (venue for the ESSAC meeting and EuroForum) and the Main Building of Cardiff University (where the School of Earth, Ocean & Planetary Sciences is located). More shops are to be found on St. John Street (leading to Working Street and The Hayes), which runs south from the western end of Queen Street, and High Street/St. Mary Street, which runs parallel to St. John Street opposite the entrance to Cardiff Castle. At the bottom (south end) of St. Mary Street is Cardiff Central railway station (off Wood Street, opposite the bus station. Jurys Cardiff Hotel is walking distance away at the junction of Bute Terrace and Mary Ann Street, a little farther south and east.



52 – National Museum of Wales
39 – Cardiff University Main Building
J – Jurys Hotel

Hints/tips for eating and drinking in Cardiff
There are very many restaurants and pubs in and around the centre of Cardiff. The highest concentration of restaurants is probably in Cardiff Bay (see below) or around the bottom of St. Mary Street, where reasonably decent eateries from many different countries may be found. Welsh cuisine is not much in evidence; it is not renowned even by British standards. Nevertheless, we would recommend *cawl* – a thick soup of lamb and vegetables – say for a pub lunch on a cold day. Not so strongly recommended is lavabread, a local speciality of boiled up locally collected seaweed; however, it's not actually as bad as it looks.

As elsewhere in the UK, Indian restaurants are excellent. Unfortunately the best ones in Cardiff are out of the city centre, about a mile to the northeast on Albany Road. They are, however, easily accessed by taxi.
The pubs and clubs on St. Mary Street tend to get very full and rather rowdy later on Friday and Saturday evenings. Sometimes the atmosphere can get a little intimidating, especially after midnight. Although fine earlier in the evening, the area is worth avoiding late on. There is a rugby match on at the Millenium Stadium on Saturday evening (see below) so the city centre is likely to be buzzing. Fortunately, rugby fans, unlike their footballing counterparts, are usually very friendly and rarely cause trouble. Cardiff Bay has a somewhat more genteel and trendy atmosphere in comparison, though is also likely to be busy on a weekend evening. Top-quality fayre for those on unlimited expense accounts can be found in the restaurant at the 5-star St. David's Hotel and Spa at the western end of the Bay.

Cardiff Bay
Cardiff Bay lies about a mile south of the city centre. It can be reached quite easily by train from Queen Street station, by bus (from Wood Street and elsewhere), on foot or by taxi (cheap if shared). The planned mag-lev monorail is yet to be built.

Cardiff Bay is highly recommended not only as a venue for a drink and/or a meal but also to visit in its own right. The Wales Millenium Centre and *Senedd* building are very impressive, and the Techniquest hands-on science museum is fun, if a little expensive. Boat trips around the Bay are cheap and a pleasant way of passing an hour or so. It is quite common to see performing artists and musicians on the waterfront. Free events are held daily in the Wales Millenium Centre and are open to all. On Thursday 4th a harp recital at 1pm is followed by poetry readings at 7pm; on Friday 5th a string quartet is playing Shostakovitch and Mendelssohn at 1pm; on Saturday 6th storytelling at 1pm is followed by jazz at 6pm; and on Sunday 7th an *a capella* choir is singing at 1pm and a big band performing at 3pm.

Museums
Under no circumstances should you pass up the opportunity to visit the National Museum of Wales, the venue for the ESSAC and EuroForum meetings. The main entrance is just off Park Place, via the steps beneath the grand portico. Entry is free. The museum has a diverse range of exhibits, most notable being: (1) the fine art section, with what is reputed to be the best collection of French impressionist art outside of Paris, London and New York; (2) the archaeological collection, with beautiful Welsh Celtic treasures and other artifacts; and (3) the Earth Galleries, a large award-winning exhibition detailing the geological history of Wales and containing many world-class fossil specimens.

Parks
Cardiff has a number of parks. A small but pleasant park area, the *Gorsedd* Gardens, is situated just south of the Museum and neighbouring City Hall building, and another (Alexandra Gardens) just to the north of it bordering on to the University Main Building. The much more extensive Bute Park is found on the western bank of the River Taff: head west from the western end of Queen Street past the entrance to the castle, cross the bridge over the river and the park entrance is on your right. The Cathedral Road area, with its numerous small hotels, lies a little farther to the west. The park extends along the river bank eventually as far as the 12th century cathedral of Llandaff, a couple of miles to the northwest.

Sport
The imposing Millenium Stadium lies in the city centre just west of St. Mary Street and dominates the city. The Welsh are rugby-mad and so the stadium is in many ways the heart of the nation. The atmosphere inside (and outside) the stadium during international matches is truly awesome. Fortuitously a match is being held during the weekend of the ESSAC meeting/EuroForum and (very unusually) tickets are on sale to the general public. The match is the Welsh domestic rugby cup final between Pontypridd and Neath and starts at 6.00pm on Saturday 6th May. Although the atmosphere is unlikely to be anything like as electric as for a full international match it should still be an impressive spectacle. Tickets cost £10 and are available from the Welsh Rugby Union ticket office at 98 St. Mary Street (tel. 08705 582582). They say that tickets will probably be available on the day but cannot guarantee it. There should just be time to make the game if the ESSAC meeting finishes promptly!

Cardiff Castle
Cardiff Castle is a large, unmissable structure at the north end of St. Mary Street and west end of Queen Street. It is somewhat effeminate as Welsh castles go, much of it having been rebuilt by the Marquis of Bute (19th century owner of Cardiff docks and the then richest man in the world) in extravagant Victorian gothic style. Nevertheless it has a long history: parts of the outer walls are Roman, and there is a well-preserved Norman (11th century) motte and bailey inside the grounds. The grounds and Norman castle can be visited for a small fee. This is worth doing: more rewarding and much cheaper than a full ticket to see the interior of the Victorian portion of the castle.

Caerphilly Castle
For those with a half or full day to spare, a trip out of Cardiff to see a 'proper' Welsh castle is strongly recommended. Across the whole country Wales is famous for the mediaeval castles built by a succession of English kings in their successful quest to conquer the Welsh in the 13th-14th centuries. Caerphilly is one of the largest and most impressive of these castles. It dominates the centre of the town and can be visited for a small fee.
Caerphilly can be reached from Cardiff by direct train from either Central or Queen Street stations. It is 4/5 stops up the line on trains bound for Bargoed and Rhymney, and the journey takes 15-20 minutes. Although 4-5 trains per hour run on Monday-Saturday the service is reduced to one per two hours on Sundays (departures from Cardiff Central at 1016, 1216, 1416, 1616, 1816, 2016; returns from Caerphilly departing at 1010, 1210, 1410, 1610, 1810, 2010).

Further Afield
Those wanting to travel further afield, might consider the Brecon Beacons for walking ('Brecon Bus' from the bus station), the Rhondda Heritage Park depicting the history of coal-mining (Valley Lines train from the Central Station) or the new Maritime Museum in Swansea (40mins by Intercity trains from the Central Station).

1.2 Discussion and Approval of Agenda

1.3 Approval of 5th ESSAC Minutes

The minutes may be found as Appendix 1.

1.4 Matters Arising from 5th ESSAC Meeting

Item 1.6 Update on SAS representatives. ECORD Council approved the changes to SAS panels requested by ESSAC. Changes in SPPOC membership and recommendations on the duration of SPPOC membership have been superseded by the abolition of SPPOC and its replacement by SASEC (see later).

Item 2 . The New Jersey Shallow Shelf Expedition has been provisionally staffed (see later), though the likely date for the expedition has been put back to early summer 2007.

Item 3.3. Co-chief scientists. Following our nominations, four ECORD co-chief invtations have been made: Steven Hesselbo has for New Jersey Shallow Shelf, Heiko Palike for Equatorial Pacific, and Achim Kopf (Ger) and Siegfried Lallement (Fr) for NanTroSEIZE. There has been a call for proposals for co-chief scientists for potential upcoming Expeditions and we will discuss these later in the meeting.

Item 4.2. Missions. Following much discussion at all levels, the Mission concept has been approved by the IMI Board of Governors. We will return to this later in the meeting.

Item 4.3. Aurora Borealis proposal. The working group will report on its progress later in the meeting.

Items 4.3 and 5, Magellan Workshops. The Biosphere workshop was held successfully in Switzerland and a report will be given in this metting. The plans for the Hazards workshops in 2006 have been overridden by ESF (see later).

Items 6.2 and 6.3. Database and Website. We shall report progress later in the meeting.

1.5 Changes in ESSAC Office

Now that Chris MacLeod is ready to resume leadership of the ESSAC Office, we have reached an agreement with UK IODP that Julian Pearce will cease to be Acting Chair from 31st August 2006. There will be a transition period between now and that time when Julian will do what he can to tie up matters arising from this meeting (including the report to ECORD Council) and new one-off tasks, and Chris will take on new tasks that will extend into his formal period of office (including the ECORD Review). We seek approval from ESSAC for this plan.

Federica Lenci is leaving to go to Australia in the summer. We need to find a replacement in time for Federica to train him or her before she leaves. The goal is to have a new, trained co-ordinator in place for when Chris assumes sole responsibility for the ESSAC Office in September. Julian and Chris thank Federica for doing a great job as Science Co-ordinator and wish her well in her new life 'down under'.

1.6 Main Goals of the Meeting

- Recommend to ECORD Council a staffing strategy for the new SAS Executive Committee.
- Recommend to ECORD Council the new tranche of members for the SAS panels.
- Finalise co-chief assignments for the possible upcoming Expeditions and arrange to ensure that the candidates are willing to be put forward and provide CVs.
- Make recommendations to ECORD Council for the ECORD strategy on Aurora Borealis.
- Identify ways to ensure that the ESF-Magellan Workshops are not decoupled from the other, strategy-led workshops in IODP.
- Revisit ways to ensure that the ESSAC databases and websites are completed.
- Identify ways in which ESSAC can assist with the upcoming ECORD Review of the value of ECORD investment in IODP to date.

2. STAFFING

2.1 Expedition 313 New Jersey Shallow Shelf

Twenty-four applications from ECORD scientists were received by the February 2006 deadline. Of these, Steven Hesselbo (Oxford, UK) was selected as co-chief scientist. Grouping of the candidates was made by the ESSAC Chair following consultation with ESSAC members. As with previous staffing exercises a star rating (from 0 to 3) was assigned to each applicant based upon expertise and to maintain national balance. All starred names were forwarded to ESO for consideration, with the expectation that the 3-star candidates would be accommodated as a priority. However, this was done on the understanding that expertise is an important factor in assembling the scientific party and that ESSAC is open to requests from ESO to iterate in the staffing process. Because of the delay in operations for Expedition 313 from summer 2006 until early summer 2007 some of the applicants are no longer available and further changes to the list are likely.

*Alves	Tiago	Portugal
***Baaske	Uwe	Germany
***Basile	Christophe	France
*Bassetti	Maria	France
Bijl	Peter	The Netherlands
***Bjerrum	Christian	Denmark
***Blazejak	Anna	Germany
**Chunju	Huang	UK
*Consolaro	Chiara	Italy
*Dinares-Turell	Jaume	Italy
*Felletti	Fabrizio	Italy
*Fisher	Jodie	UK
***Gallagher	Colman	Ireland
***§Hesselbo	Stephen	UK
***Hodgson	David	UK
*Lanci	Luca	Italy
*Mleneck Vautravers	Maryline	UK
*McCarthy	Francine	Canada
*Meyer	Rudi	Canada
Monticelli	Damiano	Italy
***Rabineau	Marina	France
Sañé Schepisi	Elisabet	Spain
**Valppu	Henna	Finland
*Westphal	Erasmus	Germany

§ – co-chief scientist

2.2 Replacement of SPPOC

At its recent meeting in Salt Lake City, the Board of Governors unanimously to replace SPPOC by a new committee, SASEC (=SAS Executive Committee). Its precise recommendations are in Appendix 2. *ESSAC needs to make recommendations to ECORD Council so that the two ECORD members can be provided for the deadline of 15th May.*

2.3 SAS Panel Representatives

The latest Table may be found in Appendix 3.
From this, the following need recommendations to be made for approval by ECORD Council:

EPSP We need:
1 additional 'small country' representative.
Replacements for Mascle (Fr) and Strack (Ger) for October 2006.

EDP We need:
1 additional 'small country' representative.

Wohlgemuth will replace Sperber (Ger) in October 2006.
We have an offer from Thorogood (UK industry) but UK has a representative already. Are the 'small countries' willing to sacrifice their slot in order to ensure a full ECORD quota? If they cannot find somebody we may have to do that. Schultheiss (UK) rotates off in 2007, so the additional UK person would be for 2-3 meetings only.

SPC We need:
Replacement for Ildefonse (Fr) after August 2006 meeting.
Behrmann will replace Brumsack (Ger) after August 2006.
MacLeod (UK) will rotate off after August 2007 meeting.

SPPOC This is now disbanded to be replaced by SESEC. This was the subject of item 2.2.

SSEP We need:
Replacement for Teagle (UK) who rotates off after the May 2006 meeting, and Thurow (UK) after November 2006. Erzinger (Ger) will be replaced by Kopf after the May 2006 meeting.

SSP We need:
Replacement for Gutscher (France), who should already have rotated off (February 2006).

From Appendix 3 it can be seen that the following countries have representatives on the SAS panels:
UK – 8; France – 8; Germany – 8; Norway – 1; Sweden – 1; Denmark – 1; Finland – 1; Switzerland – 1; Spain – 1. The other ECORD countries currently have no representatives; however Canada and the Netherlands each have a representative on the IS-PPG Industry-IODP Science Program Planning Group (former ILP). In addition the following countries have 'permanent' alternates on the SAS panels: Canada (3), Sweden (1), Italy (3), Switzerland (2), Portugal (1), Spain (1) and Denmark (1).

2.4 Co-Chief Assignments and Recommendations

First please note that: Steven Hesselbo (UK) for New Jersey Shallow Shelf, Heiko Palike (UK) for Equatorial Pacific , and Achim Kopf (Ger) and Siegfried Lallement (Fr) for NanTroSEIZE have been invited to be co-chiefs for upcoming Expeditions.

All proposals put forward to the Operations Task Force (some permanently, some for this year) need co-chief assignments though not all will of course be scheduled. This is the list we have to date. We need to complete the list, establish who is willing to do it (many nominations are without the person's agreement) and get their CVs.

505: Mariana Conv. Margin

Patty Fryer	USA
Geoff Wheat	USA
Mike Mottl	USA
Hirokazu Maekawa	Japan
Fumio Inagaki	Japan
Ken Takai	Japan
Kantaro Fujioka	Japan

537A: Costa Rica A

Rob Harris	USA
Dave Scholl	USA
Roland von Huene	USA
Don Fisher	USA
Hidekazu Tokuyama	Japan
Gaku Kimura	Japan
Yujiro Ogawa	Japan
Cesar Ranero	ECORD
Paula Vannucchi	ECORD
Serge Lallemand	ECORD
Warner Brueckmann	ECORD

605: Asian Monsoon

Christina Ravelo	USA
Rick Behl	USA
Chris Charles	USA
Ryuji Tada	Japan
Ken Ikehara	Japan
Tatsuhiko Sakamoto	Japan
Takeshi Nakagawa	Japan
Peter Clift	ECORD
Till Hanebuth	ECORD
Wolfgang Kuhnt	ECORD
Hans-Jürgen Brumsack	ECORD

637: New England Hydrogeology

Brandon Dugan	USA
Mark Person	USA
Kathy Licht	USA
Tomochika Tokunaga	Japan
Jing Zhang	Japan
Jeroen Kenter	ECORD
Henk Kooi	ECORD
Chris Vasconcelos	ECORD
Axel Schippers	ECORD

654: Shatsky Rise

Will Sager	USA
John Mahoney	USA
Anthony Koppers	USA
Yoshiyuki Tatsumi	Japan
Masao Nakanishi	Japan
Yaoling Niu	ECORD
Dominique Weiss	ECORD

537B: Costa Rica B

Roland von Huene	USA
Dave Scholl	USA
Rob Harris	USA
Susan Bilek	USA
Susan Schwartz	USA
Masataka Kinoshita	Japan
Saneatsu Saito	Japan
Takeshi Matsumoto	Japan
Shin'ichi Kuramoto	Japan
Martin Meschede	ECORD
Cesar Ranero	ECORD
Paula Vannucchi	ECORD
Philippe Chavez	ECORD
Warner Brueckmann	ECORD

549: N. Arabia Sea Monsoon

Steve Clemens	USA
Adina Paytan	USA
Mark Altabet	USA
Ryuji Tada	Japan
Masanobu Yamamoto	Japan
Tokiyuki Sato	Japan
Andreas Luekge	ECORD

552: Bengal Fan

Peter Molnar	USA
Lou Derry	USA
Maureen Raymo	USA
Harutaka Sakai	Japan
Makoto Ito	Japan
Hideaki Machiyama	Japan
Wonn Soh	Japan
Kazuo Amano	Japan
Christian France-Lanord	ECORD
Volkhard Spiess	ECORD

555: Cretan Margin

Liz Screaton	USA
Marta Torres	USA
Anne Trehu	USA
Juichiro Ashi	Japan
Tetsuro Hirono	Japan
Tomochika Tokunaga	Japan
Achim Kopf	ECORD
Bernard Stöckhert	ECORD
Jean-Paul Foucher	ECORD
Alastair Robertson	ECORD

603D: NanTroSEIZE D

Liz Screaton	USA
Geoff Wheat	USA
Andy Fisher	USA
Yujiro Ogawa	Japan
Juichiro Ashi	Japan
Eiichiro Araki	Japan
Koichiro Obana	Japan
Pierre Henry	ECORD

659: Newfoundland Rifted Margin

Brian Tucholke	USA
Dale Sawyer	USA
Neal Driscoll	USA
Atsushi Yamaji	Japan
Junzo Kasahara	Japan
Tim Reston	ECORD
Ritter?	ECORD
Tim Minshull	ECORD
Alastair Robertson	ECORD
Thomas Pletsch	ECORD

667: NW Australian Shelf

Craig Fulthorpe	USA
Jamie Austin	USA
Neal Driscoll	USA
Gregor Eberli	USA
Hiroki Matsuda	Japan
Akihisa Kitamura	Japan
Yoshihiro Tsuji	Japan
Serge Berné	ECORD
Luis Pomar	ECORD
Maria Mutti	ECORD
Christian Betzler	ECORD

677: MAR Microbiology

Katrina Edwards	USA
Andreas Teske	USA
Geoff Wheat	USA
Ken Takai	Japan
Jun'ichiro Ishibashi	Japan
Kenji Kato	Japan
Fumio Inagaki	Japan
Wolfgang Bach	ECORD
Ingunn Thorseth	ECORD
Axel Schippers	ECORD
Chris Vasconcelos	ECORD

3. Long-Range Planning

3.1 SPC Summary

One of the main objectives of the meeting was to review and rank the 18 proposals that had been forwarded to SPC by the SSEPs. The ranking was sent to the Operations Task Force (OTF) and a tentative schedule for non-riser operations up the beginning of FY09 was proposed. The ranked list and a very provisional schedule are included later in this document, together with a draft of the more relevant motions and consensus statements made by the Committee at the meeting. None of this information should be taken as definitive at this stage.

In addition we note certain items arising from or presented at the meeting that may be of interest to ESSAC and the ECORD scientific community.

Operational Matters
NSF reported that the *JOIDES Resolution* has been chosen as IODP's non-riser scientific ocean drilling vessel (SODV) for the remainder of the program. They have allocated a $115M budget for rebuilding the vessel, which will involve cutting the ship in half and inserting a new much larger (and 10m longer) laboratory section and living quarters. A new name will be chosen for the ship, which is scheduled to resume operations in the late summer of 2007.

A 3-D seismic survey of the NanTroSEIZE drillsites is scheduled to be taking place during April-May 2006. *Chikyu* has been undergoing shakedown cruises and recently drilled its first core: piston coring to 70mbsf in 1200m water depth at two sites off NE Japan. Riser drilling tests will be carried out in September 2006 and again in May 2007, and riserless drilling tests in January 2007. The ship is on schedule for starting IODP operations in September 2007.

Reports on ECORD matters are presented elsewhere. However, it is pertinent to note here that IODP Expedition 313 (New Jersey mission-specific platform) has been moved for practical/ logistical reasons from its original summer/autumn 2006 slot to one probably in late spring or early summer 2007.

Workshops
IODP-MI have initiated and sponsored a number of planning workshops for the period between phases 1 and 2 of IODP (see www.iodp.org/ workshops/). These are:

- Fault Zone Drilling—Presented by IODP and ICDP. May 23–26, 2006, Miyazaki, Japan
- Deep Biosphere—to be presented by IODP, JOI, and USSSP. Fall 2006 - Details will be available soon.
- Mission Moho—Presented by IODP, JOI, Ridge 2000, and InterRidge. September 6-9, 2006, Portland, Oregon
- Continental Breakup—Presented by IODP and InterMARGINS. September 16-19, 2006, Pontresina, Switzerland

A workshop on Geohazards is also planned for FY07. IODP-MI's direct financial support for scientists wishing to attend these workshops will be awarded on a 7:7:3 ratio (US: Japan: ECORD participants), but additional ECORD scientists are welcome if they can arrange alternative financial support. Workshop organisers have been urged to liaise with the convenors of European Magellan series workshops on similar topics.

The Mission concept
A Mission is defined as "an intellectually integrated and coordinated drilling strategy originating from the scientific community that (a) addresses a significant aspect of an IODP Science Plan theme on a global basis over an extended period of IODP, and (b) merits urgent promotion in order to achieve overall IODP program goals." The concept of Missions was developed at the behest of IODP-MI as a proactive mechanism to ensure that the strategic goals of the Initial Science Plan were met as completely as possible by the time of the scheduled end of IODP. Missions are envisaged as 'super-proposals' focused on a particular scientific concept that will probably require multiple expeditions to multiple places over a period of many years to address. They are not intended to replace standard IODP proposals but to run alongside them, though it is hoped that their passage through the SAS might be accelerated in comparison to many proposals. It is envisaged that only 2-3 Missions are likely to be approved and in operation at any one time. The Mission designation and implementation plan has been developed by SPPOC and modified substantially in light of comments from SPC

members at this and previous meetings. After much discussion the SPPOC Mission draft implementation plan was accepted by SPC, and it was put to the IODP-MI Board of Governors in early April 2006.

Proposal ranking
After presentation and thorough review, the 17 of the 18 drilling proposals presented to SPC were ranked by the panel. One, proposal 548 (Chicxulub), was not ranked as it is awaiting incorporation of new site survey information.

The global ranking:

(1)	677-Full	Mid-Atlantic Ridge Microbiology
(2)	603D-Full2	NanTroSEIZE Observatories
(3)	637-Full2	New England Shelf Hydrogeology
(4)	605-Full2	Asian Monsoon
(5)	549-Full6	Northern Arabian Sea Monsoon
(6)	537A-Full4	Costa Rica Seismogenesis Phase A
(7)	537B-Full3	Costa Rica Seismogenesis Phase B
(8)	552-Full3	Bengal Fan
(9)	505-Full5	Mariana Convergent Margin
(10)	659-Full	Newfoundland Rifted Margin
(11)	654-Full2	Shatsky Rise Origin
(12)	555-Full3	Cretan Margin
(13)	667-Full	NW Australian Shelf Eustasy
(14)	535-Full5	735B Deep
(15)	584-Full2	TAG II Hydrothermal
(16)	618-Full3	East Asia Margin
(17)	547-Full4	Oceanic Subsurface Biosphere

Proposals ranked (1) to (6) inclusive were forwarded to OTF and will remain there until they can be scheduled. Proposals (7) to (13) inclusive were forwarded to OTF on a one-time basis for consideration at the March 2006 meeting only. Proposals (14) to (17) inclusive were not forwarded to OTF.

Scheduling
OTF met during the SPC meeting and used the above ranking to come up with a range of operationally and financially feasible scenarios for a schedule for non-riser drilling from FY07 as far as the start of FY09. Proposals ranked highly by SPC at previous meetings and lodged with OTF for scheduling were also considered. The various scenarios were presented to SPC who favoured the following (tentative) schedule (see also SPC Consensus 0603-28 below):

626-Full2	Pacific Equatorial Age Transect–1	*~Aug 2007*
537A-Full4	Costa Rica Seismogenesis Phase A	
603A-Full2	NanTroSEIZE Phase 1: Reference Sites	
603B-Full2	NanTroSEIZE Phase 2: Mega-splay Faults	
477-Full4	Bering Sea (not including Okhotsk)	
545-Full3	Juan de Fuca Hydrogeology	
626-Full2	Pacific Equatorial Age Transect–2	*~Sept 2008*
600-Full	Canterbury Basin	
482-Full3	Wilkes Land Margin	

A detailed practicable operational schedule based as closely as possible upon the above will be developed by the US Implementing Organisation and eventually put to IODP-MI for approval.

Precise details of the more important consensus items are in Appendix 4.

3.2 Management Forum Summary

The Management Forum met in Salt Lake City in March and achieved the following consensus:

Culture:
It was recognized that some nations, in particular the Japanese, find themselves at a disadvantage in participating in committee work in IODP. Together with other PMOs, J-DESC should produce a tutorial guide for panel/committee chairs and other participants. Other 'committee training' could also be undertaken by Japanese committee/panel members.

As part of the 'Guide to IODP', IODP-MI should emphasize the different operational practices necessitated by the three platforms. IOs, particularly CDEX and ESO, need to take every opportunity to educate the science community regarding their operations.

It was recognized that social interaction can make a great contribution to inter-nation understanding. In planning IODP meetings, organizers are encouraged to take steps to maximize mixing between participants of different nations, both with, within and outside formal proceedings.

Education and Outreach
Better integration of outreach in IODP: IODP-MI to write a letter to all program entities (IOs, national offices) urging them to regularly convey a primary message about IODP in addition to secondary national messages about program involvement, particularly in interactions with media representatives.

Target E&O activities to inform and raise awareness in scientific, engineering, and other related professional communities, as a priority. Ideas included: develop website material that can be used by university teachers, with community input, and allocate three months salary; distinguished lecture series ; IODP summer schools ; guide to IODP.

For the broader audience, to help build a relationship with the media: Establish a list of scientists that are good at interacting with the media by topic, by country; input from the SAS and the national offices

Funding and Industry Relations
The recommendation was made to explore using an outside professional. This professional would provide a proposal on IODP's options on working with Industry and on possible funding alternatives.

Mission Implementation Plan
The IODP Management Forum discussed the Mission Implementation Plan during its meeting Salt Lake City, March 29-30. This plan, formulated by the IODP SAS based on input from various sources, has been, via an email vote, approved by SPC and SPPOC. The Management Forum approved this plan and forwarded it to the IODP-MI Board of Governors with an endorsement of the fundamental principles and a request to approval it for immediate implementation.

Workshops
Future IODP workshops were considered essential for full implementation of the mission concept. The IODP Management Forum emphasized the important role that workshops and missions can play in broadening of the scientific constituency of IODP, including increased participation of young scientists and coaching of a new generation of scientific leadership within IODP. The general goals of workshops are:

- For long-range planning
- To formulate missions and other proposals
- To develop and publish syntheses of our successes
- To encourage participation of other communities with shared scientific goals

3.3 Missions

Missions have finally been accepted for implementation by IMI Board of Governors. The final document is in Appendix 5. *We need to discuss the implications for ECORD.*

IMI BoG Motion on Implementation plan
The IODP-MI Board of Governors enthusiastically endorses the broad principles and framework for missions defined in the IODP Mission: Designation and Implementation Plan presented at the IODP-MI Board of Governors meeting on April 1, 2006, which has been approved by the SPPOC and SPC. The IODP-MI Board of Governors understands that some details in the plan remain to be resolved and that these will be addressed by the "small group" identified in the plan. In particular, the Board of Governors emphasizes the stated need for a broad range of mechanisms, including those from outside the program, by which missions are conceived and proposed.

3.4 Aurora Borealis

The background information is on three websites (see below). Key pages of these are in:

- Aurora Borealis (*http://www.esf.org/publication/178/AuroreaBorealis.pdf*: Appendix 6);
- Workshop on Alternate Drilling Platforms (http://www.esf.org/publication/130/IODP.pdf: Appendix 7);
- Towards New Research Infrastructures for Europe (http://www.cas.cz/data/vav/vav-eu/ESFRI_List_of_oportunities.pdf : Appendix 8)

The subcommittee (led by Eve Arnold) asked to consider ESSAC's position on Aurora Borealis have produced the following document for discussion.

ESSAC position on ESFRI support of the proposed research icebreaker Aurora Borealis

Background
The European Strategy Forum on Research Infrastructures (ESFRI) has included the construction of the proposed research icebreaker, Aurora Borealis (AB), as one of 23 European research infrastructures on the ESFRI "list of opportunities" published in March 2005. The description of the strategic importance of the Aurora Borealis in the published list of opportunities highlights the capability of the AB to serve as an alternate platform within the IODP, "requiring 3-4 months of ship time annually, at least for a decade".

Regardless of the importance of the Aurora Borealis as European infrastructure, ESSAC/ECORD should consider the possibility that EU financing of the Aurora Borealis may preclude or reduce any chance of EU financial or organizational support of other IODP MSPs in the future. Our present MOU with IODP is predicated on Europe providing flexible MSP capability, and the AB alone will likely not fulfill this requirement.

Since ESFRI document largely promotes construction of the AB because IODP needs this platform as a future MSP, it seems that the ESSAC/ECORD council should take a position on this proposal and inform individual member countries and ESFRI of the connection between MSPs and the Aurora Borealis. 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 leg of IODP.

Points for consideration by ESSAC/ECORD Council

Positive aspects of AB proposal
1. There is a clear and immediate requirement for expanded Arctic Ocean environmental research, since this region is a key player in controlling global ocean and atmospheric circulation, and thus global climate. Europe has a great interest in Arctic research and has been a leading international player in research in this region.

2. There is a dearth of high-resolution observations of ocean, atmosphere, glacial/sea ice and biological variation on an annual basis due to the lack of well-equipped scientific research icebreakers capable of operating **year-round** in the ice covered water of the Arctic. This is a very strong justification for

construction of the AB and includes a much broader scientific community than the scientists involved in IODP. IODP could greatly benefit from the AB with respect to site surveys (seismic and coring work).

3. There is a dearth of long sediment cores that provide records of long-term climate variability preserved in deep-sea sediments in both the Arctic and Antarctic regions. Several innovative and promising IODP proposals for drilling in the Arctic and Antarctic regions are presently moving through the IODP science-driven review process, and the expectation is that some of these proposals will be scheduled for drilling. The AB could be used for this purpose.

Potentially negative aspects of AB with respect to IODP

4. European financing of both AB and participation in IODP/provision of MSPs may not be feasible on a European scale or for individual countries.

5. There is a need to have broad Mission Specific Platform financing for IODP in order to maintain our contractual agreement with the international partners. AB alone will likely not satisfy this contract, nor is an Arctic-only drill ship consistent with science-driven selection of marine sites for IODP drilling. The AB proposal was written prior to IODP drilling in the Arctic, thus the proposal position that the AB is a unique solution to Arctic drilling is no longer strictly valid. It may be questionable that IODP will schedule 3-4 months of Arctic drilling time annually for the next ten years.

Other considerations

6. ESSAC/ECORD Council should see to it that MSPs are added to the ESFRI list of opportunities.

7. We should consider a solution that could promote the concept of MSPs to the EU commission/ESFRI at the same time that we positively impact the AB proposal. For example, build the AB with the moon pool and deck space needed for drilling and processing cores, but exclude construction of a dedicated drilling rig. Instead, we could recommend that IODP/ECORD hire a mission specific drill rig and drilling crew when the AB will conducting a drilling expedition for IODP (or another consortium of users), parallel to the concept of MSPs in general.

Background Publications

- Aurora Borealis: A Long-Term European Science perspective for Deep Arctic Ocean Research 2006-2016. (ESF publication)
- Towards new research infrastructures for Europe: The ESFRI ”List of Opportunities” (AB on page 39, European commission publication)
- IODP Initial Science Plan (IODP publication)
- Workshop on Alternative Drilling Platforms: Europe as the Third Leg of IODP (ESF publication)

4. Workshops

4.1 IODP Workshops

IODP is using commingled funds to support four international workshops. The Workshop organisers will be encouraged to use the opportunity to develop Mission proposals. ECORD scientists are supported according to contribution (c. 20% of participants) although more participants may be possible if ECORD funds are used. Details are on the IODP Website at http://www.iodp.org/workshops/ (access also through the ESSAC site).

IODP is presenting four workshops for scientists in 2006 to address primary issues in scientific drilling:

::Fault Zone Drilling—Presented by IODP and ICDP.
May 23–26, 2006, Miyazaki, Japan
::Deep Biosphere—to be presented by IODP, JOI, and USSSP.
Fall 2006 - Details will be available soon.
::Mission Moho—Presented by IODP, JOI,
Ridge 2000, and InterRidge.
September 6-9, 2006, Portland, Oregon
::Continental Breakup—Presented by IODP and InterMARGINS.
September 16-19, 2006, Pontresina, Switzerland

ESSAC needs to ensure that ECORD scientists apply for these workshops

4.2 Magellan Workshops

The History

The original Magellan Workshop proposal requested the following:

'The Steering Committee will consist of the SSC Chair (ESSAC Chair), the Program Coordinator, representatives of each participating country (ESSAC delegates) and liaisons from the ECORD Council, the IMAGES community and other associated European science programs. The members of the SSC will meet once a year to coordinate the program's activities. The smaller ESC will meet according to activities' demand, e.g., once or twice a year following call for proposals.

To facilitate fast communication among participants and to provide secretarial support, a part-time assistant to the Program Coordinator is requested. Further tasks will be the organization of SSC and ESC meetings, workshops and conferences, the organizational interaction with the US, Chinese and Japanese counter-programs (USSAC, IODP China and J-DESC, respectively) as well as the maintenance of a common database. The ESSAC Science Coordinator will act as the Program Coordinator and provide in-kind assistance to the Chair, prepare documents, workshops, etc.'

It turned out, that although this application was on the ESF web site, it was not what ESF had implemented. Their proposed administration structure was independent of ESSAC, so much so that nobody from the ESSAC Office was even informed of the first Magellan Committee Meeting. Nor was the ECORD Chair. In consequence there were large discrepancies between the ESF implementation plan and the ESSAC and ECORD Council recommendations from their last meetings. In particular, ESF did not recognise the Workshops already organised by ESSAC at ECORD's request for 2006.

The ESSAC Office protested about this, in part because of the absence of any consultation but mainly because a lot of time had been spent already setting up workshops for 2006 at ECORD Council's request. The ESSAC Office also pointed out that Workshops were needed in 2006 to ensure activity during a year without drilling and enable links to international workshops, and the ESF program would delay this. Extensive communications resulted, culminating in a video-conference between the Magellan Chair (Jeroen Kenter), the ECORD Council Chair (Chris Franklin) and the ESF representative (John Marks).

The Compromise

Of the three workshops planned by ESSAC, the ESF is supporting the Proposal Writing part of the EuroForum through its short-visits programme. Neither of the hazards workshops prepared by the ESSAC office for ECORD Council will go ahead as planned, although the groundwork has been done so they should have a head-start for Magellan funding. There are issues about location though, because the Seismic/Volcanic Hazards workshop was planned for Naples, and the Submarine Slides workshop was planned for Barcelona, and neither Spain nor Italy contributes to the Magellan programme.

The Naples Workshop in May will, however, still go ahead in some form as it was too far in its organisation to cancel. It will not be funded by ESF (as Italy are not contributors to the Magellan Program). It will instead be funded by Italian funding agencies with a small contribution from contingency ESSAC funds obtained via EMA, and will focus on developing the Campi Flegrei (Bay of Naples volcanic and related hazards) joint ICDP-IODP proposal.

Generic Problems

1. ESF rules make it impossible to incorporate a strategic element into the decision making process. Even if they did, the difference in makeup of the ESSAC committee and the Magellan Committee (see below) would mean that only some ESSAC members and some countries were involved in driving the programme through Workshops. And this would be unfair on those subscribing substantially to ECORD who are not involved in the Magellan programme.

2. The Program Managers Offices (ESSAC and its US and Japanese equivalents) passed a resolution to co-ordinate Workshops where possible. This was actually in the original Magellan Workshop proposal to ESF (see the original application above). However, this is not possible for ESSAC under ESF rules. In contrast, in the US and Japan the PMOs organise their workshops and use them to drive the IODP program to their benefit; similarly, co-ordination and pooling of funds is possible for them.

3. The ESSAC Office, which is most involved in dealing with workshops at an International level, has no representation on the ESF committee – not the original proposal. It should be noted that discussions between ESF, the Magellan Chair and the ECORD Chair did reach a compromise that the UK could have a representative on the Magellan Committee while the UK subscription was discussed – and this could be the ESSAC Chair. However, this is not yet resolved at the time of writing: moreover, it confuses national issues (whether a given nation is a member of Magellan) and scientific need (the ESSAC office has the most up-to-date knowledge on IODP, ECORD activities and international Workshop plans).

Country	**ESSAC**	**ESF Magellan Committee**
Austria	Werner E. Piller	Werner E. Piller
Belgium	Rudy Swennen	Jean-Pierre Henriet
Canada	Kathryn Gillis	
Denmark	Paul Martin Holm	Paul Martin Holm
Finland	Kari Strand	Kari Strand
France	Gilbert Camoin vice-chair	Gilbert Camoin
Germany	Hans Brumsack	Jochen Erbacher vice-chair
Iceland	Bryndís Brandsdóttir	
Ireland	Brian McConnell	Eibhlin Doyle
Italy	Angelo Camerlenghi	
Netherlands	Henk Brinkhuis	Jeroen Kenter chair
Norway	Rolf Pedersen	Rolf Pedersen
Portugal	Fatima Abrantes	Fatima Abrantes
Spain	Menchu Comas	
Sweden	Eve Arnold	Eve Arnold
Switzerland	Judy Mackenzie	Judy Mackenzie
United Kingdom	Chris MacLeod/Julian Pearce chair	

Solution for discussion

If funding agencies wish to fund workshops in this way, and if ESF wishes to exclude the strategic element, this is their prerogative: ESSAC has no control over this. Similarly, there are other solutions (e.g., co-mingling funds before assigning them to ESF so that every ECORD member is automatically a member of ESF programmes) that are outside ESSAC's remit. However, we do need some formal communication between the ESF and ESSAC. We propose therefore (for discussion) that ESSAC should form a sub-committee of those of its members who are also on the Magellan Committee. This subcommittee will be responsible to communicating strategy from ESSAC to ESF and for communicating ESF decisions and their rationale back to ESSAC.

4.3 Deep Biosphere Workshop Report

To be given by Judy McKenzie

4.4 ESF-Magellan Call

Note that the deadline for ESF-Magellan Workshops is 19th May. The relevant part of the ESF Website (*http://www.esf.org/esf_article.php?language=0&article=529&domain=3&activity=1*) is reproduced below.

Call for Proposals for Magellan Series Workshops in 2006

ESF Magellan Workshop Series invites proposals from potential organisers of workshops to be held in 2006 on topics with a clear connection to the Programme. The next deadline for applications is **19 May 2006.**

The Steering Committee would particularly welcome proposals that integrate the different scientific topics such as: *Earth's Surface Environmental Change, processes and Effects, The Deep Biosphere & Sub-Seafloor Ocean, Solid earth Cycles & Geodynamics*, which are outlined in the proposal of the Programme.

Priority will be given to workshops which take place in countries that financially support the Programme (Austria, Belgium, Denmark, Finland, France, Germany, Ireland, the Netherlands, Norway, Portugal, Sweden and Switzerland).

The contribution of the **Magellan Workshop Series** will not exceed **20 000 EUR** per workshop.

Top of page

Application Procedure

Proposals for workshops should be submitted online: Application Form

You will be required to upload a document* containing the following:

1. Scientific Summary (max. 1000 words) and Abstract (max. 50-70 words)
2. Meeting Programme
3. Curriculum Vitae of Scientific Organiser including list of five most relevant publications during the last five years
4. Provisional list of proposed speakers/participants

You will also be required to provide information on expected income and expenditure.

5. Outreach

5.1. Expansion of educational activities

Eve Arnold, Catherine Mével and Patricia Maruejol will present for discussion the following activities wrt what they are, what they will cost and how we might finance them:

- Teachers at Sea
- Teacher Workshops
- Educational Website
- Summer Schools for University Students
- Distinguished Lecture Series
- Educational Material (CDs, classroom activities etc.)

ESSAC delegates should read the IODP report of its Education and Outreach Workshop on *http://www.iodp.org/eo-task-force/*, extracts of which are given in Appendix 9.

The following items will all be reported

5.2. ESSAC Database

5.3. ESSAC Web-site

5.4. ECORD Newsletter #6

5.5. ECORD-net Geomicrobiology database update

6. ECORD Review

EMA has requested that the ESSAC databases need to be posted on the website as soon as possible, before the ECORD evaluation committee starts looking at us. This database should include at least: ECORD Expedition participants and applicants; and publications. The publications database should include the end of ODP, since IODP will not have a publication record yet.

These data should "include the country of authors so they can be sorted out by country if necessary; proposals, again with the country of the all authors. All this should be posted on the web, as an interactive database, to allow sorted requests". Valentina had started to compile the information and parts were updated by the Cardiff Office and presented at the last ESSAC meeting..

The evaluation committee will meet June 22. We need to discuss how far advanced this database is and whether ESSAC delegates and National Offices have relevant information that should be contributed.

Clearly a fully interactive e-database in one month is a tall order that even IODP/IMI with all its resources has not managed in several years. *Thus we need to discuss what is possible with present human and financial resources and produce a plan for achieving this. We also need advice on all the requirements for the Review so that the work can be planned and tasks assigned.*

7. Meetings

7.1 Upcoming Meetings

7.2 Date and Place of Future Meetings

Past meetings have been Amsterdam, Bremen, Aix, Graz, Edinburgh, Cardiff.

November 2006 is to be decided: France and Germany are the options in terms of 'turn', though they may wish to cede to a Southern European Country.

May 2007 is to be decided though Iceland was noted as a possibility. Can ESSAC firm this up?

8. Any Other Business

APPENDIX 1: Minutes of 5th ESSAC Meeting

Tuesday 22nd November

1. Introduction

1.1 Welcome/introduction of the new ESSAC office and the new Science Coordinator Federica Lenci

MacLeod opens the meeting at 13:30 and welcomes the delegates to Edinburgh. He introduces the new Science Coordinator, Federica Lenci, and invites the Acting chair, Julian Pearce, to take over the meeting.

Pearce thanks Chris MacLeod and wish him a rapid recovery from his illness on behalf of all the delegates. He concludes the first section by introducing the new office logos.

1.2 Discussion and approval of the agenda

Pearce introduces the draft agenda and highlights the important goals of the meeting (*Encl. 2 Agenda Book 5th ESSAC meeting*). The draft agenda is approved after the following changes are included.

- Addition of the new item, Item 3.3 Co-chief nominations.
- Addition of the new item, Item 8 Any other Business.
- Item 8 - Science updates - therefore becomes Item 9.
- Timothy Federlman cannot attend the meeting so Item 8.1 (now 9.1) - Expedition 307: Porcupine Basin Carbonate Mounds - has been replaced by Expedition 304-305, which will be presented by Benoit Ildefonse.
- Item 8.3 (now 9.3) – Updates on the Tahiti expedition - by Dan Evans will be replaced by the projection of the movie on the ACEX – Arctic Expedition as the outcomes of the Tahiti Expedition will be discussed at the ECORD Council – ESSAC Joint Meeting on Thursday 24th.

1.3 Approval of the 4th ESSAC Meeting minutes (Graz)

Pearce asks for the approval of the ESSAC 4th Meeting Minutes in Graz (*Encl. 3 Agenda Book 5th ESSAC meeting*). The revised minutes are accepted after the change requested by Camerlenghi:

on page 18 “University of Siena” has to be removed. It then becomes:

[…] Camerlenghi explains that INGV and CONISMA joined the Italian consortium for IODP. […]

1.4 4th ESSAC Meeting (Graz): Matters Arising

Pearce lists and give comments on *matters arising from the 4th ESSAC Meetin*g:

Item 3. Confidential parts of minutes

The approved minutes of ESSAC meetings will be entirely posted on the ESSAC webpage, unless the delegates, during the approval of the minutes, request that any part should be confidential.
Consensus is returned.

Item 4. Office transfer

The ESSAC office successfully transferred to Cardiff on 1st October 2005.

Item7. Editorial Board for ECORD Newsletter

Eve Arnold and Federica Lenci have agreed to be the ESSAC representatives on the ECORD Newsletter Editorial Board.

Item 8. ESSAC Web Site

This will be covered in Item 6.3 of this meeting.

Item 9. Workshops and EuroForum

These will be covered in Items 5 and 6.4 of this meeting.

Item 10. EuroMARC

ECORD will inform us of the status of this program in the joint ESSAC/ECORD meeting.

Item 11. Magellan Workshops

These will be covered in Item 5 of this meeting.

Item 12. Education and Outreach.

There has been no follow-up (as far as the ESSAC office is aware) to the request for funding a "Workshop for Teachers". This can be covered under items 5.3 or 6.1 of this meeting.

Item 13. IODP Media Policy.

Following Kenter's message to Nancy Light, the IODP media policy has been redrafted.

Arnold has been at the meeting and assures the Committee that it has been made less authoritative.

Pearce suggests that ESSAC discuss this issue at the next meeting when the members have had the opportunity to read the document and make official comments.

Consensus is returned.

Item 14. Staffing.

Kenter has continued discussion on staffing with the National Offices, IODP-MI and IOs and his document will be presented under Item 3.2 of this meeting.

Item 15. Staffing and Membership.

Belgium (presently as Flanders) and Ireland have both now formally joined the program.

Item 16. Cascadia.

This was successfully staffed.

Item 18. Invitations.

A series of invitations have been planned and put forward by the ESSAC office:

- Jan Behrmann - who will attend this meeting;
- Benoit Ildefonse - who is attending the meeting;
- Timothy Ferdelman - who will not attend the meeting due to flight cancellation;
- Rudiger Stein - who could not accept as busy with the SSEP meeting in Hawaii.

Item 19. IODP Management Forum.

This was successfully held in Frascati (congratulations to the Amsterdam office for organising it) and Kenter drafted the resulting document for circulation and discussion. The outcome will be discussed in Item 4.2 of this meeting.

Item 24. Next Meeting.

This was subsequently changed from Cardiff to Edinburgh to accommodate ECORD Council requirements for a joint session.

1.5 ECORD newsletter #5

Maruéjol presents the Issue 5 of the ECORD Newsletter, published in October 2005. This copy will be distributed at the AGU in San Francisco in December. Issue 6 will be prepared in time for distribution at the EGU in Wien in April 2006.

Mével reminds the ESSAC Office that, as agreed with the previous Office, 4-5 pages of the ECORD Newsletter are its responsibility.

1.6 Update on ESSAC and ECORD SAS representatives

Pearce introduces the Tables of SAS panels ECORD representative (*Encl.5 Agenda Book 5th ESSAC meeting*). Pearce asks the delegates to check the accuracy of the data reported.

Brinkhuis asks why the number of ECORD representatives on the SSEP panel is 8. Mével replies that 8 is the number that has been negotiated with the other IODP partners when ECORD officially joined the Program as written in the Terms of Reference (ToR). Franklin explains that the number of representatives on each panel is based on what is called the "Participation Quota".

SPC

Brumsack informs ESSAC that, in view of the two year term for SPPOC representatives, he should rotate from SPC to SPPOC to replace Kudrass in October 2006, i.e. before his SPC term is completed. Jan Behrmann in turn should replace Brumsack on SPC in October 2006.

Brumsack stresses the anomaly for the term of SPPOC members, which in turn affects rotation of other panel members. McKenzie confirms that because of this anomaly, Japanese and American members usually rotate before their official term is over. Ildefonse says that it is the responsibility of SPPOC to change its rotation term. McKenzie specifies that

the Terms of Reference cannot be changed by SPPOC itself. Pearce asks for opinions on the duration of SPPOC panel. McKenzie and Brumsack agree it should be three years as for any other panel. Ildefonse says that, in the ToR, the only written duration is for the Chair, whose tenure lasts for two years, while there is no specification on the duration for representatives.

The resulting discussion leads to the following motion proposed by McKenzie and secondly by Brumsack:

> **MOTION 1:** *ESSAC proposes the term for SPPOC members to be three years and not two years as for any other SAS Panel members in order to make rotation between representatives easier.*

Consensus is returned to motion 1. Pearce will report to IODP on the opinion shared by the ESSAC community.

Pearce proposes that Nominations for ECORD SAS representatives are in the agenda of next ESSAC meeting. Brumsack asks for consensus in rotating as he should rotate before the next ESSAC meeting. Consensus is returned: in October 2006, Brumsack will replace Kudrass in SPPOC and Behrmann will replace Brumsack in SPC. Pearce will report this to ECORD.

Pearce asks the delegates to provide the Office with Nominations for ECORD SAS representatives before the next ESSAC meeting via e-mail. New candidatures will then be discussed for approval at the meeting. Consensus is returned.

SSEP

McKenzie points out that there is no proper expertise balance in the Panel, as there is only one (Japanese) microbiologist. The ESSAC Community wonders how to ensure that the balance is respected. Ildefonse informs ESSAC that the SPC approves the composition of Panels, but ultimately it is the responsibility of the national offices to ensure quota and expertise balance. Pearce will report McKenzie's concern to IODP.

Mével and Camerlenghi ask for clarification of the procedure for choosing alternate ECORD delegates on SAS Panels. Pearce replies that so far the procedure has been as follows:

> The ECORD representative informs the Panel Chair of her/his inability to attend the Panel Meeting. The Panel Chair in turn informs the ESSAC Office. The National Office contacts the list of alternates via e-mail and asks for availability. Whoever is able to attend the meeting will then act as an alternate for the missing delegate.

Ildefonse stresses that the choice of alternates is not a national issue (i.e., French delegate replaced by a French alternate). It is mainly based on availability and expertise, but geographical position of the alternate with respect to the location of the meeting is also taken into account in order to save money (as it is the national offices that pay for the alternate).

Camerlenghi asks whether there is a "Permanent Alternate" principle. Ildefonse replies that this principle has never been put into practice. Brumsack stresses the importance of experience in order to act effectively as representative on the Panels.

MacLeod suggests that ESSAC should not add any rules as the alternation procedure based on availability and expertise has so far worked perfectly.

IS-PPG (former ILP)

Gillis asks why John Hogg, Canadian nominee for the Panel, is not listed in the Table. Ildefonse explains that the IS-PPG is not a real Panel but a Task Force, i.e. the representatives are fairly flexible. Ildefonse informs ESSAC that at the meeting in Kyoto, SPC decided that Harry Doust – the present ECORD representative and Chair of the Panel - will chair the next meeting to ensure continuity. He will then be replaced.

Pearce remarks that both in **EPSP** and in **EDP**, a representative from the so-called "smaller countries" is needed. MacLeod suggests that the delegates should make nominations instead of leaving the ESSAC Office to choose them. A

potential nominee for EPSP might be Neil De Silva (Canadian), at present ECORD alternate in EPSP. Kudrass informs ESSAC that he will send by e-mail the new German nominee for EDP. His nomination will then be formalized at the next ESSAC meeting. Evans points out that ESSAC should nominate somebody soon, as there is presently only one ECORD representative on EDP and the next meeting will be in February. Holm asks for more Danish representatives on the panels. Ildefonse asks if there could be an exchange of nominations, with expertise and cv, via e-mail. Consensus is returned.

Ildefonse informs ESSAC that Serge Berné (France) will replace Le Pichon on **SPPOC** subject to IFREMER approval.

Pearce asks the delegates for suggestions on how to get feedback from SAS Panel ECORD members and how to advise them on strategic ECORD issues. Mével asks if the Office has ever sent a letter of congratulations to the appointed SAS Panel member as this might be an effective way to enhance his responsibility toward the community he is representing and to stress the fact he is representing ECORD and not his country. Pearce proposes to ask SAS Panel members to provide the Office a brief written report on SAS Panel meetings. McKenzie proposes this items (i.e., letter of appointment and SAS Panel members reports) to be in the next agenda book as the ESSAC Community has to take action on it. Consensus is returned.

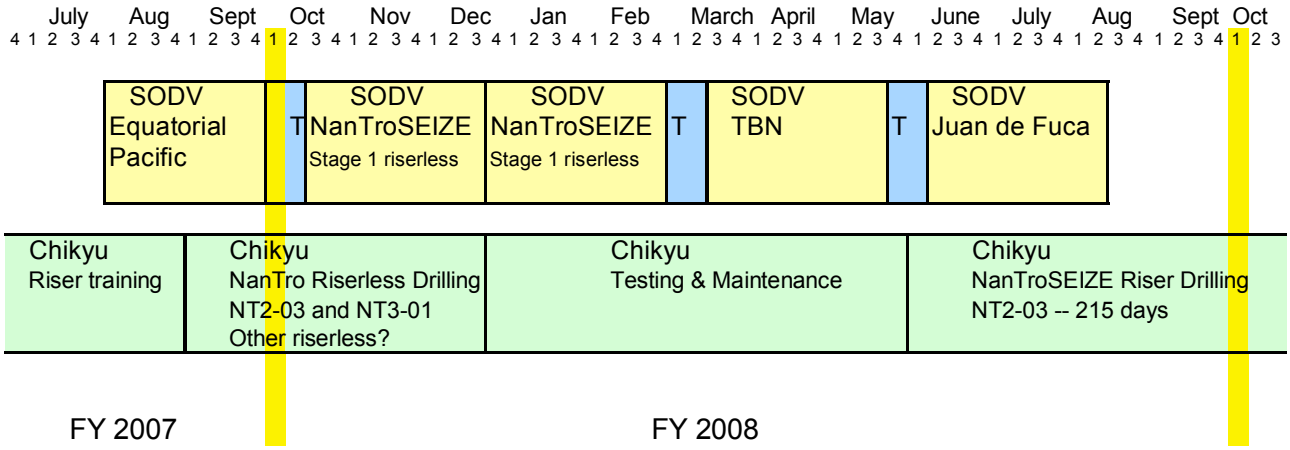
2. Executive summary of the SPC, held in Kyoto October 2005

Pearce summarises the matters arising from the SPC meeting as follows:

- Frascati Report - This will be covered in Item 4.2 of this meeting
- Workshops - This will be covered in Item 5 of this meeting
- FY07/08 Operations
- Proposal submissions
- New Jersey Margin

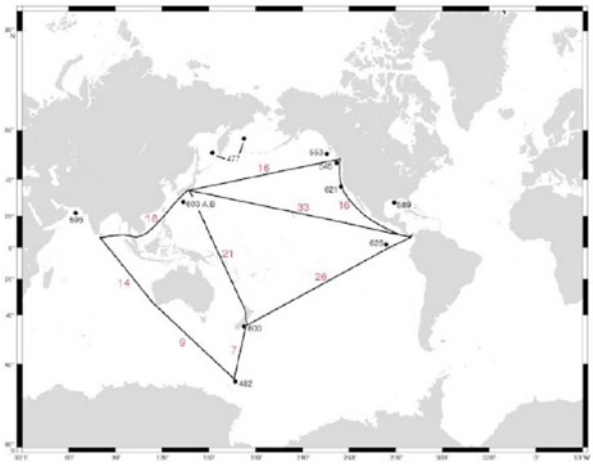
2.1 FY07/08 Operations

Pearce summarizes operations scheduled for the fiscal year 07-08.



Gillis expresses her concern on the type of proposals that have been accepted and scheduled. She fears that there is a sort of proposal pressure and asks about the Biodiversity proposal. Brumsack states that there was consensus in the Community as the operations panel has no funding to run expensive expeditions at the moment. Ildefonse explains that complex proposal such as Atlantis Core Complex and Superfast Spreading requested two expeditions each. He does not think that there is any proposal pressure.

Pearce introduces the planned track for the non-riser vessel, which will drill in the Southern and Indian Ocean following the FY2008 Pacific program.



McKenzie highlights the fact that there are no expeditions scheduled for FY 07-08 within European waters. She remarks that the ESSAC Community should have as its primary goal a drilling program in the Mediterranean area in 2009.

Pearce points out that, if the ECORD Community wants to drive the ship toward the Mediterranean area, there might be the possibility once the ship reaches the Indian Ocean. Kudrass stresses the importance of having high quality proposals for this region.

2.2 Proposal submissions

Pearce lists the distribution of proposals by IODP members (by lead proponents):

110 proposals in total of which 54 are US, 39 ECORD, 12 Japan, 4 Others, 1 China.

Pearce lists for information the ECORD-led proposals (*Encl. 1*).

Ildefonse and Mével inform ESSAC that not all the proposals that reach the OTF are ready to be scheduled.

Camerlenghi asks about the proposal 537 - Costa Rica Seismogenesis Project. Ildefonse replies that, for scientific reasons, the Costa Rica proposal is not as advanced as the Nankai proposal. It will be ranked again next year.

Pearce informs ESSAC that proposal 482 (Wilkes Land Margin) and proposal 600 (Canterbury Basin) will likely be scheduled for FY 2009. Pearce reports that New Jersey Margin is likely to be the next MSP Expedition.

Ildefonse informs ESSAC that proposal 552 (Bengal Fan) and proposal 595 (Indus Fan and Murray Ridge) may require riser drilling and, together with proposal 555 (Cretan Margin Hydrogeology), are the possible expeditions to be scheduled during or after FY09.

Pearce summarizes the distribution of ECORD-led proposals by nationality of lead-proponent as follows:

Member	Lead prop.
France	7
Germany	9
UK	7
Sum	**23**
Austria	0
Belgium	1
Canada	4
Denmark	0
Finland	1
Iceland	0
Ireland	0
Italy	3
The Netherlands	0
Norway	2
Portugal	1
Spain	3
Sweden	1
Switzerland	0
Sum	**16**

He notes that this covers only lead-proponents. Most countries with no lead-proponents do have co-proponents.

2.3 New Jersey Margin

Pearce reports that the SPC reaffirmed at Kyoto the necessity of drilling a three-site transect on the New Jersey Margin. Evans explains that three sites are necessary to make the project worthwhile, but this implies a higher cost for the expedition and at present there are no enough funds available unless 2007 funds are advanced. Consequently it is unlikely New Jersey expedition will be scheduled for March 2006.

3. Staffing

3.1 ECORD Staffing summary for IODP Phase 1

Pearce introduces the staffing summary document and summarizes the criteria used to draw up the document as follows:

- All agreements with the previous ESSAC office have been honoured.
- Where there is ambiguity, the decision has been in favour of the country involved.
- All such agreements and ambiguities have been listed beneath the Table. The general policy is that late solicited replacements or requests to fill otherwise unfilled berths, do not count against the country concerned.
- Co-chiefs have been counted as that is now IODP policy.
- Participants sailing as technical support are not counted.

Pearce asks the delegates to check the document.

Brinkhuis asks why Zampetti has been counted in Expedition 308. Pearce replies that she sailed as a scientist, following the discussion at the previous ESSAC meeting.

Brumsack and Camerlenghi raise the problem of how replacement scientists have to be treated in terms of nationality. Pearce replies that the Office has either attributed them to the country whose scientist they are a replacing or to no country, depending on the agreement reached. Scientists appointed at the last minute have not been taken into account in the national quota balance.

Arnold comments that the present situation exists because expeditions were scheduled at very short notice. Ildefonse emphasizes the importance of improving this situation in the future.

Pearce stresses the need to define a policy to refer to in the future. Franklin underlines the fact that it is ESSAC responsibility to define official rules on this matter. Pearce asks the delegates to approve the criteria proposed by the Office as outlined above. Consensus is returned.

After the changes required by the delegates, the new document (*Encl. 2*) is finally approved.

Mével requests that ESSAC publish the contribution as percentages rather than actual sums of money.

Brumsack encourages the smaller countries with a deficit of shipboard scientists to increase their participation. Arnold replies that Swedish nominations have been submitted but not accepted. It was agreed that the main goal was to send the best scientists regardless of nationality but that, other things being equal, an effort should be made to maximise national balance.

3.2 Staffing rules for the future

As approved by the three National Offices, the berths occupied by scientists replaced at the last minute will be attributed to the country of the original nominee.

3.3 Co-chief scientists

Pearce informs ESSAC that nominations for co-chiefs previously proposed by the delegates via e-mail do not always include the names of the proponents of the expedition in question, and stresses that the proponents are likely to have more chance to be appointed. A list of ECORD proponents has therefore been compiled by the Office and distributed to the delegates in case any potential co-chief have been overlooked.

A discussion on who is in charge for co-chiefs nomination follows:

Ildefonse explains that, theoretically, the SPC is responsible for co-chief appointments and the choice is lead by scientific merit, expertise and nationality of nomination (in terms of member balance, i.e., US, ECORD, Japan, China, while "internal" ECORD national balance is a matter related to ECORD itself). But, in the end, it is the operator which decides the co-chiefs. Kudrass adds that proponents are also taken into strong account as potential appointees. Ildefonse replies that that is not a written rule.

Pearce asks the delegates to check the table and to propose nominations via e-mail once their national offices have ensured that the nominations proposed are accepted by the nominees. He then asks the delegates to forward the list of nominations to the office with CVs if not already available.

Consensus is returned.

4. Long-range Planning

4.1 Augmentation of the Initial Science Plan: the ESSAC view

McKenzie reports that at the next SPPOC meeting in January augmentation of the Initial Science Plan (ISP) will be discussed. She explains that the ISP was produced in 1999 and published in 2000 and there is clearly the need of updating and incrementing it. She asks the ESSAC Community to express its opinion on it and give inputs. Herself and Kudrass will then report the ESSAC perspective on that matter at the next SPPOC meeting.

Pearce reminds ESSAC that the main three themes covered by the ISP are as follows:

1. The Deep Biosphere and the Subseafloor Ocean
2. Environmental Change, Processes and Effects
3. Solid Earth Cycles and Geodynamics

A discussion follows:

McKenzie proposes that the Deep Biosphere theme of the Plan should be reinforced. She agrees with Brumsack that ODP Leg 201 was an unqualified success but what has been done so far it is not enough.

Ildefonse suggests that IODP should be more proactive in workshops (as McKenzie is already doing), especially in attracting more people and young scientists to sail. Going to Institutes and giving talks is an effective way to advertise and spur people to join the Program.

McKenzie agrees with Ildefonse on incrementing the number of workshops on the Deep Biosphere theme and emphasizes the importance of also increasing the number of microbiologists on the panels. Mével agrees. McKenzie also states that microbiology analysis should become routine during expeditions, but that specific legs should be drilled as well.

Kudrass proposes an emphasis on formation of deep basins, as continental break-up is not yet understood and has important industrial links.

Camerlenghi wishes to see more programs with more societal and industrial repercussions, such as hazard themes.

The discussion results in the following decision:

Pearce will summarize the delegates comments and will circulate a document to be approved and presented to SPPOC in January by McKenzie and Kudrass.

4.2 IODP Forum and Management Retreat: the ESSAC view

Pearce introduces the so-called Frascati Report and thanks the previous ESSAC Office for successfully organizing and running the meeting. He then summarizes challenges and recommendation arising from the meeting as follows [*original document*]:

Outstanding challenges include:

- *Fully developing and implementing the framework*
- *Attracting new generations of earth and biological scientists to the IODP*
- *Increasing funding and membership of the IODP*
- *Reducing duplication or triplication of efforts*
- *Increasing integration, including further meshing of national/consortia interests with program interests*
- *Bridging the shoreline divide between the IODP and the International Continental Drilling Program*
- *Further ameliorating language and cultural differences, i.e., 'leveling the playing field', among IODP members*

Recommendations:

- *Increasing IODP membership: The Forum recommended IODP-MI pursue the concept of an "introductory member" proposed by IODP-MI (Appendix B), keeping in mind the vital importance of enlarging the international membership of the program.*
- *Formation of an Advisory Forum: The president of IODP-MI invites the participants of the management forum to constitute a task force whose mandate will be to act as an advisory body to the president. This task force will be named "IODP Management Advisory Forum".*
- *Mission Teams: Bearing again in mind that only a conceptual framework is being presented and all the details need to be filled in, a possible definition of the formation and working of the Mission Teams (MT) includes the following proposals:*

  (1) MT consists of the following: A group of scientists, IO representatives and IODP-MI personnel and, whenever necessary, Industry and other outside sectors of IODP experts in order to formulate Expedition Program (from site survey, drilling operation to resultant publicity).

  (2) MT could be proposed through various mechanisms including SAS leadership, national office leadership or by a group of spontaneous and dedicated scientists. Normally MT should be formed through a series of workshops.

Pearce comments that the Mission Team concept has implications on the whole structure but those implications are still under debate. He then introduces the flow chart of the new proposed structure.

A discussion on the Mission Team concept follows.

Mével comments that the general idea is to have all the components (scientific, operational, managerial) right at the beginning of the process, when the Scientific Themes are discussed for approval. This was to endorse the projects by the whole community not just the scientific community.

Ildefonse adds that the aim of the new structure is to ensure more proactivity from the beginning once what is should be achieved is decided (i.e., the concept of the Operational Budget Science).

Gillis asks who is in charge of defining the Mission Teams. Ildefonse replies that ultimately is the SPC that decides. Gillis expresses her concern as this renewal will likely change what has been IODP highly positive trait: to be a bottom-driven program.

Ildefonse explains that there will be both solicited and unsolicited proposals but how they will be treated is still under debate. Mével remarks that there will always be "unsolicited proposals" and notes that the Japanese Community greatly welcomed the Mission Team Concept in Frascati as, at present, they are experiencing problems in submitting proposals. She also remarks that further aim of the new structure is to help all the proposals right from the start.

Brumsack explains that the Mission Teams concept arises from the necessity of a more flexible system which could guide good proposals through the system more effectively. To gain this objective, inputs and advice from the science operator are needed right from the beginning when the proposal is submitted.

Evans reassures ESSAC that the Mission Teams cannot be chosen by the SPC itself, as the whole Program was funded on the ISP. And, as the main themes of the ISP were not properly addressed, a solution has to be found. The solution proposed in Frascati is the MT.

Pearce reads the motions by USSAC ad J-DESC and asks the delegates to think about a possible ESSAC Motion to be discussed the next day.

Ildefonse makes the additional point that the IODP Community at the IODP Forum and Management Retreat in Frascati recognizes that the ISP has not been addressed. That Community also recognizes that the system is not efficient and proposes to bring all the components together as a possible improvement: a new structure has been proposed through the Frascati Report. Now the whole IODP Community has to improve the document. He then comments that the National Offices are viewing the document positively but they ask for an equal treatment of the solicited and unsolicited proposals. And this is not possible.

Wednesday 23rd November

4.2 IODP Forum and Management Retreat: the ESSAC view

Based on the previous day's discussion, Pearce proposes the following response to the Frascati Report and asks the delegates for consensus.

> ESSAC supports, in general, the recommendations of the Frascati Report and recognises the value of Mission Teams for achieving major scientific objectives and for publicising and funding the program. It does however emphasise the importance of also encouraging proposals that are not part of Missions. It would thus to see scheduling and fast-tracking applied fairly to all expeditions.

A discussion follows.

The discussion results in the following approved motion:

> **MOTION 2:** *ESSAC supports, in general, the recommendations of the Frascati Report and recognises the value of Mission Teams for achieving major scientific objectives and for publicising and funding the program. It does however emphasise the importance of encouraging proposals that are not part of Missions by ensuring that scheduling and fast-tracking are applied fairly to all projects. It also emphasises the importance of transparency and of full community input into the choice of missions.*

4.3 European infrastructures: Aurora Borealis proposal

Arnold introduces the Aurora Borealis proposal and explains that is part of the European Large Infrastructures. She also refers that this proposal is meant to be one of the more likely eligible proposals. As Swedish representative on the Committee for the Large Infrastructures, she asks the delegates for opinions and advise on the use of the vessel as MSP.

Franklin notes that the ECORD Council discussed this possibility and the endorsement was not given. He further explains that, if the EU funds the Aurora Borealis proposal, then no funding may be available for any other ocean drilling activity.

The participants discuss whether or not the Arctic is one of the ECORD scientific priorities. The financial implications of the proposal are also discussed.

Camerlenghi notes that both the polar areas (Arctic and Antarctic) are important areas within the ISP.

Arnold proposes that ESSAC devise an initiative to enable MSP to be encompassed by the European Large Infrastructure in parallel, and without negatively interfering, with the Aurora Borealis. She asks the delegates for the authorization to go and talk with the Committee for the Large Infrastructures.

Pearce stresses that, to endorse the MSP, the Community needs to be fully informed on the scientific goals that can be achieved. He then summarizes the discussion as follows:

The ESSAC Community will:

1. endorse the scientific importance of drilling in the Arctic
2. seed the fact that the MSP can drill in the Arctic as well as the Aurora Borealis
3. set up a small working group (Arnold, Brinkhuis, Camerlenghi, Kudrass) to summarize the scientific rationale for Arctic Drilling.

This item will be then revised and discussed at the next ESSAC meeting when the participants will be fully informed.

5. Magellan Workshops: past and future

Pearce reminds ESSAC that the Magellan Workshop Series is an ESF Program for co-ordinated workshops to stimulate and nurture European science proposals in the area of marine research drilling. Within this program a workshop has been already held in 2005 ("Palaeoclimate change: High latitudes & Ocean circulation") and another has been scheduled for January 2006 ("Deep Biosphere Workshop").

5.1 Arctic-high latitudes workshop outcome

Pearce reports on the outcomes of the Magellan Workshop "Palaeoclimate change: High latitudes & Ocean circulation" held in Oxford in October. He explains that this workshop followed a successful 2-day on the same theme. The outcomes of the subsequent Oxford meeting can be summarized as follows:

- two existing proposals were identified to be extended and re-submitted for the 1 April deadline: 503Full2 (Jokat, Weddell Sea) and 619Pre (Mackensen, ISOLAT: Indian Southern Ocean Latitudinal Transect)
- two further proposals have been developed: Maud Rise-Astrid Ridge; Agulhas Leakage and Interocean Exchange in the Neogene (ALIEN)

Brinkhuis criticizes the limited expertise involved in the meeting. Mével points out that the money allocated for the workshop has not been claimed back. Franklin explains that this is because the UK paid for the workshop. Ildefonse explains that the peculiarity of the Workshop was because the Workshop was conceived before the official involvement of the ESSAC Community. Overall ESSAC agrees that the Workshop members have done a good job in providing a clear report with revamped and new proposals.

5.2 ESSAC Deep Biosphere Workshop

McKenzie introduces the program of the Workshop and the attendees. She expresses her enthusiasm for having such an interesting community of scientists. She also informs ESSAC that two US scientists will take part to the workshop and she is willing to invite a Japanese representative also. She explains that Nick Pisias, SPPOC chair, informed her that the possibility of including a microbiology program as a routine has been positively discussed at the SPC meeting in Kyoto.

5.3 ESSAC proposals for future Workshops

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 Proposal 1 (*Encl. 11 Agenda Book 5th ESSAC meeting*)

Scientific Ocean Drilling behind the Assessment of Geo-hazards from Submarine Slides

Proponents:
Angelo Camerlenghi, ICREA, University of Barcelona
Roger Urgeles, Universitat de Barcelona
Miquel Canals, Universitat de Barcelona

Camerlenghi introduces the workshop, listing the proponents together with the proposed Scientific and Organizing Committees. He refers to the rationale and the structure of the workshop and lists the subjects of the invited talks and the planned working groups.

Camerlenghi expresses an intention to find out why the Storegga Proposal failed and informs ESSAC that one of the Storegga proponents has already been invited and will take part in the workshop. The Storegga Slide proposal, an important aspect of the workshop, is discussed. Ildefonse informs Camerlenghi that he will provide more information about the history of the Storegga proposal with the SAS.

Pearce asks for consensus to put forward the Workshop proposal 1 to the ECORD Council. Consensus is returned.

Workshop Proposal 2 (*Encl. 11 Agenda Book 5th ESSAC meeting*)

Geohazards in Collision Zones and their Human Impacts: Challenges for IODP drilling

Proponents:
Menchu Comas (ESSAC, Spain delegate)
Luis M. Pinheiro (ESSAC, Portugal alternate)
Julian Pearce (ESSAC, UK alternate)

Pearce presents the background of the proposal. He explains that this workshop proposal was originally proposed by Comas and Pinheiro as a Mediterranean workshop. Following discussion at the ESSAC Meeting in Graz, Pearce agreed to rework the proposal to fit in with ECORD strategic objectives. This was done at a meeting between Comas, Pinheiro and Pearce.

Pearce introduces goals and rationale of the workshop and its structure. He highlights its links to the ESSAC Mediterranean Proposals and explains that the Workshop provides an opportunity to involve a new community (Archaeology and Anthropology) in ocean drilling. As possible locations of the workshop, Pearce proposes Santorini or Rome-Naples, with the second of these the more acceptable choice given that Magellan Workshops should be held in a member country. He lists the Proposed Scientific Committee and announces he will not take part to the committee unless needed to "facilitate" the meeting.

Pearce ask for consensus to put forward the Workshop proposal 2 to the ECORD Council. Consensus is returned.

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*

  (Theme proposed by Abrantes. She highlights the necessity to investigate oceanic and terrestrial processes to understand past climate. Different marine and atmospheric systems can be considered and studied along transects at different latitudes. Possible areas are: Eastern margin of the Atlantic, Africa margin and Mediterrenean)

- *Evaporites and salt tectonics*

  (Theme proposed by Brumsack and widened by McKenzie and Camerlenghi to include the Mediterranean Evaporites)

- *ACEX II*

  (Theme proposed by Brandsdóttir)

- *Continental Breakup*

  (Theme proposed by Kudrass)

- *Extreme Climates*

  (Theme proposed by Brinkhuis)

- *Costa Rica Seismogenic Zone*

Chikyu opportunities in Europe (Industry-related drilling to bring the Chikyu in the Mediterranean) and *Epicontinental seas* (McKenzie notes that Given circulated an email on a US workshop on this theme) were also mentioned but not developed. James stresses the importance of workshops that generate proposals which involve MSPs.

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.

6. Outreach

6.1 Educational activities: Teachers at Sea, representation on IODP-MI E&O task force

Arnold informs ESSAC of the actual composition of the ESSAC educational sub-committee: Mével, Maruéjol, Kingdon (or his replacement), Barriga and herself. Arnold refers to the current status of the "Teachers at Sea Program" and informs ESSAC that teachers will likely be on board of the ODEON vessel during summer 2006, financed by the ERA-Net.

Arnold then reports on the last IODP-MI Educational & Outreach Task Force meeting held in Japan on the second week of November 2005. She explains that the Task Force is composed of representatives of the National Offices and of the Operators. She proposes that Maruéjol, ECORD Webmaster, should be part of the Task Force. The outcomes of the meeting are summarized in a document which can be downloaded from the IODP-MI Educational website. She also provided the ESSAC Office with a hardcopy. She briefly reports on the rules stated in the document on how to use the IODP logo: all the national websites have to report the IODP logo.

Arnold also highlights the importance of promoting educational issues in Europe to raise the IODP visibility. "Copernicus" and "EGU Education and Outreach Journal" are two of the possible journals where IODP-related articles could be published.

Mével informs ESSAC that there is photographic exhibit on ACEX available at Bremen. She suggests that that can be used for displays. Arnold explains that the US "Teacher at Sea Program" is very successful and that there is also a well developed "Undergraduates at Sea Program". Gillis asks why only the American teachers can take part in the Program. Mével replies that the US has the funds to support the program financially. Gillis asks whether ESSAC has the funds to send

European Teachers on board, they would be welcomed in the American program. Arnold replies that the US program greatly welcomes European Teachers.

Brinkhuis raises the issue of the IODP Media Policy. After a brief discussion, Pearce informs ESSAC that ESSAC at Graz had agreed with Brinkhuis's concern about the Expedition Media Pack.

Pearce notes that there is a lot of interest in this topic, but that it had only been scheduled as a short item for this meeting. He said that there would be a major item on this at the next ESSAC meeting.

6.2 ESSAC Database

Lenci asks the delegates to provide the Office with the updated list of people, with Name – Institution – email address, to complete the ESSAC Database. She lists the ECORD Country Members together with the date of the file already in the database.

- Austria lack
- Belgium lack
- Canada as of July 2005
- Denmark lack
- Finland as of April 2005
- France as of May 2005
- Germany as of January 2005
- Iceland lack
- Ireland lack
- Italy as of November 2005
- Norway lack
- Portugal as of April 2005
- Spain lack
- Sweden lack
- Switzerland as of March 2005
- The Netherlands as of April 2005
- UK as of July 2005

6.3 ESSAC web site

Lenci introduces the new ESSAC website. The website is hosted by the same server as the ECORD website, CRPG Nancy. It can be accessed by the ECORD home page and has the same format as the IODP website but it is consistent with the ECORD website style as it has the same banner. She shows the page of the ECORD Partners with links to the National Offices homepages:

- Canada (Canada IODP)
- Finland (IODP Finland)
- France (IODP France)

- Germany (IODP Deutschland)
- Italy (IODP Italia)
- Norway (IODP Norge)
- Switzerland (Swiss IODP)
- The Netherlands
- UK (UK IODP)

She asks the delegates to provide the link of their National Offices homepage, if any, and to update the National Offices homepages with the new ESSAC Office contacts and the new ESSAC website link.

She informs the delegates of

Austria, Belgium, Denmark, Iceland, Ireland, Portugal, Spain, Sweden

that the ESSAC Office could help them to develop a National Office homepage that could be hosted on the ESSAC website.

Camerlenghi informs the delegates that the Italian IODP Office uses a simple and free piece of software to build and edit its webpage. He offers to supply the software and to give support to build their own homepage if interested.

Lenci informs ESSAC that, as agreed with Maruéjol (the ECORD webmaster), the *Participation* webpage will be moved from the ECORD website to the ESSAC website. The *Education* webpage on the ESSAC website will refer to the ECORD webpage.

The possibility to build up a database "subscribe-unsubscribe" device directly onto the ESSAC webpage will be discussed with the ESSAC web designer. The ESSAC Office will discuss with EMA whether such a device should be placed on the ECORD or ESSAC webpage.

6.4 EURO-Forum

Pearce informs the delegates that, as requested by delegates at the ESSAC meeting in Graz, it is the turn of the UK to hold the EURO-Forum 2006 and suggests it could be held in Cardiff, either in Cardiff University or at the Welsh National Museum close to the University. The event might be over two days with a few formal presentations, lots of posters, and social events during the evenings. He proposes May 2006 as suitable time and refers that the Museum is available on 8th-9th and 22nd-26th of May. Pearce proposes the possible content of the formal presentations as follows:

Day 1

1. *Drilling Opportunities: 3 Keynote talks*

   MSP Opportunities

   Non-Riser Drilling (SODV) Opportunities

   Chikyu Opportunities

2. *Progress on the Science Plan: 3 Keynote talks*

   Palaeoclimate

   Geodynamics

   Biosphere

Day 2

3. *European Proposals and Initiatives*

4. Opportunity for European scientists who are PIs on proposals and Workshop organisers to give short presentations

Pearce asks the delegates for ideas and suggests that ESSAC focus more on encouraging collaboration, participation and proposal writing rather then replicating the many workshops and conferences already scheduled. Pearce then asks which National Office has funds to support the participation of their Community and asks Franklin if ECORD can provide some funds too.

- Ildefonse for France: funding available for few people
- Brumsack for Germany: funding available for 20-25 people
- Arnold for Sweden: no funding available
- McConnell for Ireland: no funding available

UK might fund a Japanese and an American for 2 keynote lectures on the Chikyu vessel and the new vessel JOIDES Resolution vessel.

Pearce remarks that, as far as he knows, the Forum is made up by posters and keynote presentations in order to attract young scientists. He observes that an ESSAC target should be involve people from the smaller countries and from those countries not yet ECORD members. Franklin suggests that the EURO-Forum could be included under the item "Workshop" and asks ECORD Council to fund it. MacLeod proposes the EGU in Wien as a further possible location for the EURO-Forum.

Pearce summarizes the discussion as follows:

The scientific theme of the EURO-Forum 2006 could be Deep Ocean Frontiers, linking IODP with the different methods of ocean exploration. It will be held in Cardiff, at the Welsh National Museum in May. Museum availability and other IODP meeting dates will be checked by the ESSAC Office and possible dates will then be circulated by email to the delegates for approval. Consensus is returned.

ESSAC suggests that the next ESSAC Meeting should also be held in Cardiff to cut down on travel expenses.

7. Future Meetings

7.1 Upcoming meetings

Pearce shows the lists of upcoming meetings.

7.2 Date and Place of the Next ESSAC Meeting

Pearce asks the delegates for approval to hold the 6th ESSAC Meeting in Cardiff either before or after the EURO-Forum as discussed. Consensus is returned.

8. Any Other Business

8.1 Hosting IODP Meetings

Ildefonse looks for volunteers for hosting IODP meetings. He highlights the fact that those meetings are a big opportunity to promote the program and notes that those countries that are not involved in the programme can also host them. He encourages the delegates to take this opportunity and reminds them that it is possible to invite members to give a talk before/after the meeting. Mével explains that EMA will, if requested, help in organizing the meetings and that EMA allocates 2500€ for regular meetings and 5000€ for SSPOC and SPC meetings.

8.2 International Continental Drilling Program

Brinkhuis expresses his concern over the interest shown by ESSAC in the ICDP workshop, and comments that it is a "private" program. McKenzie explains that ICDP has a different philosophy as the workshop concept is totally incorporated in their programme and that this could represent a good example for the IODP Community. Mével explains that they have expressed a wish to take part into the New Jersey Expedition and they have allocated 500K dollars to it. Kudrass highlights the fact that they are a very good source of information and points out that there are several IODP proposals that involve continental and ocean drilling projects. Ildefonse explains that the Ocean Community has a technological interest in the ICDP as they are technologically very advanced and they can be a major source of information. Mével confirms this.

8.3 Staffing

The problem of the lack of Japanese participants on board is discussed. Mével notes that that problem has been discussed at the Frascati meeting. She reminds ESSAC that, in the MoU, it is clearly stated that there shall be flexibility filling the berths. Leading agencies are often very inflexible.

Behrmann notes that, on the 308 Expedition, the Japanese were very cooperative. Evans notes that, on the Tahiti Expedition, an Australian sailed as part of the Japanese allocation.

Gillis invites ESSAC to discuss a way to get more feedback from the SAS Panel members. This will be an item in the next Agenda Meeting.

Pearce thanks Heather Stewart and Dan Evans for hosting the meeting, Federica Lenci, the previous ESSAC Office, all the delegates and Chris MacLeod. He declares the first session of the meeting closed and reminds ESSAC about the joint meeting with the ECORD Council. He invites the delegates to sign the ECORD Christmas Greeting cards for Jeroen Kenter and Valentina Zampetti.

APPENDIX 2: A proposal for major change in role and structure of SPPOC

1) The executive authority of SAS will reside in a new committee which will be created to replace SPPOC in a manner that does not violate the present MOU. The new committee will be called the SAS Executive Committee.
2) The BoG will designate the membership of the SAS Executive Committee as follows:
   - 2 from Board of Governors (1 from U.S., 1 from Japan)
   - 2, 2, 2 respectively from Japan, U.S., and ECORD (Note that this will represent a voluntary reduction from the usual formula of 7, 7, 3 & 1)
   - These member representatives are newly nominated by National Programs.
   - 1 SPC chair non voting
   - 1 IODP-MI president non voting
   - Observers: China, South Korea (Asian Consortium)

3) The following Terms of Reference of SASEC will be vested in this new committee.
4) The SAS Executive Committee will meet three times a year, once in conjunction with a SPC meeting, once in June/July for APP approval in conjunction with the BoG meeting (which has been moved to the June/July time period) and once at their discretion.
5) Offer the equivalent of 20% of salary for SASEC chair and his/her travel expenses

Expected Merits

More efficient, more streamlined and quicker-responsive structure of BoG/SAS/IODP-MI

Terms of Reference
of
IODP SAS Executive Committee (SASEC)

1. Introduction

The IODP Scientific Advisory Structure (SAS) Executive Committee (SASEC) shall be a committee created by the Integrated Ocean Drilling Program (IODP) Management International (IODP-MI) in accordance with the terms and conditions of IODP-MI's by-laws. This committee succeeds the IODP Science Planning and Policy Oversight Committee (SPPOC), which was established in September 2003.

2. Mandate

SASEC shall be the highest-level committee of the IODP SAS.

This committee;

a. conducts IODP long-range planning, as well as evaluation and assessment of the program,
b. reviews and approves the annual IODP program plan and budget prior to forwarding it to the IODP-MI Board of Governors (IODP-MI BoG) for corporate approval and contractual submission to the IODP lead agencies, and
c. conducts outreach to other geo-science programs.

3. Subcommittees

SASEC may establish subcommittees and working groups for cognizance of certain components of the IODP. Areas of cognizance and the terms of reference for each subcommittee shall be defined by SASEC. In particular, a Science Planning Committee (SPC) shall be established. SASEC shall determine the chair and vice-chair of the SPC based on IODP member nominations. The IODP-MI BoG shall approve the SPC chair nomination.

4. Membership

The members of SASEC shall be representatives from oceanographic and marine research institutions or other organizations, which have a major interest in the study of the sea floor. Members shall be selected based on recommendations from national and consortia committees from member nations and consortia, and have a term of two years. Members shall not be appointed more than two terms. In addition, the IODP-MI BoG shall appoint two of its members to SASEC, one from Japan and another from the United States. In the

event another Lead Agency joins the IODP, the IODP-MI BoG shall appoint three members to SASEC. The IODP-MI BoG shall approve the membership of SASEC. The IODP-MI BoG on the recommendation of SASEC or in the event of a country or consortium ceasing to have a valid memorandum in existence may cancel membership of any member.

5. Decisions

SASEC shall reach all its decisions by consensus or the affirmative vote of at least two-thirds of all members present and eligible to vote. A quorum shall constitute two-thirds of the committee. If a member of the committee is absent from a duly called meeting of the committee, an alternate may be designated with full authority to act for him/her in his/her absence.

6. Chair and Vice-Chair

The chair and vice-chair of SASEC shall rotate initially between Japan and the United States each with a term of office of two years. The IODP-MI BoG based on IODP member nominations shall determine the chair and vice-chair of SASEC.

7. Minutes

The committee, and all subcommittees thereto, shall keep written records of their proceedings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes.

8. Indemnification

Members of this committee, and members of subcommittees duly appointed thereby, while acting within the terms of reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses, costs and expenses arising from acts or omission related to performance as committee members.

9. Ratification

These terms of reference, upon ratification by the IODP-MI BoG, shall supersede all previous terms of reference.

APPENDIX 3: ECORD SAS Representatives

SAS panels DELEGATES & *ALTERNATES* as of 22 March 2006			
SPC Science Planning Committee			
4 out of 19 panel members are ECORD members			
Hans Brumsack	Germany	Mar04-Mar07	brumsack@icbm.de
Benoit Ildefonse	France	Mar04-Mar07	Benoit.Ildefonse@dstu.univ-montp2.fr
Chris MacLeod Julian Pearce	UK	Oct03-Oct07	MacLeod@cardiff.ac.uk PearceJA@Cardiff.ac.uk
Rolf Birger Pedersen	Norway	Oct05	rolf.pedersen@geo.uib.no
alternates			
Kathy Gillis	*Canada*		*kgillis@uvic.ca*
Eve Arnold	*Sweden*		*emarnold@geo.su.se*
SSEP Science Steering and Evaluation Panel			
8 out of 38 panel members are ECORD members			
Jan Backman	Sweden	Jan05-Jan08	backman@geo.su.se
Jörg Erzinger	Germany	May04-May07	erz@gfz-potsdam.de
Frédérique Eynaud	France		f.eynaud@epoc.u-bordeaux1.fr
Benedicte Menez	France	May06-May09	menez@ipgp.jussieu.fr
Jens Konnerup-Madsen	Denmark	Jun05-June 08	jenskm@geol.ku.dk
Rüdiger Stein (co-chair)	Germany	Mar04-Mar07	rstein@awi-bremerhaven.de
Damon Teagle	UK	Oct03-Oct06	dat@soc.soton.ac.uk
Jürgen Thurow	UK	Oct03-Oct06	j.thurow@ucl.ac.uk
alternates			
Gretchen Früh-Green	*Switzerland*		*frueh@erdw.ethz.ch*
Luis Pinheiro	*Portugal*		*lmp@geo.ua.pt*
Elisabetta Erba	*Italy*		*elisabetta.erba@unimi.it*
Francesca Martinez-Ruiz	*Spain*		*fmruiz@ugr.es*
Dominique Weis	*Canada*		*dweis@eos.ubc.ca*
IS-PPG Industry-IODP Science Program Planning Group (former ILP)			
1 out of 5 panel members are ECORD members			
Harry Doust (chair)	Netherlands	Oct05	douh@geo.vu.nl
Didier-Hubert Drapeau	France	2006-?	didier-hubert. drapeau @totalfinaelf.com
John Hogg	Canada	2006-?	John.Hogg@encana.com
David Roberts	UK	2006-?	d.g.roberts@dsl.pipex.com
Richard Davies	UK	2006-?	DaviesR28@cardiff.ac.uk
Please note:			
Doust will be in charge for the next IS-PPG Meeting, a new nominee is then needed			
STP Scientific Technology Panel			
4 out of 19 panel members are ECORD members			
Christophe Basile	France	Sep04-Aug07	Christophe.Basile@ujf-grenoble.fr
Annakaisa Korja	Finland	Jun04-Jun07	korja.annakaisa@seismo.helsinki.fi
Mike Lovell (vice-chair)	UK	Oct03-Oct06	mike.lovell@le.ac.uk
Heinrich Villinger	Germany	Jun04-Jun07	vill@uni-bremen.de
alternates			
Silvia Spezzaferri	*Switzerland*		*silvia.spezzaferri@unifr.ch*
Douglas Schmitt	*Canada*		*doug@phys.ualberta.ca*

EPSP Environmental Protection and Safety Panel			
4 out of 18 panel members are ECORD members			
Jean Mascle	France	Oct03-Oct06	mascle@obs-vlfr.fr
Bramley Murton	UK	Jun04-Jun07	bjm@soc.soton.ac.uk
Dieter Strack	Germany	Oct03-Oct06	ddhstrack@aol.com
TBN	4°		
Please note:			
Neil DeSilva was not approved by IODP-MI as he is member of the TAMU safety panel			
SSP Site Survey Panel			
4 out of 19 panel members are ECORD members			
Carlota Escutia	Spain	Feb04-Feb07	cescutia@ugr.es
Marc-André Gutscher	France	Oct03-Oct06	gutscher@univ-brest.fr
Soenke Neben	Germany	Feb04-Feb07	S.Neben@bgr.de
Roger Searle (chair)	UK	Feb04-Feb07	r.c.searle@durham.ac.uk
alternates			
Holger Lykke-Andersen	*Denmark*		*hla@geo.au.dk*
Luca Gasperini	*Italy*		*luca.gasperini@bo.ismar.cnr.it*
Michele Rebesco	*Italy*		*mrebesco@ogs.trieste.it*
EDP Engineering Development Panel (former TAP)			
4 out of 19 panel members are ECORD members			
Peter Schultheiss	UK	Apr04-Apr07	peter@geotek.co.uk
Axel Sperber	Germany	Oct03-Oct06	AxelSperber@t-online.de
Roland Person	France	Jan06-Jan09	Roland.Person@ifremer.fr
TBN	4°		
alternates			
Tim Francis	*UK*		*tim@geotek.co.uk*
SPPOC Science Planning and Policy Oversight Committee			
4 out of 18 panel members are ECORD members			
Hermann Kudrass	Germany		kudrass@bgr.de
Michael Bickle	UK		mb72@esc.cam.ac.uk
Judith McKenzie	Switzerland		judy.mckenzie@erdw.ethz.ch
Serge Berne TBC	France	Jan06-Jan08?	sberne@ifremer.fr

APPENDIX 4: Excerpts from Draft Executive Summary of the 7th meeting of the IODP Science Planning Committee (SPC), St. Petersburg, Florida, USA, 6th-9th March 2006

(N.B. not yet formally approved)

1.5. Items approved since October 2005 SPC meeting

SPC Motion 0601-01: The SPC approves the following members for the Industry–IODP Science Program Planning Group (IIS PPG), in addition to those already appointed by the program members: Didier-Hubert Drapeau, John Hogg, Andrew Pepper, David Roberts, Richard Davies, and Eugene Shinn.

7. IODP Science Advisory Structure

7.1.1. Science Steering and Evaluation Panel (SSEP)

SPC Motion 0601-3: The SPC appoints Ryuji Tada as a new co-chair of the Science Steering and Evaluation Panel (SSEP), effective immediately.

7.1.2. Site Survey Panel (SSP)

SPC Consensus 0603-4: The SPC accepts SSP Recommendations 0602-1 and 0602-2 on maintaining an open access policy for the IODP site-survey data bank (SSDB) and sharing site-survey data and metadata with other international scientific organizations and data banks.

7.1.3. Environmental Protection and Safety Panel (EPSP)

SPC Motion 0603-5: The SPC appoints Toshifumi Matsuoka as the new vice chair of the Environmental Protection and Safety Panel (EPSP), effective immediately.

7.1.4. Scientific Technology Panel (STP)

SPC Consensus 0603-6: The SPC receives STP Recommendation 0603-2 and recommends that the U.S. implementing organization (USIO) investigate the possibility of providing underway magnetometer capability, when circumstances warrant its use, on the new scientific ocean drilling vessel (SODV).

SPC Consensus 0603-7: The SPC receives STP Recommendation 0603-3 and forwards it to the IODP-MI to investigate the feasibility of establishing a high-pressure facility for measuring seismic wave velocities (Vp and Vs) in core samples acquired primarily through deep riser drilling.

SPC Consensus 0603-8: The SPC receives STP Recommendation 0601-4 on seismic sources for IODP platforms and forwards it to the IODP-MI for consideration. The committee suggests that the implementing organizations should approach the Scientific Technology Panel (STP) with specific questions about the recommended specifications for seismic sources.

SPC Consensus 0601-9: The SPC accepts STP Recommendation 0601-8 and forwards the downhole temperature and pressure tools report to the IODP-MI for implementation.

SPC Consensus 0603-10: The SPC accepts STP Recommendation 0601-9 on developing digital taxonomic dictionaries for use on all IODP platforms and forwards it to the IODP-MI for implementation.

SPC Consensus 0601-11: The SPC receives STP Consensus 0601-1 on larger diameter drillpipe for the new scientific ocean drilling vessel (SODV) and awaits an analysis of the benefits and drawbacks by the U.S. implementing organization (USIO).

SPC Consensus 0603-12: The SPC receives STP Consensus 0601-2 on installing a laser-ablation inductively coupled plasma mass spectrometer (LA-ICP-MS) on IODP platforms and awaits the results of the planned testing of such an instrument onboard the *Chikyu*.

SPC Consensus 0603-13: The SPC accepts STP Consensus 0601-3 to seek advice from the Engineering Development Panel (EDP) concerning the current technology and applicability of open-hole, vertical seismic profile (VSP) experiments.

SPC Consensus 0603-14: The SPC receives STP Consensus 0601-5 on the initial measurements plan for Expedition 313 New Jersey Shallow Shelf and reaffirms SPC Consensus 0410-20 on measuring sedimentary temperature profiles wherever feasible on IODP expeditions.

7.1.5. Engineering Development Panel (EDP)

SPC Consensus 0603-15: The SPC receives EDP Consensus 0601-2 on nominating Masafumi Fukuhara as the new vice chair of the Engineering Development Panel (EDP). The committee will seek immediate advice from the Science Planning and Policy Oversight Committee (SPPOC) concerning a potential conflict of interest before deciding on this appointment.

7.3. SSEP requests for PPGs and DPGs

SPC Consensus 0603-16: The SPC approves the terms of reference for a detailed planning group (DPG) on hotspot geodynamics and nominates Rob van der Voo to serve as chair. The committee thanks the Science Steering and Evaluation Panel (SSEP) for drafting the DPG terms of reference in response to SPC Consensus 0510-18.

SPC Consensus 0603-17: The SPC receives the terms of reference for a program planning group (PPG) on Cretaceous and Paleogene extreme climates. Given the recent influx of paleoclimate proposals and the general desire to involve more new, young scientists in the program, the committee instead recommends convening a synthesis workshop before creating another PPG on this topic. The committee nonetheless thanks the Science Steering and Evaluation Panel (SSEP) for drafting the proposed PPG terms of reference in response to SPC Consensus 0510-19.

8. Presentation and discussion of proposals

8.2. Environmental Change, Processes, and Effects

SPC Consensus 0603-18: The SPC notes the good progress in collecting new seismic data for Proposal 548-Full2 Chicxulub K-T Impact Crater and in organizing the joint IODP-ICDP workshop on that topic. The committee reaffirms SPC Consensus 0406-13 and encourages the proponents to submit a revised proposal or addendum as soon as possible after the workshop.

9. Clarify status of proposals remaining with Operations Task Force (OTF)

SPC Consensus 0603-19: The SPC recognizes the value of Hole 1256D as a potential site for drilling through the ocean crust. The committee requests that the USIO identify the operational requirements (i.e., casing plan) for further drilling in Hole 1256D and make that information available before the Mission Moho workshop planned for September 2006. The proponents of Proposal 522-Full3 Superfast Spreading Crust should present their plans for deepening Hole 1256D at the workshop and then submit an addendum if they believe that their original objectives remain unachieved; otherwise, they should submit a new proposal.

10. Global ranking of proposals

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

SPC Motion 0603-21: The SPC in principle forwards the top thirteen of seventeen ranked proposals to the Operations Task Force (OTF) for potential scheduling in FY2008 and beyond, with the top six assigned to the highest priority Group I and the next seven assigned to the lower priority Group II. In practice, however, the SPC retains hold of the third-, eighth-, eleventh-, twelfth-, and thirteenth-ranked proposals because of notable deficiencies in the completeness of their associated site-survey data. The committee will reconsider forwarding those proposals individually to the OTF in the event of any improvement in their site-survey completeness. As in the past, proposals in Group I will remain with the OTF for future scheduling until further notice, and those in Group II will return to the SPC for the next review and ranking exercise if not already scheduled by then.

11. Presentation and discussion of ancillary project letters (APLs)

11.1 Proposal 666-APL2 SCIMPI Tool Development

SPC Consensus 0603-22: The SPC advises the proponents of Proposal 666-APL2 SCIMPI Tool Development to follow the IODP third-party tools policy and explore alternative locations for conducting the proposed deployment of the device.

11.2 Proposal 638-APL2 Adelie Drift

SPC Consensus 0603-23: The SPC forwards Proposal 638-APL2 Adelie Drift to the Operations Task Force (OTF) for potential scheduling.

12. Prioritization of FY07/08 engineering development

SPC Consensus 0603-24: The SPC accepts EDP Consensus 0601-4 on amending the accepted process for developing engineering projects (see also EDP Consensus 0509-1) and EDP Consensus 0601-5 on defining the role of the Engineering Development Panel (EDP) in evaluating proposals for engineering development.

13. IODP Management Forum Report – Mission Concept II

SPC Motion 0601-25: The SPC accepts the draft mission implementation plan as produced and revised by the SPPOC working group.

14. IODP policy development

14.1. Third-party tools policy

SPC Consensus 0601-26: The SPC accepts STP Consensus 0601-8 and forwards the revised draft third-party tools policy to the Science Planning and Policy Oversight Committee (SPPOC) for approval.

15. Operations Task Force (OTF) report

SPC Consensus 0603-27: In choosing the specific options within individual scheduling models, the SPC retains the relative priorities originally ascribed in forwarding proposals to the Operations Task Force (OTF) in Groups I and II.

SPC Consensus 0603-28: The SPC approves the revised FY2007-09 operations schedule of the U.S. scientific ocean drilling vessel (SODV) as proposed in Model 1b of the Operations Task Force (OTF). The recommended expeditions would begin in August 2007 and proceed through March 2009 as follows:

- Equatorial Pacific Paleogene Transect I (Proposal 626-Full2)
- Costa Rica Seismogenesis Project Stage 1 (Proposal 537A-Full5)
- NanTroSEIZE Stage 1 (Proposals 603A-Full2, 603B-Full2, 603C-Full)
- NanTroSEIZE Stage 1 continued (Proposals 603A-Full2, 603B-Full2, 603C-Full)
- Bering Sea Paleoceanography (Proposal 477-Full5)
- Juan de Fuca Flank Hydrogeology III (Proposal 545-Full3)
- Equatorial Pacific Paleogene Transect II (mini expedition, Proposal 626-Full2)
- Canterbury Basin (Proposal 600-Full)
- Wilkes Land Margin (Proposals 482-Full3, 638-APL2)

The SPC recognizes this scenario as a preferred model subject to significant change, especially pending further knowledge about the actual SODV drydock location and starting date for IODP operations. The committee thus encourages the OTF to explore further possibilities of revising the FY2007-09 operations schedule before

APPENDIX 5: Final Mission Proposal

IODP Missions: Designation and Implementation
(Revised version 4: 21 March 2006)

Introduction and Background

This brief report attempts to formulate a realistic plan for the designation and implementation of IODP Missions that will foster the imaginative conception and testing of bold scientific ideas through ocean drilling, and will result in major advances in addressing the scientific goals of the Initial Science Plan (ISP).

The concept of IODP Missions first articulated in the Frascati Report has evolved over the last nine months through extensive and thoughtful input from a large number of individuals and groups within the IODP scientific community. This has included much of the Science Advisory Structure (SAS), in particular the SSEP and SPC, as well as the "Small Group" (K. Becker, T. Janecek, J. Mori, J. Pearce, N. Pisias, A. Taira and Y. Tatsumi) who produced a detailed implementation plan in late 2005. This report was discussed at the SPPOC meeting in January 2006 and circulated to the members of the Management Forum in February, many of whom responded with in-depth comments and suggestions. Finally, Asahiko Taira produced a draft document based on comments from members of the Management Forum that outlined a Mission approach and provided a foundation for this report.

This is the fourth version of this report -- the first version was sent to SPPOC and Management Forum members for comment, and was discussed at length at the SPC meeting in March. Substantive and important criticisms were received. This revised report draws extensively on all this input to recommend a Mission designation and implementation plan. In doing so, it attempts *to balance effective oversight and assistance from the SAS and management with a **bottom-up** driving mechanism.*

In order to expedite Mission development critical to ensuring well-planned, integrated Missions within the current phase of IODP, this report recommends an initial approach to Mission designation *that will **not** be the same as that used in future years*. The first year approach relies on the SSEP and SPC to review active proposals and the ISP and make (an) initial Mission designation(s). For future years, a committee of SAS members will develop a mechanism to integrate Mission proposal submission into the current IODP proposal submission process.

There are two overarching principles that inform the approach taken in this report:

1) Mission proposals do not replace individual, unsolicited proposal submissions but rather augment them as a way of achieving the grand science objectives of IODP. As always, IODP will remain responsive to proposals for individual expeditions.
2) **Both unsolicited proposals and Mission proposals originate from the scientific community and will be reviewed and approved by the SAS.** However, due to the differences between them in terms of the engagement of operations, education/outreach (E/O), and management in the creation of a Mission drilling program, their path through the approval process is likely to be different, and should result in less "cycling" within the SAS panels.

What is a Mission?

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

Why Does IODP Need Them?

- IODP is a complex and expensive program whose success will depend on achieving significant scientific advances through coordinated and focused drilling strategies. This will be key to renewal of the program and hence, there is urgency in implementing truly integrated Missions that require multiple drilling expeditions and will accomplish major and compelling milestones.
- IODP must be proactive in pursuing its scientific goals within defined timelines and resources. It cannot be purely responsive to proponents proposing individual expeditions if it is to realize its full potential as an "integrated" program.
- IODP must better articulate its successes in addressing big scientific questions -- Missions provide a way to integrate multiple drilling projects into unifying and overarching themes and goals.
- The complexities of a multi-vessel program prolong the planning period (particularly if riser drilling is involved), and require early involvement of scientists, engineers, operators and managers to be effective.
- Missions will provide a mechanism to engage with other international projects to achieve scientific goals of mutual interest
- Missions will provide opportunities for a new generation of young scientists inexperienced with IODP, as well as scientists from outside the present drilling community, to be entrained into IODP planning activities.
- Designation of Missions may also promote site survey activities in some member nations/consortia.

Goals of Missions

- Execute bold scientific initiatives that break new scientific ground and lead to IODP being a widely recognized and highly successful international program.
- Complete the scientific goals and initiatives of IODP effectively and efficiently, and within budgetary constraints.
- Engage a broader array of scientific stakeholders (including a new generation of ocean drilling scientists and scientists from other communities) in Mission development than has previously been done.

Principles of Mission Designation and Implementation

- Missions must address scientific themes of global significance, and must originate from, and be approved by, the international scientific community.
- Development of a Mission must be an integrated and creative effort that includes scientific strategies, definition of technological approaches, and management and educational/outreach plans.
- Scientific, technological and E/O planning must begin with sufficient leadtime to prepare for and accomplish complex drilling and associated activities.
- Each Mission will be developed by a Mission Team consisting of members of the scientific community and other communities with interest (e.g. industry, other international projects), SAS panel members, Implementing Organizations (IOs), and IODP management. A concerted effort will also be made to include a new generation of scientists in Mission Teams.

Implementation & Roles of Various IODP Components

Mission Designation

Year 1 (<u>only</u>)

To expedite the start-up of the Mission Designation and Implementation Plan:

- The SSEP will be charged with mapping the range of submitted proposals to the Initial Science Plan (ISP) themes and initiatives as an indication of areas of active community interest. On this basis, they will make recommendations to SPC for the first Mission(s). For example, SSEP may bundle together several proposals that together fit the criteria of a Mission. In areas where proposals are lacking, the SSEP will make recommendations regarding mechanisms to stimulate proposal submission (e.g. workshops, topic-specific calls for proposals, etc.).
- SPC will review the SSEP recommendations, designate Mission(s), and request SPPOC 's approval.
- Over the next 3-4 months, a committee (including a member each from SPPOC, SPC, SSEP and IODP-MI -- who manage the proposal process) will develop a mechanism for input from the community on future Mission designation. In doing so, the committee should consider:

  (i) integrating the Mission concept into the current proposal submission process rather than developing a separate process (e.g. this might be done by requiring discussion in the proposal of whether it could be considered to be an IODP Mission or a component of one, or whether it is an individual proposal).

  (ii) discussing Mission designation at one meeting each year. Resources will most likely support only 2-3 active Missions at any time.

Future Years

- Calls for IODP proposals will include the concept of Missions in a way to be determined by the committee discussed above.
- The process will be open so that any individual or group of individuals can propose Missions. While IODP workshops cannot automatically turn into Missions, workshop participants and others can join together to submit Mission proposals
- Once a year, the SSEP will review the active proposals to determine if there is either an individual proposal or a group of proposals that should be designated as (a) Mission(s). The proposals to be considered as a Mission could be mature, or could include some that are less mature but fit well into the overall Mission theme.
- The major criteria in making a Mission designation should include:

  (i) the scientific topic is one that will lead to considerable scientific success and is/should be a highest priority for IODP (if not included in the ISP, it must be timely and very important).

  (ii) accomplishment of the science goals will require a considerable technological effort and/or complex, multiple drilling strategies, and hence longer-term planning than typically done for a drilling expedition.
- SPC will review the SSEP recommendations, designate Mission(s), and request SPPOC's approval.

Mission Development

- Based on the nature and degree of planning needed for the Mission, IODP-MI will create, and provide logistical support for, a Mission Team that includes scientific, technical, operational, E/O expertise, and management. This will be a group of 8-12 individuals best able to advance the planning (this does not preclude IODP member nations/consortia from sending individuals to Mission Team meetings). It is envisaged that 4-6 proponents will form the "core" of the Mission Team. The additional members will likely include representatives from the scientific community and other related communities (e.g. industry), the IOs, and IODP-MI, with an effort to engage some junior researchers.
- Resources will be available to assist the Mission Teams (including salary support for the Mission Team leaders) develop a complete plan for the Mission that includes consideration of all site surveys needed, environmental issues, engineering and technological development required, and a well-integrated E/O program, as well as a timeline.

Mission Review and Approval

- SPC will review the progress of each Mission Team annually. The expectation is that a Mission plan will be developed within a year; however, this may not be feasible for more complicated Missions.
- Once a Mission plan is developed, it will be sent to the SAS for review, both within the panel structure and externally. If a plan has not yet been completed, SPC can recommend

continuance of the Mission Team for another year (life of a Mission Team is not expected to exceed 2 years).

- SPC can recommend either to accept or decline the Mission plan.
- If accepted, the Mission is then forwarded to the Operations Task Force. The Mission Team (or a sub-set thereof) will continue in an advisory capacity through the continued development and execution of the plan.
- As with all proposals, if there are still site survey science issues to be resolved, SPC may choose to conditionally accept the Mission plan pending successful outcome and review of those issues.
- If declined due to such issues as unavailability of the necessary resources, environmental issues, etc., the SAS will determine the next steps (e.g. re-review the following year after clarification of, or changes to, the proposed plan, decline outright, etc.)

Timeline for First Mission Designations and Implementation Activity

April 2006:	IODP-MI BoG approves the Mission Designation and Implementation Plan.
April 2006:	Committee (SSEP, SPC, SPPOC members and an IODP-MI representative) created to detail method for community input on Missions in future years.
May 2006:	The SSEP is charged with recommending to SPC projects for possible Mission designation based on current proposals and the ISP. Makes recommendations for possible Mission Team members.
August 2006:	SPC considers SSEP recommendations and designates first Mission(s). Provides input to IODP-MI on Mission Team members from the scientific community (including proposal proponents, junior researchers), other relevant communities, and from SAS.
	SPC accepts the implementation plan for future years submitted by the committee and forwards it to SPPOC for approval.
December 2006/: January 2007	SPPOC approves/rejects SPC Mission recommendations based on how they fit with long-range program planning.
	SPPOC approves the implementation plan for future years submitted by the committee.
February 2007:	IODP-MI completes formation of full Mission Team(s) with IO, E/O and management representation. They may also incorporate members from other scientific communities.
	The call for IODP proposals that includes an integrated Mission concept for 1 April deadline is published.
March 2007:	First meeting of Mission Teams to begin program development.
April 2007:	First deadline for IODP proposals with an integrated Mission component.
May 2007:	SSEP review of proposals (as in the current schedule).

March 2008: If first Mission Plan(s) is/are complete, it is/they are sent to SAS for external and internal review (as for all IODP proposals).

August 2008: SPC reviews submitted Mission Plan(s) and/or Team(s) progress. SPC approves (or rejects) Mission plan and forwards to IODP-MI for implementation, or conditionally approves Mission Plan pending successful outcome and review of site survey science issues, or recommends continuance of Mission Team for one year.

Further Details for Mission Designation and Implementation

Clearly, this plan only sketches the broad framework for mission implementation and many details need to be formulated. We propose that if this plan is approved, a small committee consisting of four people representing the SSEP, SPC, SPPOC and IODP-MI (who manage the proposal process) respectively, be designated and charged to formulate the necessary details in consultation with the groups they represent.

Some Clarifications

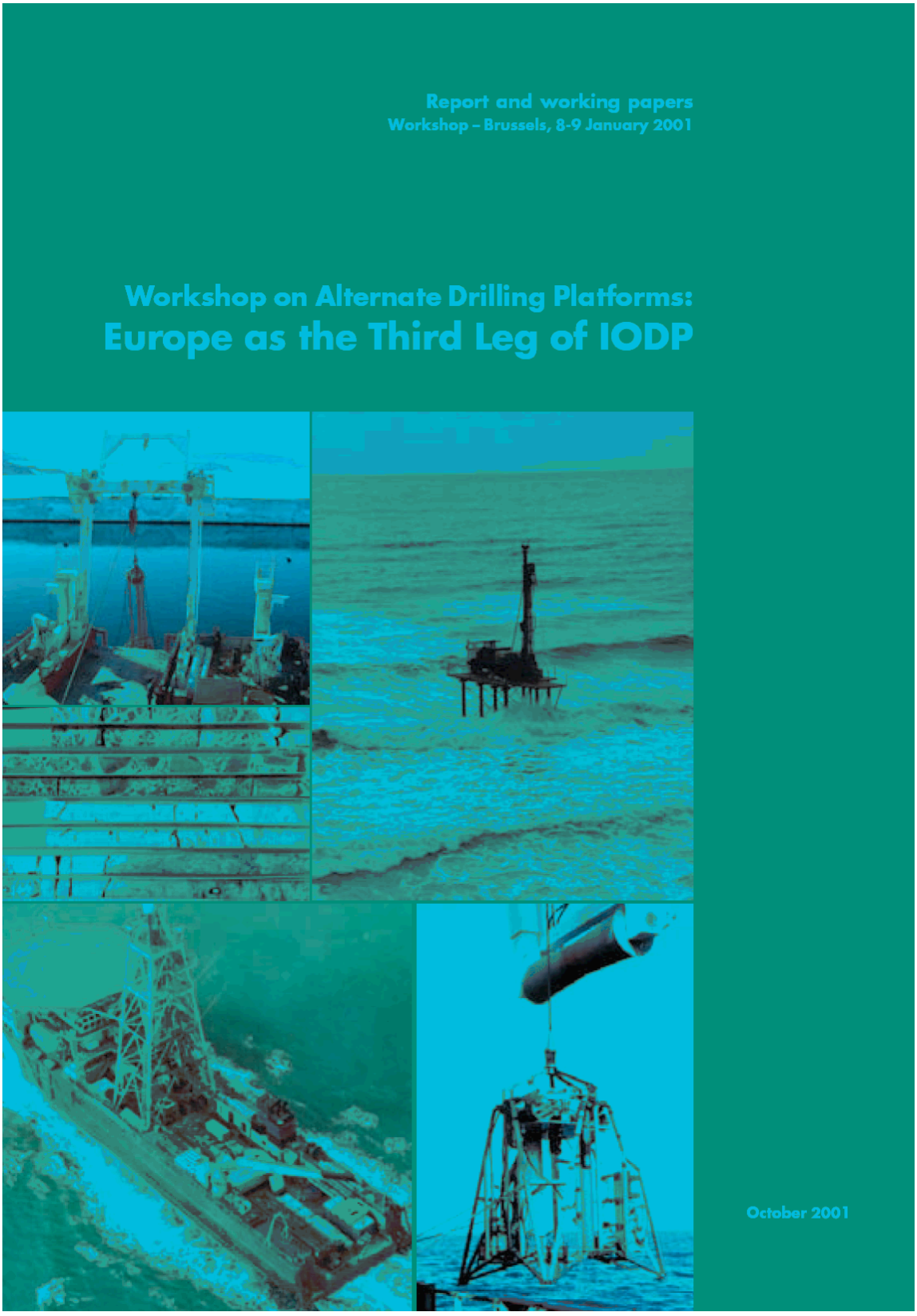
- Mission Teams are not Program Planning Groups (PPGs) -- rather they are a further development of the concept, but are distinct in their inclusion of all aspects of the IODP (science, technology, E/O) in the creative development of a scientific drilling program. Whereas PPGs develop science plans and (sometimes) write proposals that then wend their way through the SAS as they mature, the Mission Team will produce a considerably more integrated and mature proposal that deals with all aspects of the Mission (e.g. site surveys, engineering development, environmental issues, E/O, etc.).
- Missions are not Complex Drilling Projects (CDPs) -- but a Mission may include multiple CDPs. For example, NanTroSeize is a CDP that might fall under a Seismogenic Zone Mission that would include other drilling projects. However, given that Missions are likely to be composed of CDPs, the committee that develops the mechanism for integrating Mission proposals into the proposal submission process will need to clarify the relation between the two designations.
- The SAS, Mission proponents, and IODP-MI play separate, but coordinated, roles in Mission implementation:

  The SAS designates Missions based on either one or several bundled proposals. It can recommend Team members to IODP-MI.

  Mission proponents are individuals or teams who submit proposals that become a Mission, or part of one. All, or some subset, will become the core of the Mission Team, and will recommend the Team leaders.

  Once a Mission has been designated and the core members of the Mission Team has been determined, *IODP-MI* fleshes out the Mission Team in consultation with the SAS and IOs, and provides logistical support.

APPENDIX 7: BACKGROUND ON ARCTIC DRILLING



Polar Drilling: a vision of drilling in ice-covered high latitude deep sea basins

3

Jorn Thiede,
AWI, Germany

Introduction

In the Arctic there are three ocean basins covered by ice, this ice is shrinking leading to potential openings for northern sea route traffic. Unfortunately the environmental history and tectonics of the area is not well known and in most instances research vessels are not available to drill in these extreme environments. Europe needs a purpose built research icebreaker capable of long, international and interdisciplinary expeditions during all seasons in the Arctic Ocean. This would be a major European research infrastructure facility and utilised in support of a wide variety of sciences including a major contribution to Global Change research. The Nansen Arctic Drilling Science Plan and APPG arctic science planning group reports of ODP define drilling objectives and highlight the great technical difficulties of Arctic drilling. The ice cover is constantly moving; therefore staying on station is very difficult and the application or extension of existing technology (existing icebreaker vessels are not suitable) and are not the most efficient way to drill in the Arctic. A unique solution to the complex problem of high-arctic research is proposed by the European Polar Board under the project name Aurora Borealis.

A proposal for a unique new dedicated European research Ice-breaker with a mission-specific deep drilling capability

Project Aurora Borealis

A dedicated European research icebreaker is proposed by The European Polar Board (Project name: *Aurora Borealis* – see specifications and Fig. 1). This would be a novel ship for dual use, able to visit the Arctic in all seasons. A removable drill rig would allow summer drilling operations. Container laboratories would maximise space/versatility. It would be a powerful ship similar in size and power to the Russian nuclear icebreakers approx 30,000 m tonnes and be able to keep station in the drifting ice pack. Riserless deep drilling in a principle moon pool is envisaged. It will also be able to deploy AUVs and ROVs through a smaller secondary moon-pool. The Novel propulsion system, power supply and icebreaking capability in drifting pack would make this vessel unique in the world.

A European Science and technical planning group has been established with representatives from 10 countries around Europe. The science plan is to support the concept of such a unique

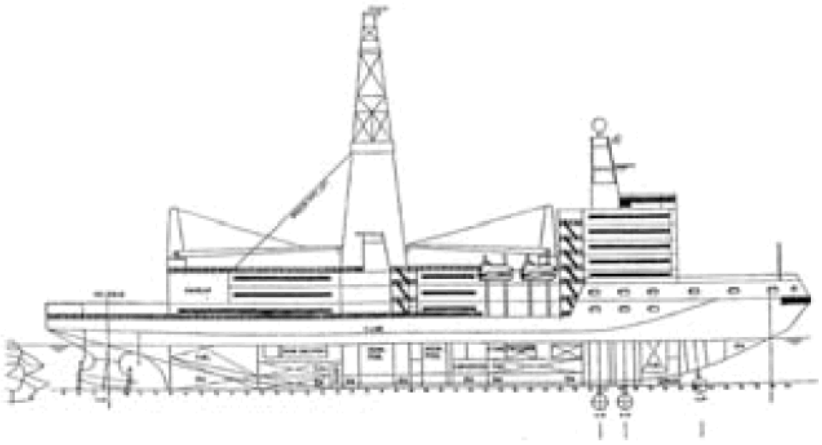


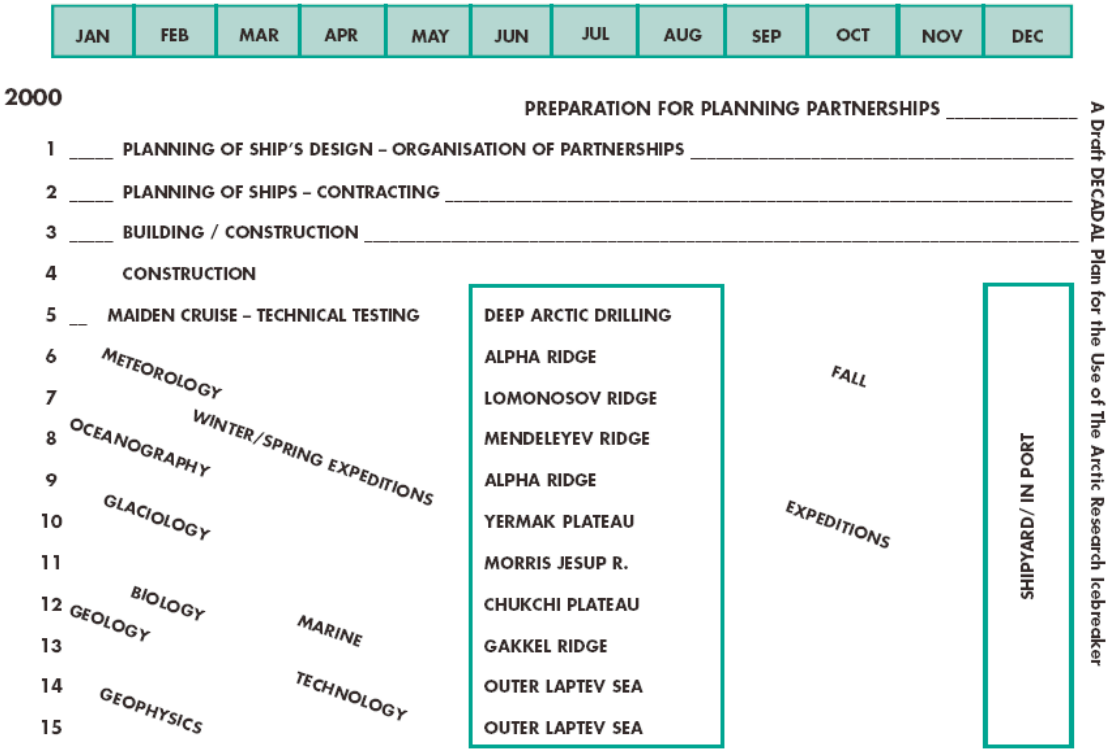
Fig. 1: Schematic layout of proposed Aurora Borealis. Design © HSVA-2001

Research Infrastructure and satisfy the science requirements of the Polar Programme Boards and Research Councils around Europe.

Requirements and specification

- Requires a long term commitment in the polar sciences from a core group of interested European countries
- European Arctic capability for two to three decades
- Long, international and interdisciplinary expeditions
- Operations during all seasons of the year
- Sophisticated unique research vessel with no world wide analogue
- Deep drilling capability based on ODP technology
- Station keeping and dynamic positioning capability in permanently Ice covered Oceans
- Polar research in participating countries will grow and gain in continuity
- Drilling capability could also be used in the Antarctic
- Drilling operations in the Arctic should be part of the IODP initiative
- The Ship should fulfil highest environmental standards
- Technology development and application should be open for industry partnerships in Europe and cooperation outside Europe.

Table 1: Proposed Timescale for Arctic Vessel and Operations



APPENDIX 7: AURORA BOREALIS EXECUTIVE SUMMARY

Executive Summary

Polar Regions and in particular the properties of northern and southern high latitude oceans are currently a subject of intense scientific debate and investigations because they are (in real time) and have been (over historical and geological time scales) subject to rapid and dramatic change. Polar Regions react more rapidly and intensively to global changes than other regions of the Earth. Observations showing the shrinking of the Arctic sea ice cover, potentially leading to an opening of sea passages to the north of North America and Eurasia en route to a "blue" Arctic Ocean, as well the calving of giant table icebergs from the ice shelves of Antarctica are examples of these modern dynamics.

Until now it has not been clear whether the profound change in all parts of the Arctic is a natural fluctuation or is due to human activity. Since this change is a phenomenon of decades, long time data series of atmospheric and oceanic conditions are needed for its understanding and prediction of further developments. Despite the strong seasonality of polar environmental conditions, research in the central Arctic Ocean up to now could essentially only be conducted during the summer months when the Arctic Ocean is accessible to the currently available research icebreakers.

European nations have a particular interest in understanding the Arctic environment with its potential for change because highly industrialised countries spread into high northern latitudes, and Europe is under the steady influence of and in exchange with the Arctic environment. In addition, considerable living and non-living resources are found in the Arctic Ocean, its deep sea basins and their adjacent continental margins. Modern research vessels capable of penetrating into the central Arctic are few. A new state-of-the-art research icebreaker is therefore urgently required to fulfil the needs of European polar research and to document a multinational European presence in the Arctic. This new icebreaker would be conceived as an optimised science platform from the keel up and would enable long, international and interdisciplinary expeditions into the central Arctic Ocean during all seasons of the year.

Global climate models demonstrate the sensitivity of the polar areas to changes in forcing of the ocean climate system. The presence or absence of snow and ice influences global heat distribution through its effect on the albedo, and the polar oceans are the source of dense, cold bottom waters, which influence thermohaline circulation in the world's oceans. This global conveyor is a major determinant of global climate.

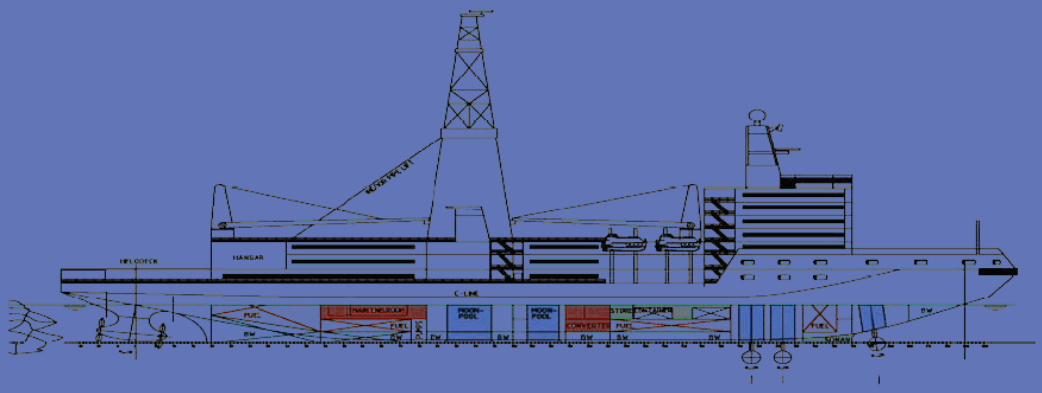
In spite of the critical role of the Arctic Ocean in climate evolution, it is the only sub-basin of the world's oceans that has not been sampled by the drill-ships of the Deep Sea Drilling Project (DSDP) or the Ocean Drilling Program (ODP), and its long-term environmental history and tectonic structure is therefore poorly known. This lack of data represents one of the largest gaps of information in modern Earth Science, also relevant for the field of hydrocarbon exploration. Therefore, the new research icebreaker AURORA BOREALIS (Fig.1) should be equipped with drilling facilities to fulfil the needs of the IODP (Integrated Ocean Drilling Program, begun in 2003) for an alternative platform to drill in deep, permanently ice-covered ocean basins. The icebreaker must also be powerful enough to keep on-station against the drifting sea ice cover and will have to be equipped with dynamic positioning.

The AURORA BOREALIS will be a novel all-season research icebreaker with no national or international competitor because of its drilling capability, its sophisticated modularised mobile laboratory systems allowing mission-specific laboratory selections, its moon pools for drilling and for the deployment of remotely operated vehicles (ROV) and autonomous underwater vehicles (AUV) for sub-ice surveys, its propulsion and dynamic positioning systems and its capability for polar expeditions into high latitude ice-covered deep sea basins also during the unfavourable seasons of the year.

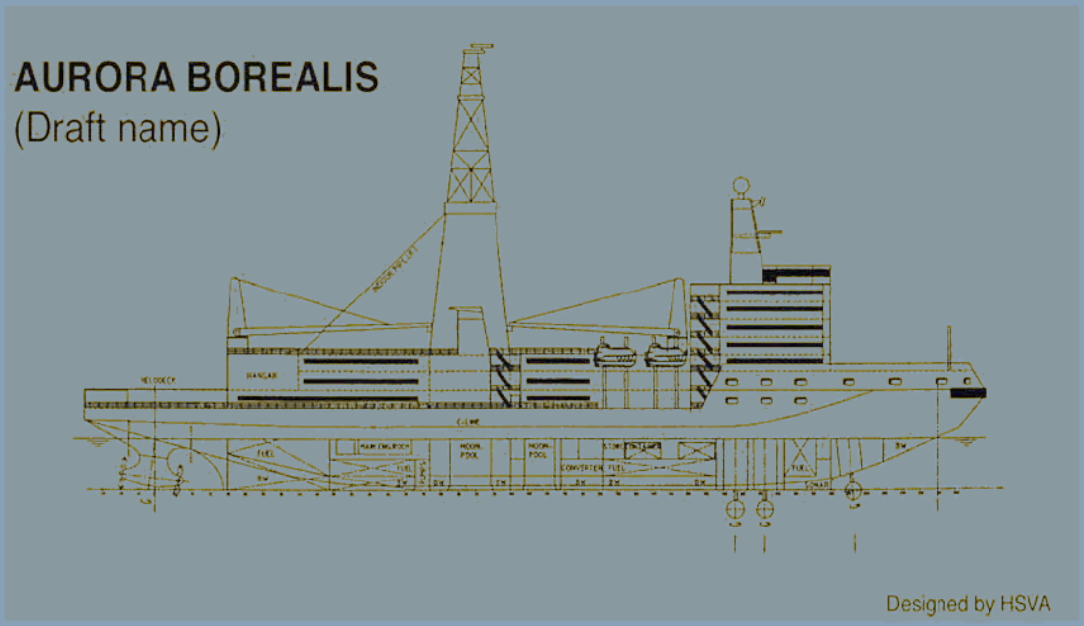
An effective use of the new research icebreaker requires the formation of a consortium of European countries and their polar research institutions to ensure a high quality of science and efficient employment of the research vessel during all seasons of the year. Extensive and well-developed Arctic research programmes exist in several European countries, particularly in the Scandinavian countries, Russia and Germany. Different organisations or working groups, with rather diverse structures and domestic impact, exist in each individual country. The construction of AURORA BOREALIS as a joint European research icebreaker would result in a considerable commitment of the participating nations to co-ordinate and expand their polar research programmes in order to operate this facility continuously and with the necessary efficiency. If AURORA BOREALIS is eventually established as a European research icebreaker for the Arctic, European polar research will be strengthened; and Europe will be able to contribute to meeting the Arctic drilling challenge within IODP.

However, from a long-term perspective, the AURORA BOREALIS could also be used to address Antarctic research targets, both in its mode as a regular research vessel as well as a polar drill-ship. The international nature of the Arctic research perspective and of IODP should also be open to participation by non-European countries.

Ideas for a new research icebreaker for the Arctic have been developed by several groups. The sketch below demonstrates the initial HSVA design of the AURORA BOREALIS:



PROPOSAL FOR A NEW DEDICATED EUROPEAN ARCTIC RESEARCH ICE BREAKER (WITH A DEEP OCEAN DRILLING CAPABILITY)



Scientific and Economic Objectives

- The high latitude oceans are subject to rapid changes with vital environmental consequences and also with economical opportunities. The latest example is provided by the news about the shrinking of the Arctic sea ice cover, which could lead potentially to an opening for the sea traffic through the sea routes to the north of North America and Eurasia.
- The central Arctic Ocean has not been visited by a deep-drilling research vessel (DSDP/ODP) and therefore its long-term environmental history as well as the tectonic structure are poorly known. A European contribution to IODP is urgently needed.
- A new dedicated European research ice breaker with a deep ocean drilling capability would provide the opportunity to conduct international, interdisciplinary expeditions during all seasons of the year and to penetrate into permanently ice-covered basins of the central Arctic Ocean.

Dimensions (draft design) and Capabilities of the new ice breaker

- Length LPP 132.00 m; displacement 23,000 t.
- Ability to serve the needs of the polar science disciplines: meteorology, glaciology, oceanography, biology, geology and geophysics as well as marine technology. Capacity of laboratories and electronic areas is 2300 m².
- Ability to endure winter and spring expeditions to the permanently ice-covered central Arctic Ocean. Ice breaking performance of more than 2 m and dynamic positioning in ice.
- Deep drilling and coring capability in up to 4 km water depths penetrating into the sea floor up to 1 km.

The European Aspect

- Promotion of the continuity for European polar research programmes and of the internationally successful competition about the leadership in Arctic research.
- The new research ice breaker is thought of as an alternate platform in the European contribution to the successor of the Ocean Drilling Program, the Integrated Ocean Drilling Program (IODP).
- The formation of a European Consortium of interested institutes/countries is required to share the responsibility for the planning and construction of the Arctic ice breaker and to coordinate the scientific programmes.

Fig. 1: The AURORA BOREALIS project.

APPENDIX 8: Key Pages from ESFRI

TOWARDS NEW RESEARCH INFRASTRUCTURES FOR EUROPE:

The ESFRI "List of Opportunities"

March 2005

EUR 21622 EN

European Strategy Forum on Research Infrastructures

Brussels, 22 March 2005

The Chairman

European Commission
Commissioner J. Potocnik
200, rue de la Loi
B - 1049 Brussels
BELGIUM

Subject: New Research Infrastructures ("tools for science"):
The ESFRI "List of Opportunities"

Dear Commissioner Potocnik,

Please find in annex a "List of Opportunities" with concrete examples of new, large-scale Research Infrastructures which the scientific community in Europe will need in the coming decade. It is hoped that this list, which was adopted by ESFRI at its meeting of 25 February 2005, will assist the Commission in the preparation of its proposal for Framework Programme VII. Furthermore, the publication of this list should encourage scientific communities to speed up their reflections on new Research Infrastructures of pan-European interest and to inform ESFRI of their views.

ESFRI's main line of action in the years 2005-2006 will be the development of a European Roadmap for new, large-scale Research Infrastructures. We hope that once the first versions are available, these will be considered by you and by Research Ministers as a useful instrument for decision-making at the appropriate level.

As such, ESFRI is taking concrete steps to follow-up the Informal Competitiveness Council of 1-3 July 2004 in Maastricht (NL), in which Ministers "*welcomed the Commission's proposal to develop a strategic roadmap for Europe in the field of Research Infrastructures for the next 10 to 20 years*" and, in this context, underlined that "*the European Strategy Forum for Research Infrastructures (ESFRI) could play a role of increasing importance*".

At its meeting of 3 September 2004, ESFRI committed itself to this important challenge and began preparations for the development of a European Roadmap for new, large-scale Research Infrastructures. In this context, ESFRI published a Communication on 17 December 2004 to inform the scientific community in Europe about this process, as well as the criteria and working methods that will be used.

ESFRI Secretariat: European Commission – DG Research
SDME 1/60 – B 1049 Brussels – Belgium
Telephone: (32) 2 295 02 28 – Fax: (32) 2 299 21 02
e-mail: jean-louis.picque@cec.eu.int

About ESFRI

The European Strategy Forum on Research Infrastructures - ESFRI - was launched in April 2002 to support a coherent approach to policy-making on Research Infrastructures in Europe. The Forum brings together representatives, nominated by Research Ministers, of the 25 EU Member States and of 7 European countries associated with the Framework Programme, and a representative of the European Commission. ESFRI has set up various thematic working groups, has acted as an incubator for some Research Infrastructure projects and has started to prepare a Roadmap for Research Infrastructures of pan-European interest in the next 10-20 years.

For more information on the Forum: http://www.cordis.lu/esfri/

What are Research Infrastructures?

In this context, the term "Research Infrastructures" refers to tools that provide essential services to the scientific community for basic or applied research. These may concern the whole range of scientific and technological fields, from social sciences to astronomy, through genomics and nanotechnologies. Examples include libraries, databases, biological archives, clean rooms, communication networks, research vessels, satellite and aircraft observation facilities, coastal observatories, telescopes, synchrotrons and accelerators. They may be "single-sited", "distributed" or "virtual".

TOWARDS NEW RESEARCH INFRASTRUCTURES FOR EUROPE:

The ESFRI "List of Opportunities"

1. INTRODUCTION

Following a request from the European Commission, ESFRI decided at its meeting of 17 December 2004 to compile a "List of Opportunities" in order to assist the Commission in the preparation of its proposal for the Seventh Framework Programme (FP7).

The "List of Opportunities" is a "balanced set of examples of concrete and mature projects for new Research Infrastructures of pan-European interest which could be developed during the course of FP7 (2007-2013).

2. DESCRIPTION OF THE PROCESS

The "List of Opportunities" presented in this document is the result of an intensive three-step process[1] involving a broad consultation of the main stakeholders via the ESFRI national delegations, an analysis of proposals according to clear criteria by the ESFRI Steering Groups and a final discussion in a plenary ESFRI meeting.

STEP 1*: Proposals from the ESFRI delegations*

Immediately after the 17 December meeting, the Secretariat asked the ESFRI delegations to collect proposals for new Research Infrastructures and to act as a "clearing house" for these. Each of the three ESFRI Steering Groups, acting as a whole body, was also invited to introduce proposals. A one-page template was provided for the description of each project, including the following items:

- Project's name and descriptive title;
- Short description of project and main characteristics;
- Science case (scientific justification, including new areas to be opened);
- Impact on society and on new technologies for industry;

[1] This process was led by the ESFRI Chair, Hans Chang, and Executive Secretary, Jean-Louis Picqué, with major contributions from the Chairs of the ESFRI Steering Groups, Björn Henrichsen, Ruth Barrington and John Wood, and the active participation of the members of ESFRI and the ESFRI Steering Groups.

- Strategic importance to ERA;
- Maturity of proposal (including possible timetable);
- Budgetary information;
- Possible partnerships.

A total of 149 proposals were received. The Secretariat distributed these proposals to ESFRI members on 26 January 2005.

STEP 2: ***Analysis by the ESFRI Steering Groups***

The Chairs of the three Steering Groups circulated the received proposals relevant to their area (65 proposals for PSE, 48 proposals for BMS, 36 proposals for SSH) amongst their group. The Steering Groups met individually in early February. Each group was asked to select a limited number of proposals in its area, by assessing them against the criteria established for the Roadmap process (see box on the criteria) and taking into account the maturity of each project in relation to FP7.

The recommendations of the three Steering Groups were sent to the Chair and Secretariat in the form of a list of selected proposals together with an explanatory note. This information, including 29 proposals in total, was immediately distributed to ESFRI members in view of their meeting of 25 February 2005. The description sheets prepared by the Steering Groups for these proposals were also made available at the meeting.

The ESFRI Steering Groups

At its 17 December 2004 meeting, ESFRI adopted an important Communication on the European Roadmap which aimed to inform the scientific community in Europe about the process to be followed and the working methods and criteria to be used. As part of this process, the Forum established three Steering Groups to give advice on in the following areas:

- ✓ ***Physical Sciences and Engineering (PSE) - Chair: John Wood***
- ✓ ***Biological and Medical Sciences (BMS) – Chair: Ruth Barrington***
- ✓ ***Social Sciences and Humanities (SSH) - Chair: Björn Henrichsen.***

The Steering Groups are chaired by ESFRI members. The countries represented in ESFRI and the European Commission have been invited to nominate a delegate in each Steering Group.

STEP 3: ***Agreement of ESFRI on the "List of Opportunities"***

The objective at the ESFRI plenary meeting on 25 February was to fine-tune the recommendations of the Steering Groups and to agree on a sharper, "balanced" list of projects. The following rules were set: the proposals had to comply with the agreed criteria (see box); in particular, the criterion of maturity was emphasised: the projects had to be mature enough to start spending funds during the course of the Seventh Framework Programme (2007-2013). In addition, to be included in the final list, the projects had to be supported by a sound and concise description sheet, providing in the one-page template all essential information including the scientific case, the construction costs and the time planning.

A number of "global projects", such as ITER and the International Linear Collider (ILC), have a strong input from European countries. It was decided that some of these projects would be mentioned in addition to the list, but description sheets would not be produced.

On this basis, and after an in-depth discussion during which some projects were eliminated and others combined, ESFRI members finally agreed on a set of 23 projects. The description sheets of the 23 projects were reviewed and finalised by the Steering Groups after the meeting.

The criteria

The criteria are listed in the ESFRI Communication of 17 December 2004:

Scientific / Strategic criteria

The infrastructure projects should:

- ✓ ***correspond to a real need for the development of the field in Europe***
- ✓ ***be supported by the appropriate scientific community at European level***
- ✓ ***be of pan-European interest***
- ✓ ***entail multi-user facilities offering an open access (physical or virtual) for scientists from all over Europe***
- ✓ ***be relevant at international level.***

Technical and financial criteria

The infrastructure projects should:

- ✓ ***be timely and mature***
- ✓ ***be technologically feasible***
- ✓ ***open new possibilities or offer improved technological performance***
- ✓ ***have evaluated construction and operating costs***
- ✓ ***offer good possibilities for European partnership and commitment of major stakeholders.***

3. OVERVIEW OF THE RESEARCH INFRASTRUCTURE PROJECTS

The "List of Opportunities" agreed by ESFRI is presented in the table on the next page. This is followed by the description sheets of the 23 projects.

The ESFRI "List of Opportunities" includes, without any order of priority, 23 Research Infrastructure projects which correspond to major needs of the European scientific community in the coming years. The development of such Research Infrastructures is necessary to maintain Europe's position at the cutting-edge of world research.

The list is well-balanced in terms of the scientific fields covered. It includes:

- *4 projects in physics and astronomy*, corresponding to large-scale facilities for nuclear physics, astroparticle physics and astronomy;
- *1 project on nanotechnologies*, distributed over several sites;
- *4 projects for multidisciplinary facilities* for the analysis of matter (material and biological): three of these concern new generation sources for neutrons (spallation source) and photons (free electron lasers); the fourth is an upgrade of the European third generation synchrotron;
- *1 project in supercomputing* for applications in various fields;
- *4 projects in environmental sciences*, ranging from coastal research to biodiversity;
- *7 projects in biological and medical sciences*, including some with a clear biomedical character;
- *2 projects in social sciences and humanities*, based on the collection of data throughout Europe.

The list includes medium and large-scale projects, with costs ranging per project from less than €100 million to more than €1 billion. In a number of cases, especially in biology, the projects consist of a network of facilities located in several countries.

In addition to the list of 23 projects to be developed within Europe (with possible participation from other countries), ESFRI compiled a short-list of "global projects" to be developed at world level, in which Europe is already involved at least in the early stages.

1. Project: Research Icebreaker AURORA BOREALIS
A novel research icebreaker with drilling capability.
2. Short description of project and main characteristics
AURORA BOREALIS will be a novel research icebreaker (Length:132 m; displacement: 23,000 tons) with no national or international competitor because of its drilling capability in up to 4 km water depth with seafloor penetration into up to 1 km, its sophisticated modularized mobile laboratory systems for multiple polar science disciplines: meteorology, glaciology, oceanography, biology, geology, and geophysics as well as marine technology, its moon pools for drilling and for the deployment of Remotely Operated Vehicles (ROV) and Autonomous Underwater Vehicles (AUV) for sub-ice surveys, its propulsion and dynamic positioning systems and its capability for Arctic expeditions also during the unfavourable seasons of the year.
3. Science case (scientific justification, including new areas to be opened)
Polar research in high latitude oceans are currently a subject of intense scientific and environmental debate, because they are and have been over historic geologic time scales subject to rapid and dramatic change reacting more rapidly and intensively than other regions. Until now it is not clear, whether the profound change in all parts of the Arctic is a natural fluctuation or is due to human activity. Since this change is a phenomenon of decades, long time data series are needed for its understanding and prediction of its further development.
4. Impact to society and to new technologies for industry
European nations have a particular interest in understanding the Arctic environment with its potential for change because highly industrialized countries reach into high northern latitudes and Europe is under the steady influence of, and is in exchange with, the Arctic environment. In addition considerable living and non-living resources are found in the Arctic Ocean, its deep-sea basins and their adjacent continental margins.
5. Strategic importance to ERA
The AURORA BOREALIS has a proposed drilling capability that fulfils the needs of the Integrated Ocean Drilling Program (IODP) for an "Alternate Platform" to drill in deep, ice-covered basins requiring 3-4 months of ship time annually, at least for a decade. Ship time which is not used for drilling, will be made available to other polar research disciplines. Therefore, it will promote the continuity and enlargement of European polar research programs and secure Europe's position in promoting both IODP and Arctic research.
6. Maturity of proposal (including possible timetable)
A science perspective of the AURORA BOREALIS project has been established by an international working group with members nominated by the members of the ESF European Polar Board and JEODI. The published version of the science perspective has been issued by ESF in 2004 and been sent to the ESF member institutions. An Arctic site survey strategy has been published in late 2004 based on a JEODI funded workshop. Technical design studies are available from HSVA and from the Applied University Bremen (with substantial inputs from foreign partners).
7. Budgetary information (preparation, construction and operation costs)
Current estimates for construction costs are approximately €250 million with an annual operation cost of approx €10-€15 million. A shared system between the consortium of implementation countries and international partners would be the best way forward. Contributions from the European Commission and IODP to support science and operational costs would also be required.

Physics and Astronomy

Nuclear Physics

- ***Facility for Antiproton and Ion Research (FAIR)***
- ***Facility for intense secondary beams of unstable isotopes (SPIRAL II)***

Astroparticle Physics

- ***European deep-sea neutrino telescope (KM3NeT)***

Astronomy

- ***Extremely Large Telescope (ELT) – for optical astronomy***

Nanotechnologies

- ***Pan-European Research Infrastructure for Nano-Structures (PRINS)***

Multidisciplinary facilities - Analysis of matter

- ***European Spallation Source (ESS) – neutron source***
- ***European XFEL – for hard X rays***
- ***IRUVX FELs Network – from infrared to soft X rays***
- ***ESRF upgrade – synchrotron***

Computing and Networking

- ***High Performance Computer for Europe (HPCEUR)***

Environmental Sciences

- ***Marine vessel for coastal research – essentially Baltic Sea***
- ***Research Icebreaker Aurora Borealis***
- ***European Multidisciplinary Seafloor Observatory (EMSO)***
- ***European infrastructure for research in, and protection of, biodiversity***

Biological and Medical Sciences

- ***Advanced infrastructure for brain and whole body imaging***
- ***Bio-informatics infrastructure for Europe***
- ***European network of advanced clinical research centres***
- ***European network of bio-banks and genomic resources***
- ***High security laboratories for emerging diseases and threats to public health***
- ***Infrastructure for functional analysis of a whole mammalian genome***
- ***Model testing facilities for biomedical research***

Social Sciences and Humanities

- ***European Research Observatory for the Humanities and Social Sciences (EROHS)***
- ***European Social Survey (ESS)***

"Global projects"

- ***ITER***
- ***International Space Station (ISS)***
- ***International Linear Collider (ILC)***
- ***Square Kilometer Array (SKA) – radio telescope***
- ***International Fusion Materials Irradiation Facility (IFMIF)***

APPENDIX 9

A Report of the

IODP EDUCATION AND OUTREACH WORKSHOP

February 20-24, 2004
Austin, Texas

presented to

Integrated Ocean Drilling Program Management International, Inc. (IODP-MI)

Note: This final report is a summary of workshop information, input, and recommendations compiled by the workshop steering committee with input from the workshop participants.

EXECUTIVE SUMMARY

The Integrated Ocean Drilling Program (IODP) is an international research initiative that uses multiple drilling platforms to explore previously inaccessible regions of Earth and planetary processes that, even today, remain poorly understood. Scientific results offer new insight into the structure and formation of oceanic crust, mantle dynamics, earthquake genesis, environmental change over time, and the nature of life in extreme environments. These scientific results shall be shared with the scientific and educational community, government and industry, policy makers, and the taxpayers who support this research. IODP education and outreach (E&O) are thus essential components of the program, requiring careful attention and diligent planning. Indeed, IODP E&O is the mechanism by which the scientific results will be transformed into common intellectual property. The IODP E&O effort is responsible for ensuring that data from cores and boreholes, scientific discoveries, and engineering advances are translated into promotional and educational content and conveyed to a wide range of audiences through myriad channels.

The unique natures of education and outreach dictate that IODP-MI's role in facilitating or carrying out these activities will be different. In practice, IODP-MI will play the major role in developing and implementing the outreach functions for the international program, as IODP-MI is by definition the international face of IODP. Both content and delivery of international outreach materials and activities will be developed and/or facilitated at the IODP-MI level, in concert with the national/consortia entities and IOs. IODP-MI's role in educational activity will be to play a proactive role in integrating educational programs which, by necessity, are developed at national levels in order to conform with local school/university curricula, language, and cultural requirements. In summary, from the IODP-MI perspective, outreach will be handled in a top-down manner, while education will require a bottom up approach.march

Table 1 outlines the following seven major education and outreach functions for IODP-MI as identified by the workshop participants (see Attachment 1 for List of Participants):

1. Coordination and promotion of integrated planning, execution, and evaluation.
2. Creation of identity materials to ensure a single IODP identity and message.
3. Compilation and maintenance of common content resources so that they are available to the IODP education and outreach community and target audiences.
4. Facilitation of international program activities.
5. Advancing education by engaging the international community.
6. Fostering of language and cultural awareness.
7. Development and production of broader scientific information.

Table 2 provides additional details concerning which IODP entity has responsibility for carrying out a particular E&O function. A recommended timetable covering the FY 04 timeframe (April 1–September 30, 2004), the remainder of calendar year 04 (October 1–December 31, 2004), the remainder of FY 05, and FY 06, is incorporated into Table 2.

SHORT-TERM RECOMMENDATIONS (FY 04)

Recommendation 1:
FINANCIAL SUPPORT FOR IODP-MI E&O ACTIVITIES THROUGH DECEMBER 2004

There are short-term (i.e., within the next six months) opportunities for products, materials, and activities to support the inauguration of IODP operations, including an international public relations campaign to launch the new IODP as well as collaborative public relations activities in support of the first riserless vessel operations and the mission specific Arctic Coring Expedition. Because FY 05 IODP-MI resources will not be in place in time to carry out these program initiation activities crucial to the long- term identity of the program, we encourage all efforts to find funds for these purposes.

Recommendation 2:
FORMATION OF AN E&O TASK FORCE AND CONDUCT INTERIM PLANNING

We recommend that IODP-MI establish a small, short-term task force (April through September 2004) to advise IODP-MI about the immediate E&O priorities, help to develop an interim E&O plan, to prepare guidelines and policies, and to establish the framework for a longer-term E&O advisory committee to IODP-MI.

Recommendation 3:
FORMATION OF AN E&O TEAM AND INTERIM IMPLEMENTATION OF THE E&O PLAN

We recommend the formation of an IODP-wide operational E&O Team (April 2004) comprising the new Director of the Office of International Education, Outreach, and Communications at IODP-MI, an E&O representative from each of the IOs (JOI Alliance, CDEX, ESO) and national/consortia entities (USSSP/USSAC, J-DESC, ESSAC). The E&O Team will assist the new Director of International Education, Outreach, and Communications and subcontractors with implementation of the interim E&O plan and serve as a liaisons to the E&O Task Force.

Recommendation 4:
CREATE AND PROMOTE COHERENT IODP IDENTITY
We recommend that IODP-MI immediately undertake the creation of a coherent IODP identity. This will involve the design of a logo and related graphic elements as well as a portal website (www.iodp.org) that serves as an easily navigable entry point to all IODP component websites. IODP-MI should also immediately establish an international media relations capability to publicize the launch of the new program and upcoming expeditions.

LONGER-TERM RECOMMENDATIONS (FY 05-06)

Recommendation 1:
PROCEDURES AND PROTOCOLS
We recommend that IODP-MI, initially in collaboration with the E&O Task Force and subsequently with the E&O Advisory Committee, establish written guidelines and policies including descriptions of procedures and protocols for E&O to be used by IODP science, education, and outreach personnel when communicating with outside groups (e.g. media, government and private funding organizations, non-governmental organizations, professional organizations, etc.).

Recommendation 2:
COMPILE AND MAINTAIN COMMON CONTENT RESOURCES
We recommend that IODP-MI compile and maintain a "home page" web portal, as well as libraries and archives of common content E&O resources, and encourage the use of the IODP common materials for a wide range of education and outreach purposes.

Recommendation 3:
FACILITATE INTERNATIONAL PROGRAM ACTIVITIES
We recommend that IODP-MI facilitate the development and implementation of international activities designed to engage and educate various target audiences, including scientists, students, policymakers and government and funding agencies, non-governmental organizations, and the general public, for the purpose of transmitting an understanding of the nature of IODP research and its societal importance.

Recommendation 4:
FACILITATE INTERNATIONAL MEDIA RELATIONS:
We recommend that IODP-MI work closely with the IOs and national/consortia entities to develop a strategy for ongoing program-wide international media relations to ensure that IODP is publicized to a broad international audience.

Recommendation 5:
ADVANCE IODP EDUCATION BY ENGAGING AND EMPOWERING THE INTERNATIONAL COMMUNITY
We recommend that IODP-MI facilitate the integration of widely dispersed IODP educational resources by advancing initiatives that encourage collaboration among national/ consortia entities, IOs, PIs, or other educational partners with common purposes and assist groups of collaborators in finding additional external support for the highest quality educational endeavors. IODP-MI can ensure that the IODP education legacy will be available to future generations. Therefore, it is recommended that the E&O Advisory Committee investigate the issue of collaborative education projects thoroughly in order to provide guidance to IODP-MI on how to develop a strong mechanism, either within the current IODP structure or via a new procedure, to deal with the E&O initiatives that are developed by individuals or groups of PIs.

Recommendation 6:
FOSTER LANGUAGE AND CULTURAL AWARENESS
We recommend that from its initial establishment, IODP-MI operating philosophy must respect the multi-language and multi-cultural science community as well as set the standard for positive interaction for the broader international community. As the small but centrally integrative organization that oversees and coordinates program activities and develops and maintains IODP common resources, IODP-MI's E&O efforts shall help to promote exchange among individuals who do not share the same culture, ethnicity, or language. Activities to support these efforts will include providing cultural awareness materials, facilitating exchange of scientific and E&O materials among partners, and coordinating acquisition of translation services to IODP members.

Recommendation 7:
DEVELOP AND PRODUCE BROADER SCIENTIFIC PUBLICATIONS
We recommend that IODP-MI undertake the development and production of broader scientific publications such as thematic syntheses (e.g. *AGU Monographs*) and expedition-based scientific summaries (e.g., *JOIDES Journal*).

Recommendation 8:
LEADERSHIP AND ORGANIZATIONAL STRUCTURE
We recommend that the first six major functions outlined in the workshop report be carried out under the direction of a new Director of the Office of International Education, Outreach, and Communications based at the IODP-MI office in Washington, DC, USA.

The individual responsible for IODP scientific publications in the IODP-MI office in Sapporo, Japan, should, more appropriately, handle the development and production of broader scientific information outlined in Recommendation 7.

APPENDIX 10: ESSAC Terms of Reference

EUROPEAN CONSORTIUM FOR OCEAN RESEARCH DRILLING (ECORD)

MEMORANDUM OF UNDERSTANDING

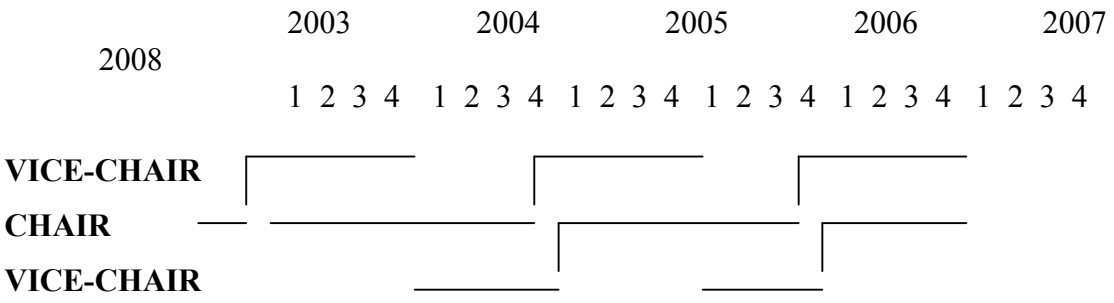
of European and Other Funding Organisations on Membership and Operation of ECORD in the Integrated Ocean Drilling Program (IODP)

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.