EUROPEAN CONSORTIUM FOR
OCEAN RESEARCH DRILLING

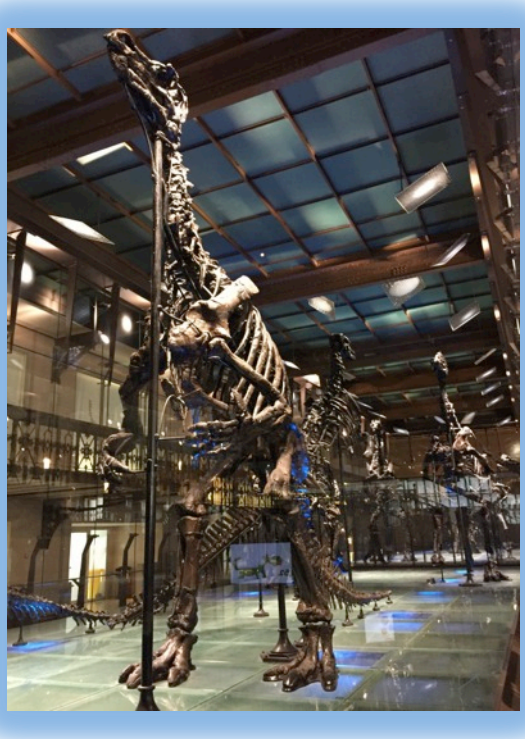
ECORD Facility Board Meeting #4

15th and 16th of June 2016

Royal Academy of Sciences,

Brussels, Belgium

MINUTES



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1. Introduction

1.1 Welcome, opening remarks and rules of engagement (G. Lericolais)

(8:56)

G. Lericolais opened the meeting and presented the rules of engagement:

Confidentiality:

- All participants agree to follow the IODP *Confidentiality Policy* on all discussion items and information from meeting and related communication

Conflict of Interest:

- Any COI must be announced by participants before proposals are discussed
- Direct COI (proponent/co-proponent): participants have to leave room
- Indirect COI (institution/colleague): participants can stay in room, but do not enter discussion unless asked

Decisions:

- Vote by hand or nodding of EFB members
- Reaching consensus on actions and decisions (avoiding formal motions)
- In case of dissent, only Science Board members vote
- In case of dissent of Science Board members, Chair makes decision

1.2 Meeting logistics (J.-P. Henriet)

(9:00)

J.-P. Henriet presented the logistical information.

1.3 Introduction of participants (All)

(9:02)

G. Lericolais let all the participants begin self-introductions.

1.4 Meeting agenda approval (G. Lericolais)

(9:05)

G. Lericolais presented the agenda and the EFB approved the agenda.

ECORD FB Consensus 16-06-01:
The ECORD Facility Board approves the agenda of the ECORD FB Meeting #4.

2. Brief reports of ECORD Facility Board (EFB) and other ECORD entities

Reports were presented for the EFB (G. Lericolais), EMA (N. Hallmann), ESO (D. McInroy), the BCR (U. Röhl), the EPC (S. Davies), ESO outreach/education (A. Stevenson) and ESSAC (J. Behrmann).

2.1 EFB: report on main activities since last meeting (K. Gohl/G. Lericolais)

(9:12)

G. Lericolais gave an update on the EFB activities. The EFB members with voting rights are 1) the six Science Board members: EFB Chair Gilles Lericolais (FRA), EFB Vice-Chair Dominique Weis (CAN), Gerald R. Dickens (USA), Stephen Gallagher (AUS), Karsten Gohl (GER) and Fumio Inagaki (JPN); 2) the members of the ECORD Executive Bureau: ECORD Council core members, EMA, ESO, ESSAC and E-ILP; and 3) NSF and MEXT with one representative each.

G. Lericolais gave an overview of the MSP proposals at the EFB:

Expedition #357 'Atlantis Massif': The offshore phase was accomplished in October/November 2015. Ten sites were drilled with the MeBo70 and the RD2 on the *RRS James Cook*. The expedition will be reviewed in Bremen on 24th-25th October 2016. The review committee is composed of two external reviewers (Bo Barker Jorgensen and Christopher MacLeod) and three EFB Science Board members (G. Lericolais, S. Gallagher, K. Gohl).

Expedition #364 'Chicxulub Crater': The offshore phase was accomplished in April/May 2016. One hole was drilled down to 1335 m using a lift boat. The budget limit was $8.5 M USD (plus $1M USD from ICDP). The OSP will be held for four weeks starting on 21st September 2016.

708-Full 'Arctic Paleoceanography': The expedition is scheduled for the Arctic summer 2018. The budget limit is $15 M USD.

813-Full 'Antarctic Paleoclimate': The expedition is scheduled for early 2018. The budget limit is $9 M USD.

581-Full2 'Late Pleistocene Coralgal Banks': in the EFB waiting room

637-Full2 'New England Shelf Hydrogeology': in the EFB waiting room

716-Full2 'Hawaiian Drowned Reefs': in the EFB waiting room

730-Full2 'Sabine Bank Sea-Level': forwarded from SEP in January 2016; to be reviewed by the EFB

879-Full 'Corinth Active Rift Development': forwarded from SEP in January 2016; to be reviewed by the EFB

2.2 ECORD News and Budget (N. Hallmann)

(9:22)

N. Hallmann presented the ECORD news, the budget situation for FY16 (Tables 1 and 2), the budget projections for FY17 and FY18 (Table 4), the 5-years ECORD MSP operational plan (Table 3) and the timeline for ECORD's renewal post FY18 (Figure 1).

There are following changes in the ECORD structure:

1) M. Friberg (SWE) is ECORD Council Chair until December 2016. M. Diament (FRA) is the outgoing ECORD Council Vice-Chair until June 2016 and M. Webb (UK) is the incoming Vice-Chair until December 2016. M. Webb will become ECORD Council Chair starting on January 1st, 2017.
2) E. Humler (FRA, starting on July 1st 2016 and replacing M. Diament), M. Webb (UK), G. Lüniger (GER) and A. Kjaër (DK) are members of the ECORD Executive Bureau.
3) G. Lericolais (FRA) is the new Chair of the ECORD Facility Board since January 1st, 2016 and K. Gohl (GER) is the outgoing Vice-Chair until December 31st, 2016. S. Gallagher (AUS) and F. Inagaki (JPN) are the new EFB Science Board members.
4) J. Behrmann (GER) is the new ESSAC Chair since January 1st, 2016. G. Früh-Green (CH) is the outgoing Vice-Chair until December 31st, 2016.
5) The new MagellanPlus Chair since the beginning of February 2015 is L. Lourens (Netherlands) who replaced J. Erbacher.
6) The ECORD Council decided during its last meeting on June 1st 2016 in Berlin not to have a constant ECORD ILP, but to form an ad hoc committee and to decide on a case-by-case basis on ECORD's collaboration with industry

N. Hallmann summarized the ECORD memberships (Table 1) :

Table 1: FY16 ECORD member contributions

Germany	> FY18	5,600,000
France *	>FY18	4,300,000
UK *	>FY18	3,680,000
Norway	>FY18	1,100,000
Switzerland	>FY16	600,000
Sweden	>FY18	528,000
Netherlands	>FY18	500,000
Italy	> FY18	400,000
Spain	TBD	169,000
Denmark *	> FY16	150,000
Ireland *	>FY18	113,000
Austria	> FY18	100,000
Portugal	>FY18	90,000
Finland	> FY18	80,000
Canada	> FY16	30,000
Israel	> FY16	30,000
Poland	>FY18	30,000
Belgium *	> FY16	NC
TOTAL		17,500,000

At the moment ECORD has 18 member countries. Germany, France and the UK represent 80% of the ECORD budget. The annual contributions from the other countries range from $30,000 to $1.1 M USD (Table 1).

Spain is back in ECORD since January 1st, 2016 with an annual contribution of $169,000 USD.

Belgium is not committed in FY16.

Due to changes in the currency exchange rates, ECORD looses about $1 M USD per year, because not all countries are paying in dollars. Belgium, Ireland and France are paying in euros, Denmark in krones and the UK in pounds.

N. Hallmann continued to summarize the ECORD budget situation for FY16 (Table 2). FY15 ended with a positive balance of $12.4 M USD, which was carried over to FY16. Together with the FY16 member contributions of $17.5 M USD, the FY16 income yields $29.9 M USD. The expenses are of $18.8 M USD. The ESO FY16 expenses include the implementation of Expedition 364 'Chicxulub Impact Crater'. FY16 should finish with a positive balance of $11.1 M USD. Potential additional contributions (cash, IKCs) are not considered in this calculation.

Table 2: ECORD FY16 budget

	FY16 Income (US$)	FY16 Expenses (US$)
FY 15 balance	12,406,000	
FY 16 contributions	17,500,000 *	
ECORD-NSF MoU		7,000,000
ECORD-JAMSTEC MoU		0 **
ESO		10,750,000 ***
EMA		258,090
MagellanPlus		78,400
ECORD Outreach		61,000
ECORD websites		33,600
ESSAC		287,130
BCR		332,174
TOTAL	29,906,000	18,800,394
FY 16 balance	11,105,606	

** Exchange rates : 1€=1.12$*

*** Membership suspended in FY15 and 16*

**** Including Exp. 364 costs*

N. Hallmann continued to summarize ECORD's partnership with the US and Japan. ECORD contributes $7 M USD to the annual funding of the *JOIDES Resolution* and $1 M USD to the annual funding of the *Chikyu*. ECORD suspended its membership of the *Chikyu* program for 2015 and 2016.

ECORD's five-years MSP operational plan was presented (Table 3). Expedition 347 'Baltic Sea Paleoenvironment' was reviewed in November 2014. Expedition 357 'Atlantis Massif' will be reviewed in October 2016. Expedition 364 'Chicxulub Impact Crater' ended on 28th May 2016 and will be reviewed in April/May 2017. The expeditions fall into three cost categories: low-cost (LC, < $8 M USD), mid-cost (MC, $8-15 M USD) and high-cost (HC, > $15 M USD). The expeditions have a big diversity of science themes and there is operational and funding flexibility.

Table 3: Five-years ECORD MSP operational plan

2014	2015	2016	2017 / 2018	2018
OSP - 347 Baltic Sea	357-Atlantis Massif Seabed drills (MeBo & RD-II) IKC (in-kind contribution) LC	364-Chicxulub Lift boat (*L/B Myrtle*) MC	[813]-Antarctic Seabed drill (RD-II) MC	[708]-Arctic Drillship IKC + co-funding HC

N. Hallmann continued to present the predictions for the FY17 and FY18 budgets (Table 4).

Table 4: ECORD budget projections for FY17 and FY18

	FY 17 (US$)	FY 18 (US$)
Total income	28,600,000	35,100,000
Fixed costs	11,000,000	11,000,000
MSP expeditions	-	9,000,000 (Antarctic) 15,000,000 (Arctic)
Balance	17,600,000	100,000

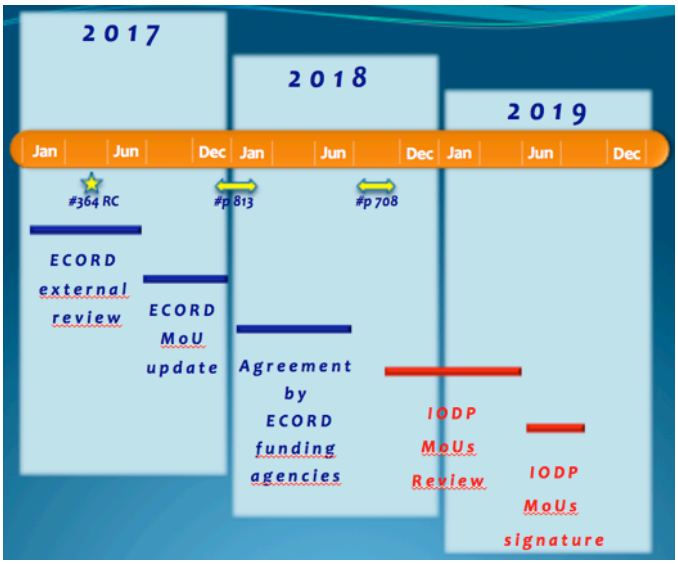
The table is based on cash and potential additional contributions like IKCs are not considered. No expedition is scheduled for FY17 and this year should finish with a positive balance of $17.6 M USD. After implementing the Antarctic and Arctic MSP expeditions in FY18, this year should finish with a positive balance of $100,000 USD. The Antarctic and Arctic expeditions have a budget limit of $9 M and 15 M USD, respectively. There is no buffer at the end of FY18.

ECORD membership: 12 out of the 18 ECORD members are committed until FY18. Five countries are committed until FY16 (Switzerland, Denmark, Canada, Israel, Belgium) and are preparing the new funding for their membership to ECORD. Spain still has to decide on the period of its committment. ECORD is negotiating with Turkey and discussing with Russia concerning a potential membership.

ECORD renewal post FY18:
An external review before ECORD's renewal is needed. The ECORD Executive Working Group, which is composed of M. Diament, G. Lüniger, M. Webb, R. Gatliff and G. Camoin, proposed following timeline for ECORD's external review (Figure 1). The process should be started in January 2017 with the appointment of an ECORD Evaluation Committee (EEC). A 2-3 days general meeting is planned for May 2017. The EEC members should send a final report to EMA in June 2017.
Mandate of the EEC: The EEC mandate will primarily concern the production of a high-level review focused on 1) the achievements of ECORD within IODP, 2) the impact of MSPs in particular, and 3) the effectiveness/efficiency of the ECORD entities.

Composition of the EEC: The EEC should include scientists, specialists of subseafloor investigations, managers/representatives of other international science programmes, i.e. 6-10 members.

Figure 1: Timeline for ECORD's renewal post FY18



Following ECORD's evaluation, the ECORD MoU will be updated during the second half of FY17. The funding agencies will agree during the first half of FY18. At the end of FY18 until the beginning of FY19 the IODP MoUs will be reviewed and they will be signed in summer 2019.

The DEDI (Distributed European Drilling Infrastructure) proposal has been rewritten and submitted in April 2016 as DEDI-2. This allows ECORD to deal with existing technologies like the seabed drills and the long piston coring, but also to develop new tools like borehole observatories, pressure sampling and high-temperature tools.

ECORD produces following material: the annual report, the biannual newsletters, flyers for expeditions and a brochure on how to get involved in ECORD/IODP. The Annual Report 2015 was restructured. The ECORD website will be relaunched in September/October 2016.

COMMENT on budget and planning:
It is important to recognize that the planning of MSP and JR expeditions is much different (G. Dickens). MSP expeditions have very different budgets. In contrast, the money for the JR is fixed but the costs for the expeditions are highly variable.

2.3 ESO: Scoping/tender process, operations, technical developments (D. McInroy)

(9:40)
D. McInroy presented an update on the past two expeditions #357 'Atlantis Massif' (2015) and #364 'Chicxulub Impact Crater' (2016), and the planned expedition 'Antarctic Cenozoic Paleoclimate' (proposal #813).

Expedition 357 'Atlantis Massif Serpentinisation and Life'
The offshore phase of this technically challenging expedition took place from 26th

October to 11th December 2015. It was the first IODP expedition using both seafloor drills, the MeBo70 from the MARUM and the BGS Rockdrill 2, on board of the RRS *James Cook*. This platform was provided as an IKC from the UK. Both seafloor drills cored intervals of between 0 and 16.5 mbsf across nine sites. The entire cored length was 57 m and the core recovery was 53%. Borehole packers and plug systems were successfully deployed. The OSP took place from 20th January to 5th February 2016. High-quality cores with moderate recovery were recovered. A new sensor assembly, which was mounted on the seafloor drills, was successfully used. Furthermore, a new tracer pump was successfully used for contamination analyses. A new water sampler was also used to collect water samples before and after drilling. Seafloor drill technical advancements were made. The performance of the seafloor drills will be reviewed in October 2016. New scientific discoveries are anticipated. The RD2 will be used as part of the Blue Mining Project in July/August 2016.

Expedition 364 'Chicxulub Impact Crater'

The offshore phase took place in April/May 2016. The open-hole section was down to 505 mbsf and the coring was done from 505 to 1335 mbsf with a total core length of about 838 m. The peak ring target was reached and the core recovery was 100%. At the moment, the cores are on their way to Weatherford Labs (Houston, USA) for CT scanning. Afterwards they will be shipped to Bremen for the OSP that will last for four weeks starting on 21st September 2016. This expedition was co-funded by ICDP. The cooperation with ICDP and Mexico was successful. Furthermore, there was a huge media interest and a documentary was done.

COMMENT on the collaboration with ICDP:

Expedition 364 was a true collaboration with ICDP. IODP guidelines and policies were followed and ICDP contributed with funding. Furthermore, an ICDP rig was used (D. McInroy).

COMMENT on the collaboration with Mexico:

The collaboration with Mexico had two components : 1) to get the project permitted and to include Mexican scientists and 2) to get an IKC from Mexico. However, the Mexicans did not provide a supply vessel and finally the Mexican contribution was getting the permits to drill in Mexican waters (D. McInroy).

COMMENT on the Chicxulub cores:

Besides the used platform and coring technologies, the lithologies, in particular the granites, enabled a 100% recovery (D. McInroy). The granites were soft to drill (D. McInroy). In contrast, the melt of the granites was really hard (D. Smith). Coring with the HQ-diameter system was not required at the end (D. Smith).

COMMENT on the Blue Mining Project:

G. Lericolais mentioned that there is a problem between France and Europe for the Blue Mining, a European project in the mid Atlantic. France asked for a permit to get access to an area to explore deep-sea minerals. There were also problems for the JR to get access permissions to areas, for example to the Mozambique Channel. Also Ifremer has more and more difficulties to get access to certain areas. It is important to preserve scientific activity in different areas.

COMMENT on the seafloor drills:

The recovery of the Atlantis Massif expedition was relatively low (G. Dickens). There are four proposals in the system using the seafloor drills. Coring has to be improved and such a low recovery would not be good for these future expeditions (G. Dickens). Non-IODP projects are planned for the MeBo and the RD2. These expeditions can be used for improving the seafloor drills (D. McInroy). The performance of the seafloor drills will be reviewed in October 2016 and recommendations will be made. The Antarctis expedition will be different because sediments will be drilled (D. McInroy). Last year the RD2 drilled sediments down to 40 m offshore Scotland (D. McInroy).

IODP Proposal #813 'Antarctic Cenozoic Paleoclimate'

This expedition was recommended to be scheduled in early 2018. ESO is in communication with the Division of Polar Programs and the Antarctic Support Contract for NSF. It is planned to install the BGS RD2 on the *RVIB Nathaniel B. Palmer* from the US Antarctic Program (NSF). The current schedule is from 24th December 2017 to 22nd February 2018. The ship is not provided as an IKC, i.e. there will be ship costs of about $5.5 M USD. However, these costs to ECORD could be reduced by scheduling other projects around this MSP expedition. The operational planning continues. The call for scientists will be in August/September 2016.

2.4 ESO: Curation activities and update on policies (U. Röhl)

(10:05)

U. Röhl gave an update on the Bremen Core Repository (BCR). The BCR currently archives 154 km of cores from the Atlantic Ocean, Arctic Ocean, Mediterranean Sea, Black Sea and Baltic Sea. On the BCR webpage a map shows the location of the drill sites.

There are new versions of the Drilling Information System (DIS): the Repository Database 'CurationDIS' and the Expedition Database 'ExpeditionDIS'. For MSP expeditions the BCR provides online tutorials for all laboratories and facilities that are used during an expedition.

This year is the 10th year of the Bremen ECORD Summer School. In 2016 the topic of the Summer School is 'Submarine Geohazards: Mapping, Monitoring, and Modelling'. The Summer School combines lectures and interactive discussions on the main themes of

IODP with practical 'shipboard' methodologies. In March 2016 the second ECORD Training Course was held at the MARUM with 30 participants from 14 different countries. The participants were prepared for future IODP expeditions.

Virtual BCR visits were made during the ECORD School of Rock 2015 and during the GeoShow 'unterirdisch' held in Bonn.

The major achievements since March 2015 are listed below:

- About 33,930 samples (303 requests) taken,
- Aftermath of recent expeditions (339, 342, 357) incl. XRF scanning,
- New versions CurationDIS 6.0 and ExpeditionDIS 6.02,
- Continuously making all curatorial data available,
- Participating in offshore Exp. 357 and running the Exp. 357 Onshore Science Party,
- Planning for and participating in offshore Exp. 364,
- Participating in a variety of meetings,
- Running & teaching at ECORD Summer School 2015,
- Running & teaching at ECORD Training Course 2016,
- Participating in nominating new CAB members.

There is an IODP Curatorial Advisory Board (CAB) related to the IODP Sample, Data, and Obligations Policy. The CAB consists of five members of the scientific community who serve in overlapping terms. Last fall three new CAB members were selected: Mike Lovell, Hideyoshi Yoshioka, Elisabetta Erba. They will serve for three years until 30th September 2018. Clive Neal and Noritoshi Suzuki will rotate off on 30th September 2016.

2.5 ESO: Downhole logging data and core petrophysics measurements (S. Davies)

(10:11)

S. Davies presented the activities of the European Petrophysics Consortium (EPC): preparation for upcoming expeditions, post-expedition activities, capability development and training for upcoming IODP MSP expeditions, and other key activities including education and training.

For Expedition 347 'Baltic Sea Paleoenvironment', EPC staff prepared expedition logging data for archiving in the IODP legacy database hosted by Lamont Doherty Earth-Observatory. The petrophysics staff scientist attended the second post-cruise meeting in September 2015.

Preparation for upcoming MSP operations includes bespoke Techlok training, software training, EPC logging deployment training, offshore survival training, MSCL training and radiation safety training.

Concerning capability development, EPC is working on a refurbishment of the offshore petrophysics container to: 1) increase the core storage; 2) extend the Standard MSCL-

capability; and 3) to maintain the option for a second 'fast-track' MSCL.

For Expedition 357 'Atlantis Massif', EPC worked closely with the BGS and the MARUM for downhole logging tools development for seabed rockdrill deployment. An EPC logging engineer sailed on the RD2 test cruise in August 2015 offshore Scotland. There were two training sessions for ANTARES tools in May and September 2015. ANTARES logging tools were deployed for testing from the RD2 at a test BGS borehole in October 2015. One petrophysics staff scientist was offshore and Standard MSCL and 'fast-track' were deployed. IODP measurements were done during the OSP.

For Expedition 364 'Chicxulub Impact Crater', EPC personnel developed logging requirements with the ESO operations manager, the Co-chiefs and the logging partners. EPC worked on getting permits in place for the radioactive source for the Standard MSCL. Two petrophysics staff scientists were offshore.

Downhole logging: For the first time the EPC's stackable ultra-slimline tools were used on an IODP MSP expedition. Almost 6 km of high-quality wireline open hole log data were collected. This was conducted in three phases of logging.

Multi-Sensor Core Logger (MSCL): Ephemeral properties were measured. For the first time EPC took natural gamma radiation measurements offshore using extended capabilities.

Regarding education, training and outreach, EPC was involved in the ECORD Summer School 2015, the British Science Festival 2015 and the ECORD 'Virtual Drillship' 2016. Furthermore, the EPC hosted a BSRG Petrophysics Weekend. The first ECORD Summer School in petrophysics will be held from 26th June to 1st July 2016. There will be 30 participants from 11 countries. A new blog site was developed to cover all EPC activities.

COMMENT on EPC partners:
J. Austin asked if EPC gets IKCs from its commercial partners. Weatherford Labs (Houston, Texas) agreed to have two logging engineers for the whole expedition. This is no IKC, but they worked to a more academic based model (S. Davies).

COMMENT on XRF scanning:
Any XRF scanning will be done as a post-expedition measurement hosted by MARUM. EPC does not plan to purchase this equipment (S. Davies).

2.6 ESO: Outreach activities on MSP expeditions (A. Stevenson/U. Prange)

(10:26)
A. Stevenson presented ESO outreach activities for IODP Expedition 357 'Atlantis Massif' and IODP Expedition 364 'Chicxulub Impact Crater'.

For Expedition 357 'Atlantis Massif' a communication plan, flyers and expedition logo stickers were produced and distributed to all Science Party members. A press conference was held at the Foreign Press Association in London on 22nd October 2015. This was accompanied by a press release and invitation to journalists. ESO liased with NERC/NOC outreach managers. Tours of the *RRS James Cook* were organized on 23rd October 2015 in Southampton. There was a high local, national and international media coverage, including interviews on the BBC. A press conference was held at the OSP in Bremen on 1st February 2016 and a press release was issued.

For Expedition 364 'Chicxulub Impact Crater' the outreach was supported by ICDP and Mexican collaborators. The communications plan, flyers, etc. were produced and distributed to all Science Party members and media relations offices of all Science Party member organisations. There was a close collaboration with the University of Texas in Austin. The logos of IODP, ECORD and ICDP were prominent from all angles of approach and onboard as backdrop filming. A press conference was held at the Gran Museo del Mundo Maya in Mérida, Mexico on 13th April 2016 followed by a tour of the museum where they had a Chicxulub exhibition. At the press conference more than 30 media groups were present. A press release was issued in Spanish and English. There was an extensive coverage in the Mexican press throughout and a huge international interest. A TV production company followed the expedition throughout and they will also follow the OSP to make a documentary for BBC and NOVA. Media and VIP visited the platform including a 'Media Day' on 23rd April. A reddit 'Ask me Anything' Day was organized by Kevin Kurtz. The scientific and technology press, radio, TV, newspapers, online media, schools, universities, museums and social media were reached.

2.7 ESSAC: Staffing, courses and other activities (J. Behrmann)

(10:44)

J. Behrmann gave an overview of the staffing, the ECORD Summer Schools scholarships and the ECORD Research Grants.

Staffing:

Expedition 362 (Sumatra) is now fully staffed. Nine ECORD scientists and one UK Co-chief scientist are ready to sail.

Expedition 363 (West Pacific Warm Pool) is also fully staffed. Nine ECORD scientists and one German Co-chief scientist are ready to sail.

Expedition 366 (Marianas) is fully staffed. Nine ECORD scientists are ready to sail.

Expedition 367/368 (South China Sea): Nine out of the eleven berths that were allocated to ECORD are staffed. A special call was issued to staff the remaining slots. Three scientists were invited and accepted.

Expedition 370 (Nankai Temperature Limits): An open call was issued with a deadline of 10th June. Nine applications were received for the eight berths that have to be filled.

The German Co-chief, Verena Heuer, accepted the invitation.

The open call for expeditions 369, 371 and 374 was issued on 14th June.

ECORD Summer Schools - Scholarships:

The ECORD Training Course 2016 "Virtual Drillship Experience" that was held at the MARUM in March 2016 received a direct support of 6,500 €.

The ECORD Urbino Summer School in Paleoclimatology that will be held in July 2016 received a direct support of 10,000 €. Six scholarships will be funded with 1,400 € each.

The ECORD Bremen Summer School 2016 with the topic 'Submarine Geohazards: Mapping, Monitoring, and Modelling' will be held in September 2016 and received a direct support of 10,000 €. Six scholarships will be funded with 700 € each.

The ECORD Petrophysics Summer School that will be held in Leicester in June/July 2016 received a direct support of 10,000 €. Three scholarships will be funded with 800 € each.

ECORD Research Grants:

Eighteen high-quality proposals were received from all sciences and topics relevant for IODP and from a large spread of ECORD member countries. The total budget is of 16,000 € and seven top-ranked research grants were funded. The funds are going to young researchers from five ECORD member countries.

Teachers at Sea:

Seven applications were received and ESSAC is able to fund the travel costs of three teachers. IODP France and IODP Germany will contribute to the funding of one additional teacher each. Five teachers will be able to sail on upcoming expeditions.

(10:53)
coffee break
(11:25)

SCIENCE TALK: « Serpentinization and Life: Drilling the Atlantis Massif, Expedition 357 » (G. Früh-Green)

(12:30)
lunch break
(13:30)

SCIENCE TALK: « Drilling the Chicxulub impact structure IODP-ICDP Joint Expedition 364 » (J. Morgan)

3. Brief reports of other IODP facility boards and entities on recent activities

There were reports on the *JR*-FB (A. Koppers), the funding situation of the *JR* (T. Janecek), the CIB and the funding situation of the *Chikyu* (N. Eguchi), the Science Support Office (H. Given), the Science Evaluation Panel (K. Miller) and the IODP Forum (J. Austin).

3.1 *JOIDES Resolution* Facility Board (A. Koppers)

(14:13)

A. Koppers presented updates from the *JOIDES Resolution* Facility Board (*JR*-FB), the new *JR* expeditions schedule for FY17-19 and the long-term *JR* track.

Update from the *JR*-FB:

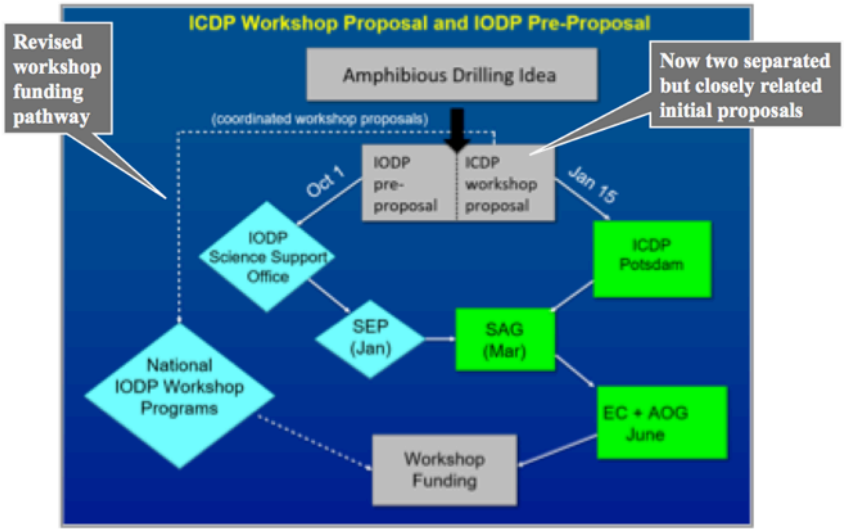
The IODP Proposal Submission Guidelines were simplified. All information for writing and submitting an IODP proposal can be found in one single document. The revised and formatted IODP Proposal Submission Guidelines and the IODP Site Characterization Guidelines were approved by the *JR*-FB. A *JR*-FB subcommittee on Policies and Guidelines was formed (see *JR*-FB 1605 Consensus Statement 3).

The JRSO proposed to implement XRF scanning of cores as a new IODP Standard Onshore Post-expedition Measurement. The scientific demand for elemental analysis provided by XRF scanning is increasing and the *JR*-FB supported this proposition (see *JR*-FB 1605 Consensus Statement 17).

JR100 Shallow Coring Program: NSF proposed to use the *JR* in a non-IODP mode to collect high-resolution Advanced Piston Corer (APC) cores from 0-100 mbsf. NSF could use the *JR* very efficiently during tie-ups. The *JR*-FB supports this plan (see *JR*-FB 1605 Consensus Statement 16).

Amphibious Drilling Proposals (ADP): The ADP Proposal Guidelines were updated and approved by the *JR*-FB (see *JR*-FB 1605 Consensus Statement 6). The changes include 1) having two separate but closely related initial proposals (ICDP workshop proposal and IODP pre-proposal) and 2) a revised workshop funding pathway (Figure 2). The *JR*-FB subcommittee on Policies and Guidelines will merge the ADP guidelines into the IODP Proposal Submission Guidelines.

Figure 2: Flowchart of ADP submission



The ADP Implementation Guidelines were discussed at the *JR*-FB and require more work and discussion with the other Facility Boards and finally with ICDP.

New *JR* expeditions scheduled FY17-19:

A. Kopper presented an updated *JR* expedition schedule for FY17-19 (Table 5). This schedule is subject to funding being available for ship operations in FY18-19. Five *JR* expeditions will be implemented in FY17-19, i.e. one extra expedition was added to each year. Two Antarctic expeditions are part of the schedule (P751 'West Antarctic Ice Sheet Climate' and P839 'Amundsen Sea Ice Sheet History) and they are subject to the availability of an ice-breaker support.

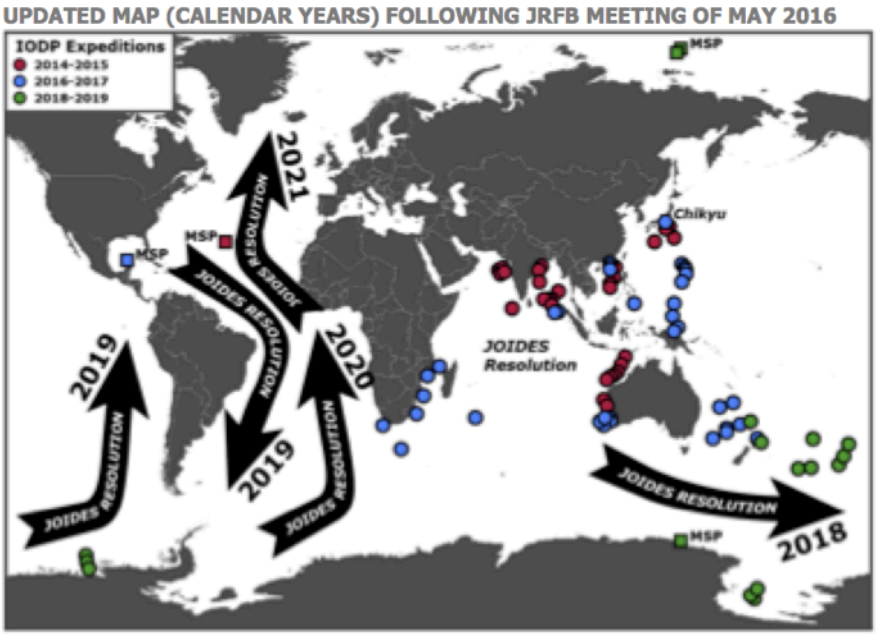
Table 5: *JR* expedition schedule for FY17-19

Fiscal Year 1 Oct - 30 Sept	Proposal Expedition	Title
FY' 17	P832	Tasman Frontier Subduction
FY' 18	Expedition 369	Australia Cretaceous Climate and Tectonics
FY' 18	P841-APL + P781A (1 of 2)	Combined Expedition Creeping Gas Hydrate Slides and LWD portion of Hikurangi Observatory
FY' 18	P751	West Antarctic Ice Sheet Climate (Ross Sea)
FY' 18	P781A (2 of 2)	Hikurangi Observatory (CORK installations)
FY' 18	P818	Brothers Arc Flux
FY' 18	Non-IODP	Mandatory 5-year Inspection JOIDES Resolution
FY' 19	P567	South Pacific Paleogene
FY' 19	Non-IODP	Short 2-4 weeks (to move from Tahiti and mobilize in Punta Arenas)
FY' 19	P839	Amundsen Sea Ice Sheet History

The long-term *JR* cruise track will follow a path from the Southern Ocean along the west coast of South America to the Caribbean in order to implement one CPP and probably further proposals (Figure 3). Then the *JR* will go back south along the east coast of South

America reaching the South Atlantic in 2019 and implementing another Antarctic expedition. Finally, the *JR* will go north again in 2020 along the West African Coast to reach the North Atlantic in 2021.

Figure 3: Long-term *JR* cruise track until FY21



3.2 *JOIDES Resolution* current and future funding (M. Malone/T. Janecek)

(14:44)

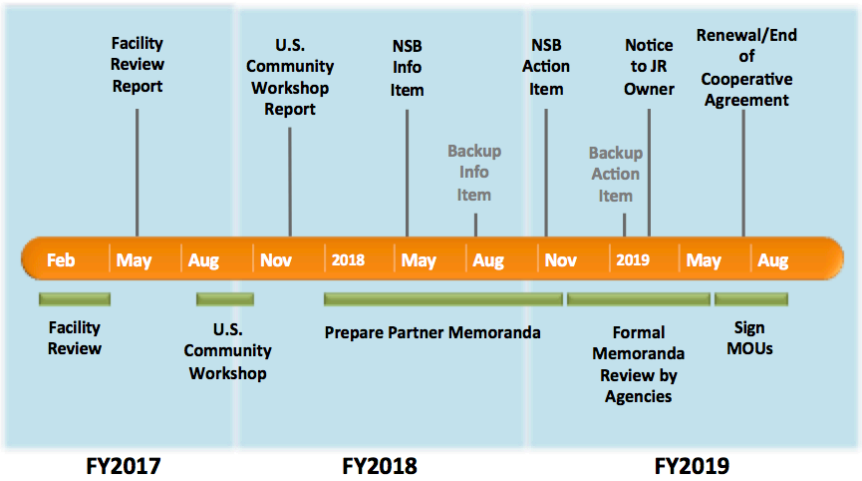
T. Janecek presented the FY17 budget, the timeline for the renewal, the *JR* staffing and the JR100 Program.

FY17 budget: Due to low fuel prices, a good efficiency of operations, external funds from CPPs and funds from the federal government the financial situation is positive. Ten months operations are planned for FY17 at $64.2 M USD. The expected FY17 international contributions to *JR* operations are $14.8 M USD base contributions and $12 M USD CPP contributions. $6 M USD of the CPP contributions is available for the support of future *JR* operations. The other $6 M USD is allocated inside NSF and a significant part of these funds will probably go to Marine Geology and Geophysics to help funding IODP related science and site survey operations. The NSF goal is to have 10 months *JR* operations per year through FY19.

T. Janecek presented the timeline for the renewal (Figure 4). The Facility Review will meet in February 2017 and produce a report in May 2017. A U.S. Community Workshop is planned for August 2017 with a written report in November 2017. The goals of the U.S. Community Workshop are to prioritize challenges from US perspective and to evaluate the effectiveness of the *JR* toward achieving the Science Plan Challenges. In

2018 the Partner Memoranda will be prepared. A formal Memoranda review by the agencies and the signing of the MoUs will be done in 2019.

Figure 4: Timeline for the *JR* Facility Renewal



The NSF goal is to remain at least 10 months per year for *JR* operations for FY19-23. NSF expects an increase in partner contributions to one third of the *JR* operations. CPP costs will most certainly increase. JR100 operations are likely during tie-up periods.

JR staffing: In response to Sea Change recommendations, NSF instructed the JRSO to increase the number of U.S. Science Party Members from 8 to 10 for upcoming *JR* expeditions. Those staffed under the Onboard Outreach Programme are considered as members of the Expedition Science Party with publishing responsibilities. Post 2019 all Onboard Outreach Program participants will be considered within partner shipboard staffing quotas.

JR100 Program: This program uses non-IODP NSF funds to conduct coring up to 100 mbsf for two to four weeks during *JR* tie-up periods. This takes into consideration the needs by the US community for deeper scientific coring. The 100 m limit is set by environmental assessment issues. The coring period is determined after the *JR*-FB sets the schedule. Non-IODP funding includes NSF Ship Operations Program and Science Programs. Science staffing would be similar to a typical UNOLS cruise. This program will probably be implemented earliest in 2019.

3.3 *Chikyu* IODP Board (N. Eguchi)

(15:00)

N. Eguchi summarized the consensus items from the last CIB meeting that was held in Kobe in March 2016. Three CIB members (H. Villinger, H. Kawahata and C. Moore) will rotate off at the end of September 2016. A call was issued for new CIB members.

Chikyu IODP Expedition 365 is one of the NanTroSEIZE operations. The main aim of this expedition is the installation of observatories systems. It is a technical expedition from March 26 to April 27, 2016. A GeniusPlug that was installed during IODP Expedition 332 in November 2011 was successfully recovered. A second NanTroSEIZE LTBMS was successfully installed. In addition, 70 m could be cored.

Chikyu IODP Expedition 370 will be implemented from 10th September to 10th November 2016 and focuses on the T-limit of the deep biosphere. The drilling will take place in a subduction zone off Muroto where already ODP Leg 190 was implemented. At this time the detection limit for cells was reached at 600 mbsf and 70°C. However, since then the detection limit for cells has been drastically improved. The aim of the upcoming expedition is to drill down to the sediment/basement interface at 1240 mbsf where 130°C are expected. A temperature observatory will be installed.

N. Eguchi continued to present the *Chikyu* lab modification concept. ECORD's and ANZIC's annual contributions were mainly used for the renovation of the *Chikyu* lab facilities. The laboratories will be modified to optimize the work flow for cores and cuttings, to have more flexibility in the lab operation and to have a safe and comfortable work environment. For example, the core processing deck and the lab management deck were modified. Furthermore, a library was built and named after Prof. Walter Munk. Several instruments were upgraded and new instruments were purchased.

CDEX outreach: Several videos were published for Expedition 365. At the JpGU the exhibition booth was together with ICDP. At the Goldschmidt conference in June 2016 a conference booth will be organised together with ECORD. In early July the International *Chikyu* Onboard School will take place and ECORD will participate.

COMMENT:
An outreach video will be produced for IODP Expedition 370 (N. Eguchi).

(15:20)
coffee break
(15:35)

3.4 *Chikyu* and its current and future funding (N. Eguchi)

(15:35)
N. Eguchi started to present the JAMSTEC budget situation. The governmental funding has declined over the last seven years with an average annual cut of 3%. There was a budget cut of 6% from JFY15 to JFY16.

Chikyu funding structure: The basic costs for the *Chikyu* are of $58 M USD and are funded by the Japanese government. These basic costs are for the ship crew, ship

maintenance and CDEX administration. In addition to the basic costs, there are the *Chikyu* member fees from ECORD and ANZIC and funds from commercial operations and CPPs. Due to the low oil price there are less opportunities for commercial drilling.

N. Eguchi presented the *Chikyu* operations schedule for 2014-2018. The JAMSTEC mid-term is from 2014 to 2018 and funds cannot carried over to the next term. Industrial work was carried out from February to August 2015. From August 2015 to January 2016 the *Chikyu* has been in the dry dock for repair and maintenance. A non-IODP science operation has been implemented between February and March 2016. IODP Expedition 365 NanTroSEIZE was implemented from March to April 2016. A national operation followed and the *Chikyu* will be in the dry dock for repair and maintenance in July and August 2016. IODP Expedition 370 will be implemented from September to November 2016 followed by a domestic science operation. A potential window for commercial operations ranges from December 2016 to March 2017. Further potential windows for commercial operations are from July to December 2017, February to June 2018 and October 2018 to March 2019. The *Chikyu* will be in the dry dock from July to September for maintenance that will cost $10 M USD. At the end of JFY2018 a positive balance of $34 M USD is expected. With additional $5-6 M USD NanTroSEIZE could be completed.

3.5 Science Support Office (H. Given)

(15:42)

The tasks of the IODP Science Support Office (SSO) are: 1) to support the *JR*-FB and its advisory panels; 2) to manage the IODP proposal submission/review process; 3) to manage the Site Survey Data Bank (SSDB); and 4) to maintain the IODP website.

H. Given presented proposals that were received for the April 2016 deadline (Table 6). Two new pre-proposals for MSPs are in the system: 863A-Pre (Crosta et al.) and 896-Pre (Giraudeau et al.). There is a high degree of participation by lead proponents from ECORD countries. 109 proposals are active in the review system and 40 of those have ECORD lead proponents. There are 1352 unique proponents and 537 of those are ECORD scientists.

Table 6: IODP proposals received for the April 2016 deadline. Blue: new submissions.

Proposal Number	Short Title	Lead Proponent	Affiliation	Ship	Ocean
852-CPP2	**North Sea GlaciStore**	**Stewart**	**UK**	**JR**	**Atlantic**
853-Full	**South Atlantic Transect**	**Coggon**	**UK**	**JR**	**Atlantic**
859-Full	**Amazon Margin Drilling**	**Baker**	**USA**	**JR**	**Atlantic**
863A-Pre	ISOLAT: Indian Antarctic Paleoceanography	Crosta	France	MSP	Southern
871-CPP2	Lord Howe Rise Continental Ribbon	Hackney	AU	Chikyu	Pacific
887-Add	**Gulf of Mexico Methane Hydrate**	**Flemings**	**USA**	**JR**	**Atlantic**
895-Pre (ADP)	**Mediterranean-Atlantic Gateway Exchange**	**Flecker**	**UK**	**JR**	**Mediterranean**
896-Pre	North Atlantic Fjord Sediment Archives	Giraudeau	France	MSP	Arctic
897-APL	**Southern Ocean Cretaceous Anoxia**	**Holford**	**AU**	**JR**	**Southern**
898-Pre	Fore Arc Mohole-to-Mantle	Michibayashi	Japan	NR-Chikyu	Pacific
899-Pre	**Tyrrhenian Continent-Ocean Transition**	**Zitellini**	**Italy**	**JR**	**Mediterranean**
900-Pre	**Rainbow Massif Hydrothermalism**	**Andreani**	**France**	**JR**	**Atlantic**
901-APL	**Taiwan Arc-Continent Collision**	**Byrne**	**USA**	**JR**	**Pacific**
902-Full	**Iceberg Alley Paleoceanography**	**Weber**	**Germany**	**JR**	**Southern**
903-Pre	**Argentine Margin Seaward Dipping Reflectors**	**Kulhanek**	**USA**	**JR**	**Atlantic**
904-Pre	**Sao Paulo Plateau Continental Rifting**	**Almeida**	**Brazil**	**JR**	**Atlantic**
905-APL	**Goodenough Basin Subduction System**	**Buck**	**USA**	**JR**	**Pacific**

H. Given summarized the proposal outcomes since the last two SEP meetings. Five proposals were sent to the Facility Boards including proposal 730 'Sabine Bank Sea Level' and proposal 879 'Corinth Active Rift Development' that were forwarded to the EFB. Two proposals are in the holding bin. Eight new operations were scheduled: 1 CDEX and 7 *JR* expeditions. Fifteen "dormant" proposals were de-activated.

The submission of IODP proposals must be made via the e-system. In 2015 there was a major revision of the Proposal Database (PDB) submission system. The user interface was replaced and the system guides the user through the creation of the proposal.

H. Given presented the new IODP website. Rita Bauer and H. Given are working together on the content of the website.

H. Given asked for revision of one sentence about MSPs in the call for proposals for Scientific Ocean Drilling.

- **ACTION (EFB)**: The ECORD Facility Board revises the sentence "MSP expeditions are planned to operate once per year on average, and proposals for any ocean are welcomed." in the call for proposals for Scientific Ocean Drilling until early July 2016.

3.6 Science Evaluation Panel (K. Miller/D. Mallinson)

(15:53)

K. Miller reminded that the examined proposals are confidential. The information from the first three pages is available after the proposals went through SEP. He continued giving a panel update. SEP reports to the *JR*-FB and services the EFB and the CIB. There are good communications with SSO, the *JR*-FB and the IODP Forum. In January 2016 SEP met at the Scripps Institution of Oceanography in San Diego, USA and the next meeting will be held in June in Bremen, Germany.

K. Miller continued to present the proposal destinations from the January 2016 SEP meeting. Proposal 730 – Sabine Bank Sea Level was forwarded to the EFB.

Table 7: IODP proposal destinations from the January SEP meeting.

Prpsl#	Type	Title	destination
730	Full2	Sabine Bank Sea Level	EFB
732	Full2	Antarctic Peninsula Sediment Drifts	Stay in JRFB
832	Full2	Tasman Frontier subduction	HB + Addendum by 2nd week of March
834	Full2	Agulhas-Transkei Transect	JRFB
835	Full2	Japan Trench Tsunamigenesis	External Review
846	APL2	Falkland water depth record	HB + Addendum for two sites
848	Full	Weddell Sea History	Revise
871	CPP	Lord Howe Rise continental ribbon	Revise in time for next SEP mtg
880	APL2	Drilling parameters for Lithology	deactivate and resubmit following workshop
884	CPP2	Southern Australia Cretaceous Anoxia	Deactivate
887	CPP2	Gulf of Mexico Methane Hydrate	External Review
890	Pre	Walvis Ridge Hotspot	Full
891	APL	Indonesian Throughflow Makassar Strait	Deactivate
892	Full	Reykjanes Mantle Convection	Revise
893	APL	Taiwan arc-continent collision	Deactivate
894	APL	S.Pacific Quaternary paleoproductivity	Deactivate
857B	Pre	DREAM: Balearic Promontory	Full

K. Miller gave an overview of MSP proposals at the EFB and at the SEP (Table 8). Proposal 879 'Corinth Active Rift Development' was recently forwarded to the EFB.

Table 8: IODP proposals at the EFB and at the SEP.

Proposal	Short Title	Proponent	Country	Ocean	Drill Platform
at EFB:					
548-Full3, Add	Chicxulub K-T Impact Crater	Morgan	UK	Atlantic	seabed drill
813-Full, Add	Antarctic Cenozoic Paleoclimate	Williams	USA	Southern	seabed drill
708-Full, Add	Central Arctic Paleoceanography	Stein	Germany	Arctic	drill ship
581-Full2	Late Pleistocene Coralgal Banks	Droxler	USA	Atlantic	geotech rig or seabed drill
637-Full2, Add	New England Shelf Hydrogeology	Person	USA	Atlantic	drill rig
716-Full2	Hawaiian Drowned Reefs	Webster	Australia	Pacific	geotech rig or MeBo200
730-Full2	Sabine Bank Sea Level	Taylor	USA	Pacific	MeBo200
Proposal	Short Title	Proponent	Country	Ocean	Drill Platform
at SEP:					
879-Full, Add	Corinth Active Rift Development	McNeill	UK	Mediterranean	drill ship
852-CPP2	North Sea GlaciStore	Stewart	UK	Atlantic	drill rig
796-ADP	NADIR: Nice Amphibious Drilling	Kopf	Germany	Mediterranean	geotech rig or MeBo200
863-MDP	ISOLAT Southern Ocean Paleoclimate	Peterson	USA	Southern	long-piston coring
863A-Pre	ISOLAT: Indian Antarctic Paleoceanography	Crosta	France	Southern	long-piston coring (Marion Dufresne)
866-Pre	Japan Trench Paleoseismology	Strasser	Switzerland	Pacific	long-piston coring
812-Pre	Ross Sea Glacial History	Wilson	USA	Southern	seasbed drill
806-Pre	Beaufort Gas Hydrate	Paull	USA	Arctic	geotech rig
797-Pre	Alaska Beaufort Margin	Ruppel	USA	Arctic	drill rig + JR

COMMENT:
D. Mallinson will rotate off on October 1st, 2016 (K. Miller).

3.7 IODP Forum: Progress Towards IODP Science Plan Challenges (J. Austin)

(15:59)

J. Austin presented the general purpose of the IODP Forum. It's a venue for exchanging ideas and views on the scientific progress of the program. The IODP Forum meets once a year and the participation is open to everybody.

The IODP Forum Chair maintains a document on the progress of IODP towards fulfillment of the 2013-2023 Science Plan (www.iodp.org/iodp-forum).

Following consensus items from the last IODP Forum meeting that was held in Canberra are of interest and relevance to the EFB:

- Forum Consensus 15-03: preparation of 1-2 page summaries of recent expedition-based achievements vs. further opportunities for each of the 14 challenges of the IODP Science Plan with regard to the IODP mid-term renewal
- Forum Consensus 15-04: joint activities of all IODP platform providers at the International Geological Congress, which will be held in Cape Town on August

27th-September 4th, 2016 and a membership drive for South Africa

- Forum Consensus 15-05: review of education and outreach activities across IODP at each future IODP Forum meeting
- Forum Consensus 15-06: seismic site survey data importance and acquisition challenges; vital importance of the linkage between seismic data and drilling in IODP
- Forum Consensus 15-08: potential IODP workshops: 1) Antarctic-Southern Ocean workshop and 2) Global Monsoon workshop

4. Review of the MSP proposals

Six MSP proposals that are currently at the ECORD FB were reviewed and discussed: 1) #581 Late Pleistocene Coralgal Banks; 2) #637 New England Shelf Hydrogeology; 3) #716 Hawaiian Drowned Reefs; 4) #708 Central Arctic Paleoceanography; 5) #730 Sabine Bank Sea Level and 6) #879 Corinth Active Rift Development.

4.1 581-Full2 Late Pleistocene Coralgal Banks (holding bin)

G. Dickens announced a conflict of interest.

4.1.1 Summary of objectives, SSD and previous EFB decision (K. Gohl)

(16:11)

Proposal #581 is since 2002 in the system. K. Gohl presented the scientific objectives and the drilling plan for this proposal. In March 2013 the proponents were asked to reduce the penetration depths so that it is feasible to drill with seabed drills. Since March 2013 the proponents have been in contact with ESO and the use of seabed drills was discussed. After the EFB meeting in 2015 the proponents were asked to continue discussions with ESO regarding the availability of a research vessel and a seabed drill. Furthermore, the proponents were reminded to submit the missing site survey data to the Site Survey Data Bank.

4.1.2 Drilling operations and costs (D. McInroy)

(16:19)

The penetration considered in the current proposal is between 70 and 100 mbsf at seven holes. The expedition is technically feasible, i.e. no extra development is needed.There are two possible platforms: a geotechnical ship with coring rig or a seabed drill. The geotechnical mobilisation/demobilisation costs would be disproportionate to the length of the expedition (15-22 days). 100 mbsf is beyond the current reach of the BGS RD2 and the MeBo70, but it is potentially reachable with the MeBo200. In 2014, A. Droxler confirmed that the objectives can be met with 50-70 m penetration. A revised proposal or addendum has not been submitted. The expedition would cost $2.4-$4.0 M USD when a seafloor drill is used and the vessel is assumed to be provided as a full IKC

(31-59 days). The maximum penetration is 80 mbsf. The cost of an operation using a geotechnical vessel would range between $4.6 and $6.8M USD (15-22 days).

DISCUSSION on proposal #581:

G. Lericolais suggested to write a letter to the proponents asking them to submit the missing data otherwise the proposal will be deactivated. The proposal is in the system since a long time. At some point the waiting room proposals should be deactivated if there is one requirement like missing site survey data that is not fulfilled (K. Gohl). The lead proponents never responded to the request for uploading the missing data (D. Mallinson). This proposal is in the system since 2001 and the science has changed i.e. an update is needed (D. Mallinson). There is no other option than deactivating the proposal if the data are not submitted to the data bank (D. Mallinson). The JR-FB writes a letter to the proponents of proposals that are older than five years and asks them for an update (scientifically and site survey data). Based on the response of the proponents the JR-FB can decide if a proposal will be deactivated (A. Koppers). A proposal should be deactivated if the proponents do not upload the required data and update the science (J. Austin). Proponents are moving on to other science topics. The lead proponent A. Droxler is involved in several other projects (G. Lericolais/G. Dickens). Part of the reason why this proposal has kept in the system is because it is a low-cost proposal and therefore to have more options by keeping proposals of different cost categories (G. Dickens). It would be better to keep the money for low-cost expeditions where the science is outdated in order to fund other projects with good science (G. Lericolais).

From the science point of view a continuous record is needed, which may not be obtained using a rock drill (K. Miller). So far, a depth of 100 mbsf was not reached with a rock drill (K. Miller).

Furthermore, it will be extremely difficult to get a permit for this drilling proposal because the drill sites are located in the northwestern Gulf of Mexico close to a living reef. Therefore, it has to go through the US Federal Agency 'Bureau of Safety and Environmental Enforcement' - BSEE (J. Austin).

One of the overarching ideas of MSP operations is to be capable to operate one MSP expedition per year (J. Behrmann). The goal is to implement one MSP expedition per year, however, this does not mean that one expedition has to be implemented every year (K. Gohl). Two or maybe three low-cost operations could be implemented in a single year (K. Gohl). For example, long piston coring proposals could be relatively cheap and these expeditions could be used to fill up the schedule (K. Gohl). At the beginning of the renewal phase the funding agencies will look at the overall picture (K. Gohl). If two expeditions are implemented in one year, they should be 8-9 months apart (D. McInroy). Based on the current staffing level, the implementation of two expeditions per year is not ideal (D. McInroy).

4.2 637-Full2+Add6 New England Shelf Hydrogeology (holding bin)

4.2.1 Summary of objectives, SSD and previous EFB decision (F. Inagaki)

(16:38)

F. Inagaki presented the general history of proposal #637 that was submitted in April 2005. In March 2014 the EFB decided to keep the proposal in the holding bin because it was considered as too expensive to be implemented. In April 2015 the EFB reviewed the revised drilling plan and asked for further efforts and discussions between the PIs and ESO. In addendum 6 ten boreholes at five primary sites for coring and logging while drilling/wireline logging were planned. F. Inagaki continued summarizing the scientific objectives, the drilling plan and analytical approaches of proposal #637. The proponents should provide more details about quality assurance and quality controls (QA/QC). Strong microbiological/biogeochemical hypotheses are still missing in this proposal. A radioisotope van is needed on the MSP expedition if microbial activity will be measured by radio-tracers.

4.2.2 Drilling operations and costs (D. McInroy)

(16:51)

Currently the proposal includes ten holes in total, i.e. one cored hole and one logging while drilling hole (LWD) at each of the five sites. A large liftboat, jack-up or industry-style semi-submersible rig could be used depending on the size of the platform that is needed to accommodate the LWD tools. The current proposal is feasible, but costly. After the last EFB meeting the proponents were encouraged by the EFB to consider wireline logging instead of logging while drilling and to reduce the number of holes. The proponents accepted by email to use wireline logging instead of LWD and to reduce the number of sites from five to three. However, a revised proposal was not yet submitted. Assuming three holes with wireline coring, the cost range would be between $10.8 M and $18.3 M USD. The cost estimate with LWD ranges from $18.0 M to $31.0 M.

DISCUSSION on proposal #637:

USSSP will start a workshop with the goal to reduce the costs of this proposal and to get an amphibious component, i.e. to inolve ICDP (C. Brenner). An exchange with one of the proponents revealed that there are ideas of ways to get external funds (D. McInroy).

Logistics : G. Lericolais asked about the place for a freezing container for 2000 bottles of pore water. The expedition would take place close to the shore, i.e. a supply vessel could transport the samples onshore (D. McInroy).

The original proposal has five sites with LWD and now it includes three sites with wireline logging. Does a significantly modified proposal like proposal #637 have to go back to SEP (G. Dickens)? The Facility Board can ask SEP to review specific comments, data, science or

the whole proposal (K. Miller). It is the question if the science objectives can be reached by drilling less holes and taking less water samples (G. Lericolais).

Setting casing for short holes in these lithologies would be very expensive (J. Austin). Wireline logging is a low-cost alternative and it was successsful during the New Jersey expedition (S. Davies). Good quality logging data can be obtained even with the occurrence of running sands (S. Davies). S. Davies does not recommend using a radioactive source for environmental reasons and the reputation of the programme. An interaction with the proponents is needed to get predictions of where the sands are (K. Miller).

4.4 708-Full+Add Central Arctic Paleoceanography (addendum/revision)

K. Gohl announced a conflict of interest.

4.4.1 Summary of objectives, SSD and previous EFB decision (D. Weiss)

(17:05)

G. Dickens presented the scientific objectives of proposal #708 (ACEX-2) and the limitations of ACEX-1.

Drilling the primary site would greatly exceed the limit of the maximum ECORD contribution of $15 M USD because ice-breaker support would be needed. Furthermore, drilling, coring and logging would require a long time (> 60 days) and it would necessitate a special drilling platform because of the required pipe length (> 2 km). Ice-breaker support may come through IKCs. The time and platform issues can be addressed by changing locations and drilling strategy. The combined water depth and target depth at the primary site (LR-01A) is 2.6 km, whereas it is only 1.9 km at the alternate site (LR-05A). The alternate site is 700 m shorter and all major objectives could be reached by double coring at LR-05A at much lower cost. There would also be the possibility of drilling a second short site to recover an expanded Quaternary-Upper Neogene sequence. The proponents submitted an addendum on April 25th, 2016 where they added seven additional alternate sites. They included a site location where the Oligocene-Eocene strata could be reached in shallower depths. The main objectives have not been changed.

<u>DISCUSSION on proposal #708:</u>

G. Dickens suggests to drill two holes for pipe depth reasons. D. Weiss questioned the accuracy of the drilling time estimates by the proponents because they were based on the JR. This should be confirmed by ESO (D. Weiss). How can the proponents guarantee that there is no sea ice during that time (D. Weiss)? Sea ice is highly variable and the ice cannot be predicted (G. Dickens). The advantage of ACEX-2 is that it is closer to the margin of the Arctic, i.e. the ice is generally thinner, especially during the late summer (G. Dickens). The problem is to stay on station for 29 days (G. Dickens). Furthermore, there is a problem because some hole locations were not exactly on site, but they were off by a couple of

kilometers (D. Weiss). SEP addressed this issue last year, but the proponents did not respond (D. Mallinson).

4.4.2 Drilling operations and costs (D. McInroy)

(17:30)

D. McInroy presented the recent history of proposal #708. The original proposal required too much pipeline and a special vessel, which does not exist leading therefore to significant costs. After the last EFB meeting in March 2015 the proposal was scheduled for 2018 with a $15 M USD cap on cost to ECORD. ESO was asked to work together with the proponents on selecting sites that are technically and financially feasible and to ensure that the primary objectives of the original proposal do not change. In June 2015 ESO and the proponents met in Edinburgh to discuss technical and logistical challenges of the proposal, and how sites could be modified to be less demanding (e.g. aim for a total pipe length to be less than 2 km). In April 2016 the proponents submitted a new addendum to ESO and the EFB. They also updated the SSDB with new site survey data. The EFB has to decide if a second SEP review is required.

Three alternate sites require a pipe length of less than 2 km (LR-04A, LR-06A and LR-07A). Here, the water depth is less than 800 m and the upper part of the section is likely to be disturbed and incomplete. Therefore, an option would be to split the sequence into two sites: 1) Quaternary, Pliocene and Miocene (e.g. site LR-05A: coring from seafloor to about 700 mbsf) and 2) Oligocene-Eocene (e.g. site LR-04A: coring from 525 to 1020 mbsf). A final site selection could be made nearer the operation to keep flexibility to deal with ice conditions. D. McInroy presented some possible drilling options with feasible costs:

2 x ~1000m holes (e.g. LR-04A & -05A)	$12.9 – 19.0M	- 83-108 days (too long)
2 part holes/split (e.g. LR-04A & -05A)	$11.1-16.2M	- 65-83 days (maybe too long)
1 x 1150m hole (e.g. LR-05A)	$9.3-14.0M	- 53-69 days
1 x 750m hole (e.g. LR-09A)	$7.9-12.0M	- 41-53 days

The duration includes the transit from and to the harbor Tromsø. Two alternate sites (LR-05A and LR-09A) require a pipe length of about 2 km and they are in a water depth of about 900 and 1250 m that means the top section should be undisturbed. The proponents think that they can reach the objectives by drilling at one of these two alternate sites. These costs assume no icebreaker/ice management costs and no passage fees. ESO recommends a one-hole strategy.

D. McInroy presented the timeline for proposal #708:

June 2016: E-FB decision on revised sites – ESO need a final green light.

Autumn 2016: ESO start tendering for platform and drilling services. ***Note: Tender for drilling services for ACEX1 was issued 17 months before the expedition, which at the time was considered to be a tight schedule.***

Early 2017: Contract negotiations, detailed operational and science planning, integration of ice breakers and ice management.

Mid-2017: Call for Scientists, further science planning.

Late Summer 2018: Offshore operation.

Late 2018/early 2019: Onshore Science Party.

DISCUSSION on one-hole option for proposal #708:
Did the proponents agree on drilling only one hole down to 750 m (G. Lericolais)? The proponents would accept this option although it is not of high priority for them (D. McInroy). Maybe it is possible to choose the one-hole option and if the results are good to go back again in the future (G. Lericolais).

How good is the site selection and how much flexibility exists in choosing one site or another one in order to achieve the scientific objectives (D. Weiss)? The pdf images look fine but SEP could re-review this issue and fast track it just after the SEP meeting (D. Mallinson). SEP should assess the site selection (D. Weiss).

There are two major items that the proponents want to accomplish: 1) to get through the pink and orange reflectors (presumably pre-Neogene) and 2) to get a Pliocene sequence with fast sedimentation (G. Dickens). The best strategy from the scientific point of view is to drill one site to reach the pink and orange reflectors at a modest depth, and a second site where the overlying Pliocene sequence is maximized (G. Dickens). ESO recommends drilling only one hole in order to stay in the budget (D. McInroy). For one hole it is needed to go down to the base in order to get to the pink reflector and for the second hole maybe only the upper 200 m are needed (G. Dickens). It is necessary to go back to the proponents (G. Lericolais). The seismic lines are needed (G. Dickens). Drilling two holes is risky because the operation may be not completed due to sea ice (D. Smith). With minimum transit times it would be possible to go back to a hole (G. Dickens). By drilling two holes there is a bigger risk in not completing because of missing and lost sections and not getting all recovery (D. Smith). ESO has to work with the proponents to get the science done as cheap as possible (J. Austin). The primary objective is the Oligocene section that can be reached by drilling only one hole (K. Miller). The secondary objective is the high sedimentation rate in the Pliocene that can be reached by drilling a shorter second hole (K. Miller). By doing this, the expedition would be still in the budget (K. Miller). G. Lericolais suggests to send a letter to the proponents regarding the drilling options and to ask SEP for a fast review. The data

look good and the scheduling should not depend on the review of the alternate sites (D. Mallinson).

4.3 716-Full2 Hawaiian Drowned Reefs (holding bin)

4.3.1 Summary of objectives, SSD and previous EFB decision (G. Dickens)

(17:59)

G. Dickens presented the background and status of proposal #716. This proposal is in the holding bin since 2012. It has always been a high-priority proposal with very good reviews that was well-received by SEP (but in 2008) and the EFB. The issue for implementing this proposal is money and technology. It is a mid-cost proposal and it has to be discussed if the seafloor drills can reach the target.

J. Webster and crew located and examined old PROD drilling cores from subsiding reef terraces in NW Australia. They also made a huge compendium of bathymetry. Furthermore, they dated « grab » samples from SE Hawaii. There is the possibility of having an ADP.

COMMENT:

The PROD drilling cores from NW Australia were drilled in 2006 in a water depth of 80 m and down to 30 mbsf (S. Gallagher).

4.3.2 Drilling operations and costs (D. McInroy)

(18:11)

There is no new update since March 2015 except a slight cost revision. The proposal is technically feasible using a geotechnical ship with a coring rig. The deepest penetration is of 180 mbsf. This is beyond the reach of the current seafloor drills, but it is potentially reachable with the MeBo 200. The ESO cost estimate is of $3.8M to $7.3 M USD assuming the use of a seafloor drill and a research vessel (69-131 days). Using a geotechnical ship would cost between $7.9 M and $12.5 M USD (32-49 days). The proponents are willing to wait for either drilling option.

DISCUSSION on proposal #716:

MeBo200 was in full operation on the RV Sonne cruise to the Hikurangi subduction margin in April-May 2016 where it successfully drilled at one site 106 mbsf with 100% recovery (K. Gohl). The system worked well in this lithology. Other sites were also successfully drilled. There are still some limitations on the magazine to hold more than 105 m or 110 m of cores but this has been already changed according to T. Freudenthal from the MARUM in Bremen (K. Gohl). It is questionable if the MeBo200 will be capable to drill in reefs (K. Gohl). The PROD drilling cores from the Ashmore reef in NW Australia were drilled in a water depth of 80 m with a recovery of 80% (S. Gallagher). 26 short cores of 25 m were drilled.

A geotechnical vessel was used for the Tahiti expedition. The price for the Hawaii expedition using a geotechnical vessel is reasonable. However, there is a depth limit of about 600 mbsf for using the piggy back coring like it was used for the Tahiti expedition (D. McInroy). MARUM reserved both MeBo systems for 2020 and 2022, however, they will need some commitment for the reservation time (K. Gohl). ECORD should not wait for too long because there is a huge demand for both systems (K. Gohl).

The proponents should be asked if they can accomplish their objectives by drilling less than 180 mbsf (D. Mallinson). The proponents came back with revised penetration depths with most of them being between 100 mbsf and 120 mbsf (D. McInroy).

The meeting was closed at 18:21.

June 16th, 2016

(8:38)
G. Lericolais opened the meeting.

G. Dickens presented a follow-up on proposal #708 "Central Arctic Paleoceanography". He presented seismic lines for the original ACEX cruise on Lomonosov Ridge. The shallowest site (LR-07A) to hit the orange horizon and to reach the Eocene requires a pipe length of 1490 m. At this site the water depth is of 765 m and the drilling would be 725 mbsf. A maximum Pliocene section can be drilled at a different site (LORI-5B) where the yellow horizon (top Miocene) can be reached at 330 mbsf and a water depth of 1330 m, i.e. a pipe length of 1660 m would be required. According to this 1.5-hole option both objectives could be reached at a shorter time and lower costs. G. Dickens suggests drilling the long hole first.

4.5 730-Full2 Sabine Bank Sea Level

4.5.1 Scientific objectives (S. Gallagher)

(8:42)
S. Gallagher presented the scientific objectives and the drilling plan of proposal #730. This proposal was forwarded to the EFB in 2016 and includes 11 primary sites at water depths of 26-1400 m with a penetration depth of 150 m.

4.5.2 Site survey data (D. Mallinson)

(8:49)

D. Mallinson presented the proposal history and site survey data. In June 2016 the proposal was forwarded to the EFB with « excellent » rating. Six drill sites are located on Sabine Bank and five sites are located on Bougainville Guyot with a penetration depth of 150 mbsf each. There are mostly minor data issues. Additional high-resolution multibeam data and video data may be required for the deployment of the MeBo.

DISCUSSION on proposal #730:

The MeBo200 requires a minimum water depth and 14 m will be too shallow (K. Gohl). J. Austin announced an institutional conflict of interest and mentioned the shallow water and a significant swell. According to T. Freudenthal (MARUM, Bremen) the MeBo has to be deployed from a crane boat in 10 m of water and from a research vessel in 25 m of water (S. Morgan).

The top of these reefs is mainly coral debris (J. Austin). There are living corals surrounded by rubble (J. Austin). On the surface of Bougainville Guyot there are patch reefs that can be seen as mounds in the seismic profiles (D. Mallinson). The proponents demonstrated at one site on Bougainville Guyot that they got pristine corals but the recovery was not good (D. Mallinson). The proponents do not know what is below the surface of Sabine Bank (D. Mallinson). It has to be addressed that the water temperature is 25-30 °C (D. Mallinson).

In Tahiti a good recovery was achieved because of the cementation by microbialites (S. Morgan). The recovery was much less in the absence of microbialites (S. Morgan). It still has to be seen if the MeBo is appropriate because so far they did not drill in this enviroment (S. Morgan). A geotechnical vessel could be used on the shallow Sabine Bank sites (D. McInroy). However, a minimum water depth is needed due to the swell (D. McInroy). The variability of the seabed like in Tahiti requires very detailed bathymetry, especially for the seafloor drill (D. Smith). Furthermore, more information on sea states is needed due to ocean swells coming into shallow water (D. Smith). High-resolution bathymetric survey has to be required (K. Miller).

4.5.3 Drilling operations and costs (D. McInroy)

(9:08)

The ESO cost estimate is of $4.8 M to $9.5 M USD with a seafloor drill and a research vessel as IKC. 150 mbsf is beyond the current reach of the BGS RD2 and the MeBo. It is potentially reachable using MeBo200. Assuming a coring rate of 10-20 m per day the expedition prediction is very long (93-175 days). The number of sites could be reduced.

DISCUSSION on proposal #730:

Using a geotechnical vessel would cost between $9 M and $14 M USD (D. McInroy). In this case, two styles of coring would be needed for the two banks. A kind of JR coring at the

deeper sites and piggy back coring at the shallow sites (D. McInroy). Could the JR drill the deep sites (G. Lericolais)? Theoretically the JR could drill the deeper sites, but the JR has no good record in drilling reefs (D. McInroy). The recovery of site 831 (Leg 134) using the JR was very bad except for the top 10-20 m (K. Miller). Drilling shallow carbonates during Expedition 356 « Indonesian Throughflow » in 2015 reached a recovery of 10% (S. Gallagher). This recovery is similar to Expedition 359 « Maldives Monsoon and Sea Level » (M. Malone). The EFB should read 831 carefully (G. Dickens). They found pieces of corals but several of them have been recalcified. It will probably not be a whole coral sequence but fragments are expected (G. Dickens).

4.6 879-Full Corinth Active Rift Development

4.6.1 Scientific objectives (S. Gallagher)

(9:15)

S. Gallagher presented the scientific objectives and the drilling plan of proposal #879. This proposal was submitted in 2014 and it has been forwarded to the EFB on June 1st, 2016. The proponents propose six sites at water depths of 347-862 m and with penetration depths of 480-750 mbsf. A drill ship has to be used, however, the *JR* cannot be used due to the low Rion Bridge and the narrow Corinth Canal.

4.6.2 Site survey data (D. Mallinson)

(9:23)

D. Mallinson presented the site survey data. The proponents proposed three primary and three alternate sites. There are only minor remaining issues to be solved.

4.6.3 Drilling operations and costs (D. McInroy)

(9:28)

The ESO cost estimate is of $12.1 M to $17.4 M USD drilling the three primary sites with a geotechnical vessel (69-88 days).

4.7 Other proposal(s) that could be potentially forwarded by SEP in the future

4.7.1 Summary of scientific objectives (K. Miller)

4.7.2 Site survey data (D. Mallinson)

(9:34)

K. Miller and D. Mallinson summarized the scientific objectives, the drilling plan, the site survey data and the current status of eight MSP proposals at the SEP (Table 9).

Table 9: MSP proposals at SEP. Order is according to relative maturity (top is more mature than bottom). Status : June 2016

Proposal	Short Title	Proponent	Country	Ocean	Drill Platform	Status
852-CPP2	North Sea GlaciStore	Stewart	USA	Atlantic	drill rig	07/15: revise
ADP / 796-Full	NADIR Nice Amphib. Drilling Ligurian Landslide	Kopf	Germany	Mediterr.	geotech rig; MeBo	01/15: subm. to ICDP 07/15: revise
866-Pre	Japan Trench Paleoseismology	Strasser	Switzerl.	Pacific	long-piston coring	01/15: submit full prop.
863A-Pre	PePSI-SO: Pleistocene Paleoc.- SW Indian sector, SO	Crosta	France	Southern	long-piston coring	New daughter prop for 863 MDP 04/16 submitted
797-Pre	Alaska Beaufort Margin	Ruppel	USA	Arctic	drill rig (or JR)	05/12: submit full prop. or MDP with 806
806-Pre	Beaufort Gas Hydrate	Paull	USA	Arctic	geotech rig	05/12: submit full prop. or MDP with 797
812-Pre	Ross Sea Glacial History	Wilson	USA	Southern	seabed drill	12/12: submit full prop.
896-Pre	FANA: North Atlantic Fjord Sediment Archives	Giraudeau	France	Arctic	Long piston-coring	04/16 submitted

852-CPP2: North Sea GlaciStore

The proponents proposed four primary and eight alternate sites at a water depth of 70-180 m and with 30-800 m penetration depths. A reprocessing of some site survey data is needed. CPP2 was received in April 2016.

DISCUSSION on proposal #852-CPP2:

Water depths of 80-100 m are feasible with the JR (S. Gallagher). Originally this proposal was thought to be a riser proposal, which was therefore pushed to a MSP proposal (S. Morgan). In the revised proposal riser drilling was not needed anymore (S. Morgan). The proponents do not decide on the platform being used but SEP and the EFB have to discuss and to find the best drilling platform (K. Gohl).

This proposal is listed as a CPP but the proponents did not indicate where the funds come from (K. Miller). Proposal #852 came into the system as a riser proposal and not as a CPP (A. Koppers). There is a big price difference if the proposal is implemented with a MSP or the JR (A. Koppers). D. McInroy announced a conflict of interest because this proposal is led by the BGS. The potential sponsors will not sign up and fund this proposal until it is being scheduled and the EFB will not schedule the proposal until the industry support is clear (D. McInroy). A tentative scheduling decision could allow the proponents to secure additional funding (D. McInroy). SEP will get the reviews back in January 2017 and talk with the proponents about potential funding sources. Then SEP will come back to the EFB in 2017 (K. Miller). Getting money from the oil industry is at the moment problematic (K. Miller). This proposal has spectacular data in an area of high interest (K. Miller). They will not drill the reservoir because the units are to deep (K. Miller). The proponents want to evaluate the

geochemical properties of the cap rock (K. Miller). This addresses one part of the IODP Science Plan that is at the moment not well covered (K. Miller). They could potentially get additional funding not only from the oil industry but also from governments (K. Miller).

ADP/796-Full: Ligurian Landslide/ADP: Nice Amphibious Drilling

The proponents proposed four primary and four alternate sites at a water depth of 20-104 m and with 60-150 m penetration depths. Good site survey data exist but few items are missing and there are some inconsistent interpretations. The proposal was submitted to ICDP in January 2015. In July 2015 the proponents were asked for revision.

866-Pre: Japan Trench Paleoseismology

The drilling plan includes 25 sites plus two *Chikyu* sites at a water depth of 6800-8000 m and with a penetration depth of 50 m. This is a long-piston coring proposal. The proponents were asked to produce bathymetric maps. SEP asked the proponents in January 2014 to submit a full proposal.

COMMENT:

JAMSTEC developed a new multipurpose research ship, RV Kaimei, which is equipped with a 40-meter long piston corer (F. Inagaki).

863A-Pre: Pleistocene Paleoceanography

The proponents proposed eight primary sites at a water depth of 900-5290 m and with a penetration depth of 60 m. This long-piston coring proposal was submitted in April 2016 and it is a daughter proposal to 863-MDP. Proposal #863A was not yet reviewed by SEP. The proponents have to address why they want to use long-piston coring.

797-Pre: Alaska Beaufort Margin

The drilling plan includes three primary sites at a water depth of 20-80 m and with a penetration depth of 600 m. The full proposal was submitted in May 2012. There are plenty of site survey data but they are not in the data bank, i.e. they were not reviewed by SEP. The proponents gave no feedback since four years.

806-Pre: Beaufort Gas Hydrate

Proposal #806 is in the same situation like proposal #797. The drilling plan includes five primary sites at a water depth of 50-300 m and with 100-300 m penetration depths. The full proposal was submitted in May 2012. There are no site survey data in the data bank. SEP suggested to combine or to coordinate proposals #797 and #806. If there is no feedback from the proponents, this proposal will be deactivated.

812-Pre: Ross Sea Glacial History

The proponents proposed eight primary sites at a water depth of 566-698 m and with 60-80 m penetration depths. This seabed drill proposal was submitted in December

2012. There are no site survey data in the data bank. This proposal will probably be deactivated.

896-Pre: North Atlantic Fjord Sediment Archive
The drilling plan includes 22 primary sites at a water depth of 857-900 m and with 12-70 m penetration depths. This long-piston coring proposal was submitted in April 2016. There are no site survey data in the data bank.

DISCUSSION on MSP proposals:
There is no money until at least 2020 in the ECORD budget, i.e. there is no pressure for the proponents to revise the proposals (G. Dickens). That is why only long-piston coring proposals are coming into the system (G. Dickens). Over the last years a message was sent to the community that ECORD has only limited money for mid- and high-cost proposals (K. Gohl). Potential proponents can access the long-term schedule because the meeting minutes are public (K. Gohl). The EFB should not decide to schedule an expedition for FY19 but to discuss several scenarios and to make a provisional schedule (K. Gohl). Proposals should not be deactivated immediately but to communicate with the proponents (G. Dickens). It could be communicated that there is a potential for their proposal to be scheduled if they submit for example their site survey data to the data bank (D. Mallinson). Proponents should be encouraged to hold a workshop (K. Miller). Proponents should get the chance to respond and maybe to organize a workshop (D. Mallinson).

4.7.3 Drilling operations and costs (D. McInroy)
(10:10)
D. McInroy presented ESO cost estimates for MSP proposals at the SEP, except for proposals, which are since 2012 in the system and are without any activity:

#852: $11.8 M to $21.7 M USD assuming no IKC
#796: $1.9 M to $3.5 M USD using a drill rig on a pontoon to drill the offfshore sites
#866: $1.6 M to $2.0 M USD assuming a research vessel as IKC
#863A: $1.3 M to $1.5 M USD assuming a research vessel as IKC
#896: $1.7 M to $2 M USD assuming a research vessel as IKC

4.8 Discussion on possible MSP scheduling strategy (G. Lericolais/All)
(10:14)
G. Lericolais gave an overview of MSP proposals at the EFB and at the SEP. The questions is what to do with proposals in the waiting room. The results that have been obtained with the MeBo should be discussed. The Atlantis Massif expedition will be reviewed in October 2016. The EFB proposed to rank the proposals by trying to balance between costs and scientific impact. New proposals received from SEP and proposals at the SEP have to be prioritized.

5. Preview of MSP operation schedule for FY 2019 – 2023 (G. Lericolais/All)

(10:22)

G. Lericolais presented the long-term schedule of MSP operations:

2015	2016	2017	2018	2019	2020	2021	2022	2023
758 (Exp. 357) Atlantis M. MeBo & RD-II LC	**548 (Exp. 364) Chicxulub** jack-up MC	none (? LC)	**813 Antarctic** RD-II LC-MC **708 Arctic** drill ship HC	**N.N.** LC	**N.N.** LC seabed drill	**N.N.** MC	**N.N.** LC seabed drill	**N.N.** HC

LC = low-cost (< $8 M USD), MC = mid-cost ($8-15 M USD), HC = high-cost (> $15 M USD)

MeBo70 and MeBo200 are reserved for 2020 and 2022. A reservation for the RD2 has been requested.

(10:24)

coffee break

(10:51)

Break-out meeting of G. Lericolais, G. Dickens, K. Gohl, F. Inagaki and N. Hallmann.

MSP proposals that are currently at the EFB were discussed during this breakout meeting.

(12:10)

lunch break

(13:00)

6. Procedures and issues regarding EFB activities and MSP operations

6.2 UNCLOS (W. Roest)

(13:00)

W. Roest presented the United Nations Convention on the Law of the Sea (UNCLOS), wich entered into force in 1994. It defines different maritime zones with respective rights and obligations, and declares the international 'Area' common heritage of mankind. The continental shelf is defined in Article 76. There are following maritime zones from the shelf to the high seas: 1) Territorial Sea (12 NM), 2) Contigious Zone (12 NM), 3) Exclusive Economic Zone (until 200 NM), 4) Continental Shelf (beyond 200 NM) and 5) the international area.

Information on the limits of the continental shelf shall be submitted by the coastal State to the Commission on the Limits of the Continental Shelf. The commission shall make recommendations to the coastal States. The limits of the shelf established by a coastal State on the basis of these recommendations shall be final and binding. 21 experts are elected every five years according to UN rules. To date 22 recommendations have been issued. The International Seabed Authority is an autonomous international organization that organizes and controls activities in the Area, particularly those related to resources of the seabed and the subsoil. The Area and its resources are the common heritage of mankind. The International Tribunal for the Law of the Sea is an independent judical body that has jurisdiction over any dispute concerning the interpretation or application of the Convention.

Marine scientific research: Article 87 says that in the high seas there is freedom of scientific research. Article 143 states that marine scientific research shall be carried out uniquely for peaceful purposes and for the benefit of mankind. There are further articles on marine scientific research in the UNCLOS:

1) Article 238: Right to conduct marine scientific research
2) Article 239: Promotion of marine scientific research
3) Article 240: General principles for the conduct of marine scientific research
4) Article 245: Marine scientific research in the territorial sea
5) Article 246: Marine scientific research in the exclusive economic zone and on the continental shelf
6) Article 248: Duty to provide information to the coastal State
7) Article 249: Duty to comply with certain conditions.
8) Article 256: Marine scientific research in the Area
9) Article 257: Marine scientific research in the water column beyond the exclusive economic zone

Marine scientific research in the territorial sea shall be conducted only with the express consent of and under the conditions set forth by the coastal State. Marine scientific research in the exclusive economic zone and on the continental shelf shall be conducted with the consent of the coastal State. All States and competent international organizations have the right to perform marine scientific research in the Area and in the water column beyond the limits of the exclusive economic zone.

In the territorial sea the coastal States rules apply. Within 200 NM consent is required and coastal States may exercise their discretion to withhold consent. For the continental shelf beyond 200 NM coastal States may not exercise their discretion to withhold consent. The situation in the international area is still unclear.

DISCUSSION on UNCLOS:

The Russian application for the Arctic may have implications for the Arctic MSP drilling (K. Gohl). The sub-commission will start the examination of Russia's revised submission (W.

Roest). In 2001 Russia was the very first State to make a submission (W. Roest). At this time Russia's submission was not accepted by the commission. There are many overlapping claims in the Arctic. The commission can only give recommedations and all States involved need recommendations (W. Roest). If some States protest against another State, the rules of procedure of the commission cannot go further in the process (W. Roest). There is one UNCLOS paragraph with respect to the rights to the continental shelfs stating that these rights exist without occupation or without expressing claim (W. Roest).

6.1 Amphibious Drilling Proposals: Improved Preproposal Stage, Workshop Funding Guidelines and Implementation Plans (D. McInroy)

(13:36)

In June 2016 the joint ADP Review Guidelines have been agreed.

In summer 2015 an ADP Implementation Task Force composed of two ECORD (G. Camoin, D. McInroy) and two ICDP members (C. Koeberl, U. Harms) was formed. A single implementation plan is not possible for ADPs. A joint IODP-ICDP operator team should be formed for each ADP on a case-by-case basis. ADPs will take many different forms and coordinated ADP management is essential (joint IODP-ICDP operator team). ADPs can include MSP-, *JR*- and *Chikyu*-type operations.

Scientific management: A joint IODP-ICDP mixed structure for the scientific management should be implemented including: 1) a joint ICDP PI – IODP Co-chief – IODP EPM leadership structure, 2) a single ADP-specific policy on a case-by-case basis, 3) the ADP Scientific Prospectus as the central planning document and 4) the first ADP will serve as a benchmark for future ADP policies.

The funding will be discussed on a case-by-case basis.

Joint staffing: ADPs shall be lead two Co-chiefs (representing IODP), two principal investigators (representing ICDP) and the IODP EPM. There should be two calls but one combined Science Party.

Samples, data, publications: Samples and data acquired during the ADP will be open to all members of the combined Science Party. IODP's sample and data policy will be the general guideline for ADP's. Access to samples during the moratorium period shall be given according to IODP and ICDP rules.

Timing of operations must be kept flexible. Post-cruise activities must be held jointly between the IODP and ICDP members of the Science Party.

4.8 Discussion on possible MSP scheduling strategy (G. Lericolais/All)

(13:50)

In 2018 two MSP expeditions are scheduled: Expedition 373 « Antarctic Cenozoic Paleoenvironment » and proposal #708 « Central Arctic Paleoceanography ». At present no proposal can be drilled until 2019 and there is no scheduling of MSP operations beyond 2018 (G. Lericolais). The recommendations of the EFB Science Board members following the breakout meeting were presented to and discussed with all meeting attendees.

708-Full+Add: Central Arctic Paleoceanography

DISCUSSION on proposal #708:

The recommendation is a two-site approach and to drill 1.5 holes (G. Lericolais). A letter should be sent to the proponents asking them to agree with this proposition (G. Lericolais). A SEP evaluation should be requested on this drilling plan (K. Miller). More than two drill sites are available (G. Dickens). Only the primary site was reviewed (G. Lericolais). The proponents just submitted the information for seven alternate sites (D. Mallinson). It has to be verified that the scientific objectives will be reached by drilling these sites (D. Mallinson). This should be done before the EPSP meeting (D. Mallinson). SEP does not approve sites (H. Given). SEP sends the proposal to the EFB. In contrast, EPSP recommends approval to the operator (H. Given).

- **ACTION (EFB)**: The ECORD Facility Board contacts the proponents of proposal #708 'Central Arctic Paleoceanography' (1) to emphasize the restriction of total string length (2 km) due to budget and operational constraints, and (2) to stress that two sites most likely can accomplish primary objectives. These objectives are to reach through the orange reflector, and to obtain a high-resolution record of the Plio-Pleistocene. The proponents are asked to prioritize the sites they consider best, as well as offer possible sites that are presently within 1 km of currently proposed primary and alternate sites. This information should be directly forwarded to the EFB before July 1, 2016.

- **ACTION (EFB)**: The ECORD Facility Board asks SEP to comment on alternate sites of Proposal #708 that already have been submitted to SEP that can achieve primary scientific objectives within the 2 km total string length restriction. This assessment should be made before the next EPSP meeting (11-13 July, 2016).

DISCUSSION on expedition costs:

How accurate are the provided ESO cost estimates (J. Austin)? The cost ranges are wide but the cost estimated are good (D. McInroy). For example, the costs for the Chicxulub expedition fell into the middle of the estimated cost range (D. McInroy). The safety panel needs to know these numbers (J. Austin). A dialogue between the saftey panel and the operators is needed to make sure that costs are always taken into consideration (J. Austin).

The safety panel recommends the proponents to suggest as many alternate sites as possible to provide flexibility (D. Strack). Costs are highly variable. If pipe depth exceeds 2 km for proposal #708 there will be a significant increase in costs (G. Dickens). A series of sites that meet the scientific objectives is needed. The primary objective can still be reached by changing the pipe length (G. Dickens).

581-Full2: Late Pleistocene Coralgal Banks

DISCUSSION on proposal #581:

It is suggested to deactivate proposal #581 because it is unlikely to be drilled for science reasons. Furthermore, the proponents are not responsive and they did not submit site survey data to the data bank (G. Lericolais).

ECORD FB Consensus 16-06-02:
The ECORD Facility Board decides to deactivate proposal #581 'Late Pleistocene Coralgal Banks'.

637-Full2+Add6: New England Shelf Hydrogeology

DISCUSSION on proposal #637:

Proposal #637 should be kept in the waiting room and should not be ranked at present (G. Lericolais). The proposal will not get better by 2019 (K. Miller). It can be kept in the waiting room but this is not doing a favour to the proponents (K. Miller). It is recommended to go back to the proponents and ask them to update the science (J. Austin). The proponents need feedback so that they can be active (J. Austin). The proponents have been responsive and reduced the budget. They cannot do much more because they already reduced their drilling plan to three drill sites (J. Behrmann). Keeping the proposal in the waiting room will take the drive out of the project (J. Behrmann). A letter should be sent to the proponents stating that ECORD is not able to drill their proposal in the near future (G. Lericolais). They can still improve their research during this time (G. Lericolais). The intermediate action would be not to leave the proposal in the waiting room but to require some response and update over the next years (K. Miller). The proponents should organize a workshop and update their proposal (M. Malone). The proponents are also waiting for input from ICDP on the workshop proposal (C. Brenner). This proposal cannot be drilled with the current ECORD budget (G. Dickens). It should be expressed that the proposal cannot be implemented during the next five years (G. Dickens). Over the last five years ECORD could only implement one high-cost expedition (K. Gohl). A ranking is needed for the high-cost expeditions and this has to be communicated to the proponents (K. Gohl).

- **ACTION (EFB)**: The ECORD Facility Board contacts the proponents of proposal #637 'New England Shelf Hydrogeology' to inform them that despite the strength of the proposal, other very strong and costly proposals were considered. Thus,

ECORD is not able to drill the present proposal within the next five years at currently projected funding levels.

The EFB encouraged the proponents to consider options for de-scoping the proposal at a workshop. Nonetheless, we kept this proposal in the "EFB waiting room" in the hope that greater funding might occur in the second phase of the IODP-ECORD program.

716-Full2: Hawaiian Drowned Reefs
730-Full2: Sabine Bank Sea Level

DISCUSSION on proposals #716 and #730:

There are two sea-level proposals in the system. A geotechnical vessel could be used unless the MeBo200 has been proven successful and therefore could be used in 2020 and 2022 (G. Lericolais). In October 2016 the results of the MeBo drilling during the Atlantis Massif expedition will be discussed (G. Lericolais). The problem with proposal #730 is that both drill sites cannot be reached with the same type of vessel (G. Lericolais). Discussions with the environmental authorization have to be started if a geotechnical vessel is used for proposal #716 in 2019 or 2020 (G. Lericolais). The Hawaiian authorities would prefer using a seafloor drill but using a geotechnical vessel would not be impossible (D. McInroy). As long as no living corals are drilled there is no issue with the permits (D. Mallinson). Sabine Bank is too shallow and too steep for the MeBo, i.e. only a geotechnical vessel could be used (J. Austin). Proposal #730 should be ranked lower than proposal #716 because there is a lot of rubble on Sabine Bank and the recovery is risky (K. Miller). Proposal #716 should be of higher priority than proposal #730 (G. Dickens).

ECORD FB Consensus 16-06-03:
The ECORD Facility Board ranks proposal #716 'Hawaiian Drowned Reefs' as the highest-priority of the existing proposals within the "sea-level theme" and proposal #730 'Sabine Bank Sea Level' a secondary priority.

879-Full: Corinth Active Rift Development

DISCUSSION on proposal #879:

Proposal #879 is a high-cost proposal that is considered as high-priority (G. Lericolais). Facing the renewal ECORD needs one visible, Europe-centered programme like proposal #879 that can be used for the renewal (J. Austin). The science in this proposal is very exciting (K. Miller). The degree of maturity of a proposal is important (J. Behrmann). If the EFB decides that this proposal is of high-priority and the budget works out then it should be implemented (J. Behrmann).

ECORD FB Consensus 16-06-04:
The ECORD Facility Board considers proposal #879 'Corinth Active Rift Development' as high-priority of the existing proposals within the „Earth Connections" theme.

ECORD budget

The EFB underlines the budget situation, which could be problematic in the future (G. Lericolais).

ECORD FB Consensus 16-06-05:
The ECORD Facility Board acknowledges a substantial annual short fall (i.e. $5-10 M) in ECORD funding to accomplish available and anticipated high quality, high impact science proposals that use high cost MSP drilling platforms. This is especially true, considering the renewal of the IODP Memoranda of Understandings (MoUs).

IKCs

Many budget estimations were done based on IKCs. Not many IODP member countries are ready to give free access to their infrastructure (G. Lericolais). Furthermore, each country has its own evaluation procedures. When European scientists apply for access to research vessels, they should also apply at their national evaluation agency for research vessels. IODP could send letters of recommendation to state the importance of the operation (G. Lericolais).

ECORD FB Consensus 16-06-06:
The ECORD Facility Board recommends that the proponents planning to use sea-bed drilling and long-piston coring apply for ship time early in the process within their national agencies to facilitate MSP proposal realization.

- **ACTION (ESO)**: The ECORD Facility Board recommends that ESO contacts international research fleet operators to evaluate possible costs of national research vessels to carry sea-bed drills or use of long-piston cores.

6.5 Policy Issues Related to *JR* and *Chikyu* Facility Boards (G. Lericolais)

(14:41)

The EFB will revise following documents on policies and guidelines: 1) IODP Proposal Submission Guidelines, 2) IODP Guidelines for Site Characterization Data, 3) Guidelines for Joint Review of Amphibious Drilling Proposals and 4) Terms of Reference for *JR*-FB Advisory Panels.

- **ACTION (EFB)**: The ECORD Facility Board members will review documents on policies and guidelines and respond to IODP-SSO.

COMMENT by G. Dickens on ECORD's budget:
If the ECORD budget stays the same and the JR needs extra $3 M USD from ECORD, certainly from US perspective the European involvement can be justified. By having $3 M USD per year less ECORD could implement only two proposals in the next five years. The only solution is to change the ECORD budget and to increase it by at least $3 M USD to cover the JR extra costs. The second solution would be not to send money to the JR, which would also have consequences.

(14:48)
coffee break
(15:22)

6.3 MSP expedition reviews (G. Lericolais)
Not done.

6.4 MSP Complementary Project Proposals (G. Lericolais)
Not done.

7. MSP expeditions seen by ECORD partners: science, operations, funding scheme ("Tour de Table": reps from USA, Japan, ANZIC, China)
Not done.

8. Review of Decisions and Actions (N. Hallmann/G. Lericolais/All)
(15:22)

9. Next EFB meeting (G. Lericolais)
(16:03)

- **ACTION (N. Hallmann)**: to get in contact with potential hosts of the next ECORD Facility Board meeting.

10. Any other business (G. Lericolais)
None.

G. Lericolais closed the meeting at 16:10.

This ECORD Facility Board meeting was organized in cooperation with the Royal Flemish Academy of Science and Arts of Belgium (KVAB).

ROSTER

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** Apologies*

LIST OF ACRONYMS

ACEX: Arctic Coring Expedition
ADP: Amphibious Drilling Proposal
ANZIC: Australian and New Zealand IODP Consortium
APL: Ancillary Project Letter
BCR: Bremen Core Repository
BGS: British Geological Survey
BSRG: British Sedimentological Research Group
CAB: Curatorial Advisory Board
CDEX: Center for Deep Earth Exploration
CIB: *Chikyu* IODP Board
COI: Conflict of Interest
CPP: Complementary Project Proposal
DEDI: Distributed European Drilling Infrastructure
DIS: Drilling Information System
ECORD: European Consortium for Ocean
EEC: ECORD Evaluation Committee
EFB: ECORD Facility Board
E-ILP: ECORD Industry Liaison Panel
EMA: ECORD Managing Agency
EPC: European Petrophysics Consortium
EPM: Expedition Project Manager
EPSP: Environmental Protection and Safety Panel
ESO: ECORD Science Operator
ESSAC: ECORD Science Support and Advisory Committee
ETH: Swiss Federal Institute of Technology
FB: Facility Board
FY: Fiscal Year
ICDP: International Continental Scientific Drilling Program
IFREMER: French Research Institute for Exploitation of the Sea
IKC: In-kind contribution
IODP: Integrated Ocean Drilling Program (2003-2013) & International Ocean Discovery Program (2013-2023)
JAMSTEC: Japan Agency for Marine Earth Science and Technology
J-DESC : Japan Drilling Earth Science Consortium
JFY: Japanese Fiscal Year
JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
JpGU: Japan Geoscience Union
JR: *JOIDES Resolution*
***JR*-FB**: *JOIDES Resolution* Facility Board
JRSO: *JOIDES Resolution* Science Operator
KIGAM: Korea Institute of Geoscience and Mineral Resources
LTBMS: Long-Term Borehole Monitoring System
LWD: Logging While Drilling
MARUM: Center for Marine Environmental Sciences, University of Bremen
mbsf: metres below seafloor
MDP: Multi-phase Drilling Project
MeBo: Meeresboden-Bohrgerät
MEXT: Ministry of Education, Culture, Sports, Science & Technology, Japan
MoES: Ministry of Earth Sciences
MoU: Memorandum of Understanding
MSCL: Multi-Sensor Core Logger
MSP: Mission-specific platform
NanTroSEIZE: Nankai Trough SEIsmogenic Zone Experiment
NERC: Natural Environment Research Council
NM: Nautical mile
NOC: National Oceanography Centre, Southampton
NSF: National Science Foundation
ODP: Ocean Drilling Program
OSP: Onshore Science Party
PDB: Proposal Database
PI: Principal Investigator
QA/QC: Quality Assurance/Quality Control
RD2: Rockdrill 2
SAG: Science Advisory Group
SEP: Science Evaluation Panel
SSDB: Site Survey Data Bank
SSO: Science Support Office
UNCLOS: United Nations Convention on the Law of the Sea
UNOLS: University-National Oceanographic Laboratory System
USSSP: U. S. Science Support Program
XRF: X-Ray Fluorescence

Comment by Carl Brenner per email on August 18, 2016 regarding Agenda Item 7: MSP expeditions seen by ECORD partners:

MSP expeditions can be quite logistically challenging challenging for USSSP because of their multiple phases (offshore and onshore), uncertain end dates of the onshore phase (and sometimes the offshore phase as well), and other variables. They require close coordination and very good communication with ESO. USSSP feels that ESO has been an excellent partner to USSSP on these often challenging expeditions, and that Dave McInroy has been commendably communicative and cooperative. The staffing of Expedition 364 had a number of unusual twists and turns, and USSSP and ESO were able to navigate some difficult issues together in no small part because of this atmosphere of collegiality and collaboration. On the E&O front, Alan Stevenson was also extremely collaborative and helped USSSP place an outreach person on an MSP for the first time.