ECORD

EUROPEAN CONSORTIUM FOR
OCEAN RESEARCH DRILLING

MINUTES

ECORD Facility Board Meeting #6

March 6th–7th, 2018

Venice, Italy

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ROSTER

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* *Apologies*

March 6th, 2018

1. Introduction

1.2 Welcome and meeting logistics (M. Sacchi/N. Maretto)

(9:04)

M. Sacchi welcomed the participants and presented the logistical information. Nicoletta Maretto of the Don Orione Artigianelli Cultural Center in Venice presented the history of this complex.

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

(9:10)

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

1.3 Introduction of participants (All)

(9:14)

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

1.4 Meeting agenda approval (G. Lericolais)

(9:16)

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

ECORD FB Consensus 18-03-01:
The ECORD Facility Board approves the agenda of the ECORD FB Meeting #6.

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

Reports were presented for the EFB (G. Lericolais), EMA (G. Camoin), ESO (D. McInroy/D. Smith), the BCR (U. Röhl), the EPC (S. Davies), ESO outreach (C. Cotteril/U. Prange) and ESSAC (A. Morris).

2.1 EFB: Membership and main activities since last meeting (G. Lericolais)

(9:24)

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), Gretchen Früh-Green (CHE), Ellen Thomas (USA), Stephen Gallagher (AUS), Gabriele Uenzelmann-Neben (GER) and Fumio Inagaki (JPN); 2) the members of the ECORD Executive Bureau: ECORD Council core members, EMA, ESO and ESSAC; and 3) NSF and MEXT with one representative each. New Science Board members since 2017 are Gabriele Uenzelmann-Neben (GER), Gretchen Früh-Green (CHE) and Ellen Thomas (USA). Gabriele Uenzelmann-Neben (GER) will become EFB Chair on 1 January 2019. Stephen Gallagher (AUS) and Fumio Inagaki (JPN) will rotate off the Science Board in 2018.

ECORD FB Action Item 1: ESSAC
To issue a call for applications to fill two positions at the EFB Science Board, preferably from Japan and a non-US *JR* consortium member country, and covering the Deep Biosphere and Earth in Motion themes.

G. Lericolais gave an overview of the MSP proposals at the EFB (Table 1):

Expedition 373 'Antarctic Cenozoic Paleoclimate' was initially scheduled in early 2018 and has been postponed to early 2021.*

Expedition 377 'Arctic Ocean Paleoceanography' was initially scheduled for the Arctic summer 2018.† 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': in the EFB waiting room.

* See confidential annex.
† See confidential annex.

Table 1: Five MSP proposals at the EFB (status March 2018).

Proposal #	Expedition #	Short title	Lead Proponent	Ocean / Sea
at EFB				
637 - Full2		New England Shelf Hydrogeology	Person	Atlantic
708 - Full	377	Central Arctic Paleoceanography	Stein	Arctic
716 - Full2		Hawaiian Drowned Reefs	Webster	Pacific
730 - Full2		Sabine Bank Sea Level	Taylor	Pacific
813 - Full	373	Antarctic Cenozoic Paleoclimate	Williams	Southern Ocean

G. Lericolais summarized MSP proposals at SEP (Table 2):

796-ADP 'NADIR: Nice Amphibious Drilling': no recent activity.

812-Pre 'Ross Sea Glacial History': no recent activity.

863-MDP 'ISOLAT Southern Ocean Paleoclimate': no recent activity.

866-Full2 'Japan Trench Paleoseismology': under external review.

915-Pre 'North Atlantic Fjord Sediment Archives'

931-Pre 'East Antarctic Ice Sheet Evolution'

Table 2: Six MSP proposals at SEP (status March 2018).

Proposal #	Short title	Lead Proponent	Ocean / Sea
at SEP			
796 - ADP	NADIR: Nice Amphibious Drilling	Kopf	Mediterranean
812 - Pre	Ross Sea Glacial History	Wilson	Southern Ocean
863 - MDP	ISOLAT Southern Ocean Paleoclimate	Peterson	Southern Ocean
866 - Full2	Japan Trench Paleoseismology	Strasser	Pacific
915 - Pre	North Atlantic Fjord Sediment Archives	Giraudeau	Atlantic
931 - Pre	East Antarctic Ice Sheet Evolution	Shevenell	Southern Ocean

2.2 ECORD News and Budget (G. Camoin)

(9:35)

G. Camoin presented the ECORD news, the timeline for ECORD's renewal post FY18, the budget situation for FY18 (Tables 3 and 4), the budget projections until FY23 (Table 5) and the MagellanPlus Workshop Series Programme (Table 6).

There are following changes in the ECORD structure:

1) Gabriele Uenzelmann-Neben (GER) is EFB Vice-Chair and will become EFB Chair replacing G. Lericolais (FRA) on 1 January 2019. Stephen Gallagher (AUS) and Fumio Inagaki (JPN) will rotate off the Science Board on 31 December 2018 and need to be replaced.

2) G. Lüniger (GER) is ECORD Council Chair until December 2018. M. Webb (UK) is outgoing Vice-Chair until 30 June 2018. E. Humler (FRA) is the incoming Vice-Chair from 1 July 2018 until 31 December 2018 and will become ECORD Council Chair starting on 1 January 2019.
3) A. Morris (UK) is ESSAC Chair until 31 December 2019. J. Behrmann (GER) is outgoing Vice-Chair until December 2018.
4) B. Westerop (NLD) is a new member of the ECORD Council core group consisting of the Council Chair, the Council Vice-Chair and three additional Council delegates. The current members of this core group are: M. Webb (UK), G. Lüniger (GER), E. Humler (FRA), B. Westerop (NLD) and M. Sacchi (ITA).
5) R. Gatliff (UK) – ESO Chair – will rotate off in March 2018.

ECORD renewal post FY18:
Following ECORD's external evaluation in February-June 2017, the ECORD MoU was updated in January 2018. The ECORD-JAMSTEC MoU was not revisited as it is valid until the end of the current programme. The ECORD-NSF MoU was revisited. ECORD's renewal at the national level is expected between March and September 2018.
ECORD's renewal will mostly rely on 1) science results measured against the Science Plan over the first phase of IODP, 2) the success of ECORD's financial model for platform operations during the first phase of IODP, and 3) the operational plans for all IODP platforms during the second phase of IODP.
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 of the ECORD entities, especially EMA (CNRS) and ESO (BGS).
G. Camoin summarized EEC statements and recommendations: The EEC stated that the scientific achievements of ECORD within IODP are excellent and that ECORD delivers highly significant science on a relatively modest budget. The EEC announced that the MSPs are a success story as they allow for expeditions to non-traditional and shallow target sites. It should be targeted to maintain this truly unique and global research structure. ECORD, as part of IODP, should maintain its strengths in being able to finance and perform MSP expeditions. The EEC recommended 1) to publish a first high impact paper 12-18 months after completion of the cruise; 2) to consider an open access publication strategy in high-level journals; and 3) to actively encourage workshops in the field of "Biosphere Frontiers". Regarding MSP expeditions, the EEC recommended 1) to perform MSP cruises with high scientific potential than having exactly one expedition per year; 2) to strengthen the financial contribution to MSPs (clear need for IKCs); and 3) to strengthen cooperation with other sciences programmes. Concerning the ECORD entities, the EEC recommended 1) to maintain the highly cost-effective and efficient organisation of ECORD; 2) to keep the managment with INSU-CNRS for the next phase 2019-2023; and 3) to keep the current ESO structure, at least for the next phase 2019-2023.

COMMENT on MSP expeditions:
NSF agrees that it is more important to implement an MSP expedition with a high scientific potential rather than implementing one expedition per year (J. Allan).

2019-23 NSF-ECORD MoU:
ECORD and the NSF agree that for the new programme phase ECORD will continue contributing $7 M USD per year to the *JOIDES Resolution*. There will only be a change in the number of ECORD scientists on *JR* expeditions. Seven instead of eight ECORD scientists will sail on each *JR* expedition. In the new phase Co-chief Scientists and Education/Outreach Officers will be counted against participation levels on *JR* expeditions. The number of US scientists (8) and scientists of the associated members (5) on each MSP expedition will not change. In the new phase Co-chief Scientists and Education/Outreach Officers will not be counted against participation levels on MSP expeditions.

G. Camoin continued to present the general timeline for the ECORD 2019-2023 MoU. In November-December 2017 the new ECORD MoU was finalized by EMA and the ECORD Council. At the moment CNRS Legal Department is conducting a final check of the ECORD MoU. At the end of March or in April the MoU will be sent to the ECORD funding agencies for approval and signature. Changes of the new MoU include rewriting the EFB and ESO sections, and adding sections on the MagellanPlus Workshop Series Programme and IKCs.

G. Camoin summarized the ECORD memberships, annual contributions and expenses. At the moment ECORD has 15 member countries. Besides Canada, all ECORD member countries are committed until the end of FY18. ECORD's annual budget usually ranges between $17 M and $19 M USD, mainly due to fluctuations in the currency exchange rates, because not all countries are paying in dollars. France, Ireland and Spain are paying in euros, Denmark in krones and the UK in pounds. However, this budget range does not include additional project-based cash and in-kind contributions. Annual national IKCs and science costs which are in the order of about $7 M USD are also not included. ECORD spends every year $1.1 M USD for science, education, outreach and management. The fixed operational costs are of $2 M USD per year. More than 80% of the ECORD budget is spent on IODP expeditions. ECORD contributes $7 M USD to the annual funding of the *JOIDES Resolution* and about $1 M USD to the annual funding of the *Chikyu*. Every year ECORD has a budget of $6.5 M to $7 M USD available to implement MSP expeditions.

G. Camoin summarized the ECORD budget situation for FY18 (Tables 3, 4). FY17 ended with a positive balance of $9.6 M USD, which was carried over to FY18. Together with the FY18 member contributions of $17.5 M USD (Table 3), the FY18 income will yield $27.1 M USD. The expenses will be of $10.9 M USD without the implementation of an MSP expedition in 2018. FY18 should finish with a positive balance of $16.2 M USD (Table 4). Potential additional contributions (cash, IKCs) are not considered in this calculation.

Table 3: ECORD FY18 budget.

	USD
Germany	5,600,000
France *	4,500,000
UK *	3,450,000
Norway	1,100,000
Switzerland	600,000
Sweden	528,000
Netherlands	500,000
Italy	500,000
Spain *	180,000
Denmark *	152,000
Ireland *	120,000
Austria	100,000
Portugal	90,000
Finland	80,000
Canada	30,000
TOTAL	17,530,000

** Contributions in other currencies*
Exchange rates : 1€=1.22$

Table 4: FY18 member contributions.

	FY18 Income (USD)	FY18 Expenses (USD)
FY 17 balance	9,620,626	
FY 18 contributions	17,530,000	
ECORD-NSF MoU		7,000,000
ECORD-JAMSTEC MoU		0 *
ESO		2,811,526 **
EMA		300,600
MagellanPlus		100,000
ECORD Outreach		66,400
ESSAC		294,158
BCR		332,093
TOTAL	27,150,626	10,904,737
FY 18 balance	16,245,889	

Exchange rate : 1€=1.22$

** Payment deferred to 2019*
*** Fixed operational costs*

The Amounts in USD are subjected to exchange rate fluctuations

G. Camoin continued to present the predictions for the ECORD FY18 to FY23 budgets (Table 5). The projected FY23 budget is of about $45.6 M USD, on average $9 M USD per year, without the implementation of any MSP expedition. The contributions are based on the 2017 ECORD member contributions, and additional cash and in-kind contributions are not considered in this calculation. The calculation includes an annual 1.5-2% increase of the ECORD fixed costs. This projection also includes the deferred payments to JAMSTEC to be paid in FY19.

Table 5: ECORD budget projections for FY18 to FY23.

	FY 18 (MUS$)	FY 19 (MUS$)	FY 20 (MUS$)	FY 21 (MUS$)	FY 22 (MUS$)	FY 23 (MUS$)
Contributions	17.53	17.53	17.53	17.53	17.53	17.53
Total income	27.150	33.776	38.156	44.486	50.766	56.996
Fixed costs	10.904	13.15	11.2	11.25	11.3	11.35
MSP expeditions	-					
Balance	**16.246**	**20.626**	**26.956**	**33.236**	**39.466**	**45.646**

G. Camoin presented the content of the ECORD Annual Report 2017, which will be published in March 2018.

The MagellanPlus Workshop Series Programme encourages the submission of drilling proposals and concerns all IODP platforms and ICDP. A maximum of 15,000 € is provided for each workshop. There is one call per year with a submission deadline of 15 January. Since 2014 more than 21 workshops were organized and more than 12 drilling proposals were initiated. Four MagellanPlus workshops will be organized in 2018 (Table 6).

Table 6: 2018 MagellanPlus workshops.

MagellanPlus Workshops 2018	Conveners	Dates	Venue
Fjord sediment archives in the northeastern North Atlantic	J. Giraudeau (F)	Apr. 7-8, 2018	Vienna, A
The North Atlantic Igneous Province continental break-up magmatism and impacts on global warming during the Paleogene	C. Berndt (G) S. Planke (NO) D. Teagle (UK)	May 29-30, 2018	Kiel, G
Understanding Greenland Ice Sheet evolution revealed by drilling a transect on the Baffin Bay – West Greenland margin (909-Full)	P. Knutz (DEN)	mid-Sep 2018	Copenhagen, DEN
Temporal evolution of Arctic gas hydrate and methane seepage systems	A. Plaza-Faverola (NO) S. Vadakkepuliyambatta (NO) J. Knies (NO) S. Bünz (NO)	June 4-5, 2018	Tromsø, NO

Two Special Calls for proposals were issued for the organisation of MagellanPlus workshops on: 1) Demystifying the IODP Proposal Process for Early-Career Scientists; and 2) Initiating concepts for a future scientific ocean drilling programme to be developed beyond 2023.

DISCUSSION on a future scientific ocean drilling programme:
In 2009 a MagellanPlus workshop was organized to prepare the 2009 INVEST conference on the future direction of scientific drilling (G. Camoin). The community has to organise a MagellanPlus workshop in order to get prepared for the 2019 conference on the future of scientific ocean drilling (G. Camoin). The transition between the current programme and a potential future scientific ocean drilling programme will be more challenging than the transition from IODP-1 to IODP-2 (G. Camoin). 2019 will be an important year for the entire programme (J. Allan). The best approach is to have a series of workshops (J. Allan). A new ocean drilling programme has to be planned 3-4 years before the end of the current phase (J. Austin). The science planning should be done first and it should start soon (J. Austin). It is important to talk about technology and first to identify potential leaders for a new programme (G. Camoin). The community has to work on the objectives and this challenging transition (G. Camoin).

An EGU Union Symposium on 50 years of International Ocean Drilling will be organised at the EGU 2018. The conveners will be H. Weissert, G. Panieri and G. Camoin.

G. Camoin announced upcoming ECORD meetings. The ECORD Council Spring Meeting #4 will be held on 18 June 2018 in Berlin, Germany, with G. Lüniger as host. The ECORD Council-ESSAC Meeting #6 will be held on 6-8 November 2018 in The Hague, the Netherlands, with B. Westerop as host. The operational review of Expedition #381 will be held on 6 November 2018 in The Hague.

Scientific Drilling journal: G. Camoin presented the *Scientific Drilling* statistics and highlighted the responsibility of the Co-chief Scientists to publish an article in this journal.

ECORD FB Action Item 2: EFB
To require from the MSP Co-chief Scientists to publish an expedition-related article in the *Scientific Drilling* journal.

COMMENT on Scientific Drilling journal:
The Scientific Drilling journal contacted Co-chief Scientists and asked for articles (M. Malone). The facility boards should contact the Co-chief Scientists and ask for contributions (G. Camoin).

2.3 ESO report and updates on scheduled MSP expeditions (D. Smith/D. McInroy)

(10:07)

D. Smith summarized the offshore operations of Expedition 381 'Corinth Active Rift Development'. D. McInroy presented an update on the Onshore Science Party (OSP) of Expedition 381 'Corinth Active Rift Development', Expedition 377 'Arctic Ocean Paleoceanography' and Expedition 373 'Antarctic Cenozoic Paleoclimate'.

Expedition 381 'Corinth Active Rift Development' – Offshore operations

D. Smith presented the timeline of Expedition 381 'Corinth Active Rift Development'. Drilling tender started on 15 January 2017 and the drilling contract was signed on 26 May 2017. The first mobilisation was done on 3-7 October 2017 in Falmouth, UK when the ESO laboratories were loaded and the veseel drilling mast was removed. On 19-22 October the Science Party, EPMs and the drilling crew joined the vessel and the mast was reinstalled. The offshore phase took place from 22 October to 19 December. The cores arrived on 4 January 2018 in Bremen and pre-OSP measurements started.

The high-end geotechnical drillship *Fugro Synergy* was used to drill three sites at water depths of 350-850 m and target depths of 450-750 mbsf. New techniques to IODP have been tried: the SEADEVIL seabed template and the *Fugro* coring suite of tools. Only a few hours of operation were lost due to the weather conditions.

Penetration rates of the first hole were on average 40-50 m per day and ended up with 30 m a day due to technical problems. As penetration slowed down at 600 m, the vessel moved on to the second hole. The second hole was drilled with up to 50 m a day down to 704 m. The third hole was drilled with 100 m a day for the first two days. Drilling slowed down and finally a target depth of 534 m was reached. Overall, 1645 m of cores were collected with a core recovery of 86%.

COMMENT on SEADEVIL:

The seabed frame is important for what is next, i.e. any future drillship (J. Allan). A lot of engineering work is needed (J. Allan). An operational report will be available (D. Smith).

Expedition 381 'Corinth Active Rift Development' – Onshore Science Party

The OSP just finished. The preliminary report was delayed for the publication of two high-impact papers. The expected submission of these papers is at the end of April 2018 and the preliminary report will be published in late summer 2018. The proceedings will be published on 1 March 2019.

The review of this expedition is underway. An online feedback survey is ongoing and the final review meeting will be held on 6 November 2018 in The Hague.

Expedition 377 'Arctic Ocean Paleoceanography' (ArcOP)

D. McInroy presented the planning progress made in 2017. The tender exercise found a compliant and affordable drillship. A detailed ice management in consultation with the Arctic Marine Solutions AB, Sweden, was performed. A secondary icebreaker was secured, the *RV Polarstern*, and a swap with the *RV Oden* was arranged. A Co-chief meeting was held in August 2017 to discuss the site strategy and a call for scientists was issued.

There was continued activity to secure an IKC from the Russian Federation. In May 2017 Russian participation in ArcOP was given support at an ministerial meeting. ESO was asked in July 2017 to submit further details on the expedition plan and the requested IKCs. In September 2017 the *RV Oden/RV Polarstern* arrangement could not be held without an expedition confirmation. ESO reported to the ECORD Council in October 2017 that ArcOP cannot be implemented in 2018 with the current budget and without all IKCs. Following the ECORD Council decision, ESO continued to pursue a Russian IKC until March 2018 with the aim for a 2019 operation. In November 2017 a new Ministry contact was identified by the British Embassy. The Russian IKC is not forthcoming. Only a few Russian nuclear icebreakers are currently in service. The *RV Oden* is not available in 2019, but possibly in 2020 and likely in 2021. The required passage fees for two vessels would be several $100,000 USD.

The conclusion is that ArcOP cannot be implemented before 2020, probably 2021. An extra $6 M USD would be needed to cover the lack of the Russian IKC (icebreaker plus passage fees). A discussion with the Russian Ministry of Natural Resources must take place. Next week the Russian Minister for Education and Science is visiting London.

D. McInroy presented cost estimates for three different scenarios.*

DISCUSSION on ArcOP:

E. Thomas mentioned a German-Russian meeting that was held last month. There is no feedback from this meeting (D. McInroy/G. Camoin). Besides the actions by ESO towards Russia, actions especially by German scientists like Rüdiger Stein and Jörn Thiede have been performed (G. Camoin). Russian scientists are convinced, however, their message did not go through (G.Camoin). R. Stein met representatives of the Russian oil company Rosneft, which showed some interest in the ArcOP expedition (D. McInroy).

A. Koppers asked about the permitting of operating in these waters. The permitting is not linked to an IKC. The operation is not in Russian but in international waters (D. McInroy). An acknowledgement is (not legally) needed that ECORD is doing scientific work in this area (D. McInroy). Russian scientists should participate as observers. It was efficient on ACEX-1 to have a Russian scientist onboard (D. McInroy).

* See confidential annex.

Seafloor drill options

The RD2 has been upgraded and is in a testing phase; the next project will be in October 2018. The MeBo70/200 will be available to IODP in 2020. ESO has reviewed commercial seafloor drill systems which have the advantage of faster coring rates and a slightly better recovery of about 80%. The RD2 and the MeBo have a recovery of 60% and 60-70%, respectively. The disadvantages of these commercial systems are the absence of downhole logging capability and slightly higher costs.

Expedition 373 'Antarctic Cenozoic Paleoclimate'

There are three potential platform possibilities.

- Possibility 1) is the *RVIB Nathaniel B. Palmer* from the US Antarctic Program (NSF). The vessel will be available in early 2019, but in the March to May window, which is an unacceptable risk. The ship is unlikely to be available in 2020-2022. Its availability is funding dependent and ESO will receive a confirmation of availability after April 2018. The *RVIB Nathaniel B. Palmer* would not be an IKC, but a contract arrangement. The costs for the vessel were about $5.5 M USD in 2017.
- Possibility 2) is the *RSV Nuyina*, a new Australian research and supply icebreaker. The first cruise will be in the 2020-2021 Antarctic summer season and the first science-dedicated cruises will be from 2021-2022. There are different options to get access to this vessel:
    - The first option is to get ship time as an IKC, but the expedition will be treated as a research proposal, i.e. it needs to be competitively won. An Australian scientist is needed to lead the submission to the Australian Antarctic Division (AAD). However, indicative priorities for a 5-year science outlook do not include major marine paleoclimate work. A very strong application is needed and other science projects are needed who want to operate in ECORD's area of interest.
    - Another option is to get ship time as an IKC, but the expedition is integrated with the vessel commissioning process. This would be cheaper for ECORD, but there are risks of delay and technical problems.
    - ESO could hire the *RSV Nuyina*. The AAD likes this option, but acknowledges the limit ECORD budget. This option would offer the most flexibility and accomodation by the AAD. The costs are unknown.
    - ESO could hire the *RSV Nuyina* at a reduced rate – the most promising lead. Negotiations are possible.

- Possibility 3) is the use of a commercial seafloor drill and a vessel partner of the seafloor drill company. Vessel details are unknown. Companies are either willing to provide a vessel themselves or to work from a research vessel. D. McInroy presented the latest cost estimates for the use of seafloor drills.*

DISCUSSION on Expedition 373:
G. Lericolais asked for the costs of a drillship with the same capacity like the RVIB Nathaniel B. Palmer. The costs could be slightly lower, i.e. about $4.5 M USD (D. McInroy).

COMMENT on IKCs:
J. Austin asked if the IKC system is a good policy. The IKC system is the model of funding that ECORD is trying to pursue (D. McInroy).

DISCUSSION on MSP proposal pressure:
The low number of MSP proposals is a concern and it arises the question if the expedition planning, like issues with the seafloor drills, affect the writing of MSP proposals (H. Given). G. Camoin agrees with a correlation between expedition planning and the number of MSP proposals. There are several parameters affecting the number of MSP proposals (G. Camoin). ECORD can only implement one MSP expedition per year, which limits the flow of proposals (G. Camoin). High-cost expeditions like the Arctic and Antarctic expeditions limit ECORD's budget. But also difficulties like the postponement of the ArcOP expedition are affecting the number of MSP proposals.

ESO staff changes: R. Gatliff is retiring from the BGS at the end of March 2018. ESO will include the incoming BGS Marine Geoscience Director in the ESO management team.

(11:06)
coffee break
(11:28)

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

(11:28)
U. Röhl gave an update on the Bremen Core Repository (BCR). Core curation includes the documentation, preservation and protection of the cores as well as the promotion of the responsibility of taking samples from the cores for scientific puposes. The BCR currently archives 156 km of cores from the Atlantic Ocean, Arctic Ocean, Mediterranean Sea, Black Sea and Baltic Sea. Since 1969 about 1.67 M samples have been taken from BCR cores.

* See confidential annex.

The BCR team comprises Ursula Röhl (Curation and BCR Manager), Holger Kuhlmann (BCR Superintendent), Alex Wülbers (Curation and Logistics), Patrizia Geprägs (Assistant Lab Manager), Luzie Schnieders (Sample Curation), Vera Bender (Data Management), Ulrike Prange (Outreach and Media Relations), Volker Diekamp (Photographer) and Vera Lukies (Petrophysics).

Curation and sampling: Since March 2017 43,324 samples have been taken of which 12,133 were taken for Expedition 381 'Corinth Active Rift Development'. The BCR helped preparing the offshore phase for Expedition 381 by organizing curation equipment and consumables, working on sampling planning and handling the sample requests. The Expedition 381 OSP was hosted from 31 January to 28 February 2018 during which 485 cores from three sites (1645 m) were curated and IODP standard measurements were performed. For Expedition 364 'Chicxulub Impact Crater' 663 samples were taken for 21 sample requests. A total of 191 archive core half sections were described for either shear faults or trace fossils. XRF scanning was done on 110 archive half sections. A rotating scheme was developed for thin sections shared between seven Science Party members.

Data management: The new Repository Database 'CurationDIS' version 6.3 is routinely used. IGSN numbers have been generated and registered at IGSN e. V. for all samples from MSP Expeditions 302, 313, 347 and 357. The long-term storage of Expedition 364 'Chicxulub Impact Crater' data in PANGAEA has been finalized. In 2017, a new cloud system for expedition data and file management has been set up. The ExpeditionDIS version for Expedition 381 'Corinth Active Rift Development' was defined. The Scientific Earth Drilling Information Service (SEDIS) is continuously maintained at the MARUM.

Education & Outreach: In 2017, the 11th Bremen ECORD Summer School and the 3rd ECORD Training Course were organized. This year is the 12th year of the Bremen ECORD Summer School. In 2018 the topic of the Summer School will be 'Sub-seafloor fluid transport and gas hydrate dynamics'. The Summer School combines lectures and interactive discussions on the main themes of IODP with practical 'shipboard' methodologies. In April 2018 the fourth ECORD Training Course will be held at the MARUM with 30 participants from numerous countries. Overall, 60 applications were received. The participants will be prepared for future IODP expeditions.
In 2017, various tours and live events have been organized at the BCR. Filming was done by a German TV station for the German version of the BBC documentary on Expedition 364 and for an "IODP: Open Data for Global Research" video.

QUESTION about BCR capacity:
J. Allan asked about the BCR core storage capacity. There is still capacity for 40 km of cores, but the BCR applied for more space and will get the decision in March 2018 (U. Röhl).

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

(11:47)

S. Davies presented the activities of the European Petrophysics Consortium (EPC): equipment & measurements, post-expedition activities, preparation for upcoming expeditions, education and outreach.

The European Petrophysics Consortium (EPC) comprises three universities in Leicester, Montpellier and Aachen. The EPC provides petrophysics staff scientists and petrophysicists, and expertise in downhole logging and core petrophysics programmes. The EPC has dedicated equipment for core logging and discrete measurements. Furthermore, the EPC is involved in data calibration, quality control, evaluation and interpretation of these data. As part of ESO, the EPC is involved in post-expedition activities, the preparation of upcoming expeditions, capability development and training for IODP MSP expeditions and other key activities, including education and training.

Preparation for upcoming MSP operations includes in-house Techlog and external Python scripting training, offshore survival training, radiation safety training, thermal conductivity training and Portable Appliance Testing.

Capability development: A 10' logging-dedicated container providing essential environmental protection during logging at high latitudes was developed in Montpellier and has been offshore Corinth. In addition, a new winch with a higher depth of deployment was developed.

IODP Expedition 381 'Corinth Active Rift Development': A permit for the use of a radioactive source in Greek territorial waters was secured. Maintenance and servicing of multi-sensor core loggers and downhole logging tools was done. Ephemeral properties and natural gamma radiation measurements were done offshore using extended capabilities. Downhole logging equipment included the stackable ultra-slimline tools. One tool string was lost on hole M0078A. Good quality data were recorded in the holes M0079A and M0080A. During the pre-onshore measurement phase in Bremen thermal conductivity was measured. The set up was done in December 2017 and the measurement phase started in January 2018. Six EPC staff were present during the Onshore Science Party and equipment from Bremen and the EPC was used. During the OSP moisture & density (MAD), discrete P-wave measurements, digital linescans, color reflectance spectrophotometry, P-wave velocity and geotechnical measurements were performed.

IODP Expedition 364 'Chicxulub Impact Crater': The EPC worked together with the MARUM on QA/QC reports on core physical properties and downhole logging datasets. A Petrophysics Staff Scientist from Montpellier attended the Editorial Meeting on 27-31

March 2017 at College Station. EPC contributed to the expedition review document and attended the Expedition 364 Review Meeting on 20 June 2017 in Lisbon.

Education, training & outreach: EPC is present on the Social Media and has its own blog. In 2017, EPC was involved in the ECORD Summer School in Bremen, the ECORD Training Course and the 3rd ECORD School of Rock. EPC hosted the second ECORD Petrophysics Summer School in Leicester and the third ECORD Petrophysics Summer School will be held from 30 June to 6 July 2018. The deadline for applications is 23 March 2018.

Forward look: Logging scientists of the EPC will participate in IODP Expedition 358 'NanTroSEIZE Plate Boundary Riser 4'. EPC staff will also be present at the MagellanPlus workshop organized by Jacques Giraudeau on 7-8 April 2018 in Vienna.

EPC produces an Annual Report and has a website (http://www.le.ac.uk/epc).

2.6 ESO: Outreach activities on MSP expeditions (C. Cotteril/U. Prange)

(11:59)

C. Cotteril and U. Prange presented post-March 2017 outreach activities on MSP expeditions, proposed 2018 activities and a forward look.

Booths and sessions at international conferences:

AGU 2017 in New Orleans: A joint booth was organized with ICDP, IODP, USSSP and CDEX. A media conference on Expedition 364 was held.

EGU 2018 in Vienna: A joint booth with ICDP, a Townhall Meeting, an outreach poster session on IODP activities, a mentoring programme and lunchtime sessions for educators are planned.

ISC 2018 in Québec City: Planning is in progress.

AGU 2018 in Washington: A joint booth with ICDP, IODP, USSSP and CDEX is planned.

IODP Expedition 381 'Corinth Active Rift Development': A logo was designed and a pre-cruise flyer was completed. The Communications Plan was completed and distributed. Banners and outreach materials are ready and displayed. A press conference was held and a press release was distributed to 170 outlets. There was national press representation and two film crews visited the vessel. A production company in Australia is considering doing something on the expedition. An expedition blog was set up and many visitors are channeled by Facebook. Seventy countries have read one or more blogs.

Prior to the OSP the participants were briefed on why science communication is important. Media activities and social media channels were presented to the participants.

During the OSP a second media day was organized on 22 February wih local and

regional press and TV. Currently, there are eleven articles in both local and national news. A press release was sent to international contacts on 5 March 2018. OSP activities included taking GoPro film shorts, doing video tours, taking photographs, conducting over 15 interviews and generating blogs.

IODP Expedition 377 'Central Arctic Paleoceanography': A logo was designed and a pre-cruise flyer was drafted.

IODP Expedition 364 'Chicxulub Impact Crater': A post-cruise leaflet and education activity were created for Expedition 364.

Future outreach: The goal is to increase the effectiveness of expedition outreach and to ensure a consistent approach to social media usage. Guidelines for the use of social media will be re-drafted to better promote ECORD activities. Twitter and Facebook will be streamlined into one channel for each ('ECORD-IODP'). The same will be done for the YouTube channel. A wordpress blogsite will be set up for each expedition and ECORD should reach out to bloggers and involve them so that wider and new audiences can be reached. ESO now includes guidelines for social media usage, and expedition hashtags to use, as part of the Communications Plan circulated to the Science Party.
"Science in a Suitcase": ESO is devising a series of expedition-related workshop activities and accompanying educational packs that could be distributed to other PMOs for modification and translation by in-country educators. This educational material could travel to museums, festivals and Open Day events. For example, the 'suitcase' for Expedition 364 could include a core replica and microfossils.
A puffersphere could be circulated around ECORD countries to increase ECORD's visibility. This interactive globe could display data and visual media of all MSP expeditions.
EGU Public Engagement Grants: The 1000 € grants will be awarded to two applicants to develop an outreach project. A proposal for the production of a short film that merges visual imagery, the spoken word and scientific content targeting a non-scientific audience was submitted. This film could be displayed at film festivals and museums. The outcome will be presented on 13 Friday 2018 at the EGU.

2.7 ESSAC: Staffing, courses and other activities (A. Morris)

(12:18)
A. Morris gave an overview of the staffing, the ECORD Summer Schools scholarships and the ECORD Research Grants.

Staffing of ECORD scientists on IODP Expeditions:
Expedition 381 (Corinth Active Rift Development): 14 ECORD scientists were sailing including one Special Call (3 from Germany, 5 from France, 1 from Spain, 3 from Norway and 2 from the UK) and plus one UK Co-chief Scientist (see agenda book pages 69-70).
Expedition 372 (Creeping Gas Hydrate Slides and Hikurangi LWD): Eight ECORD scientists (3 from Germany, 1 from France, 2 from Ireland and 2 from the UK) were sailing (see agenda book page 70).
Expedition 380 (NanTroSEIZE Stage 3: Frontal Thrust LTBMS): Two ECORD scientists were sailing including one Special Call (2 from Germany) (see agenda book page 70).
Expedition 374 (Ross Sea W Antartic Ice Sheet History): Eight ECORD scientists (3 from Germany, 1 from France, 1 from Norway, 1 from the Netherlands and 2 from the UK) plus one Italian Co-chief Scientist were sailing (see agenda book pages 70-71).
Expedition 375 (Hikurangi Subduction Margin): Staffing is completed. Eight ECORD scientists are ready to sail including one Special Call (3 from Germany, 1 from France, 1 from Italy and 3 from the UK) (see agenda book page 71).
Expedition 376 (Brothers Arc Flux): Staffing is completed. Eight ECORD scientists are ready to sail (5 from Germany, 1 from Canada and 2 from the UK) (see agenda book page 71).
Expedition 378 (South Pacific Paleogene Climate): Staffing is completed. Eight ECORD scientists are ready to sail (4 from Germany, 1 from Italy, 1 from Switzerland, 1 from Norway and 1 from the UK) plus one German Co-chief Scientist (see agenda book page 72).

Staffing is in progress for Expeditions 379 'Amundsen Sea West Antarctic Ice Sheet History', 382 'Iceberg Alley Paleoceanography & South Falkland Slope Drift' and 358 'NanTroSEIZE: Plate Boundary Deep Riser 4'.

There are open calls for Expeditions 383 'Dynamics of Pacific Antarctic Circumpolar Current' and 385 'Guaymas Basin Tectonics and Biosphere'.

ECORD Summer Schools - Scholarships:
The ECORD Training Course 2018 "Virtual Drillship Experience" will be held at MARUM in April 2018 and will receive a direct support of 6,500 €.
The 2018 ECORD Urbino Summer School in Paleoclimatology will be held from 11 to 27 July and will receive a direct support of 10,000 € plus scholarships to be determined and awarded.
The 2018 ECORD Bremen Summer School with the topic 'Sub-seafloor fluid transport and gas hydrate dynamics' will be held at MARUM from 3 to 14 September and will receive a direct support of 10,000 € plus scholarships to be determined and awarded.
The 2018 ECORD Petrophysics Summer School will be held in Leicester from 30 June to 2 July and will receive a direct support of 10,000 € plus scholarships to be determined and awarded.

ECORD Research Grants:
Thirteen 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 18,000 € and top-ranked research grants will be funded with up to 3,000 €. The selection process is still under way and the awards will be announced mid-May 2018.

DISCUSSION on Education and Outreach Officers:
The objectives of sailing Outreach Officers have to be defined well before an expedition as a berth costs about $400,000 USD (J. Allan). People should have financial support when sailing (J. Allan). Salaries are needed to attract people for sailing on an expedition, however, the focus should be on science communicators rather then teachers (A. Morris).

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

There were reports on the JRFB (A. Koppers), the *JR* facility review (J. Allan), the CIB (N. Eguchi), the Science Support Office (H. Given), the Science Evaluation Panel (K. Miller), the IODP Forum (J. Austin) and ANZIC (L. Armand).

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

(12:26)
A. Koppers presented the Facility Board approach, the *JR* schedule for FY19-20, the long-term *JR* track, improvements in the *JR* Facility and the planned Special Oceanography Volume on scientific ocean drilling.

JRFB Mandate and Role (see JRFB 1705 Consensus Statement 16): The JRFB reaffirms its primary goal of implementing all proposals that are thoroughly reviewed, scientifically evaluated, and forwarded by SEP, and that have been recommended for approval by EPSP. Decisions on scheduling are principally dependent on the planned regional track of the *JOIDES Resolution*; maximizing the fit and balance of proposals to the IODP 2013-2023 Science Plan; funding and ship time availability; and safety, permitting and other logistical constraints.
The JRFB sets terms of references (JRFB, SEP, EPSP) and various policies and guidelines, such as SEP and EPSP-related guidelines, IODP Environmental Principles, IODP Sample and Data Obligation Policy, *JR* 3rd Party Tool Policy, *JR* Facility Conflict of Interest Policy, *JR* Staffing Procedures and *JR* Standard Measurements. The JRFB approves panel membership and leadership (JRFB, SEP, EPSP, CAB).

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 1). Then the *JR* will go back south along the east coast of South America reaching the South Atlantic in 2020, and working in the South Atlantic in 2020 and 2021. Finally, the *JR* will go north again in 2021 along the West African Coast to reach the North Atlantic in 2022 and finally through the Panama Canal into the Western Pacific Ocean. The JRFB expects that the *JR* will complete its global circumnavigation in the Indo-Pacific in FY23 (JRFB 1705 Consensus Statement 9). Immediate proposal pressure is required for high latitude expeditions in the Arctic and North Pacific in 2022-2023. An early call for proposals has to be issued for Indo-Pacific expeditions in 2023-2024.

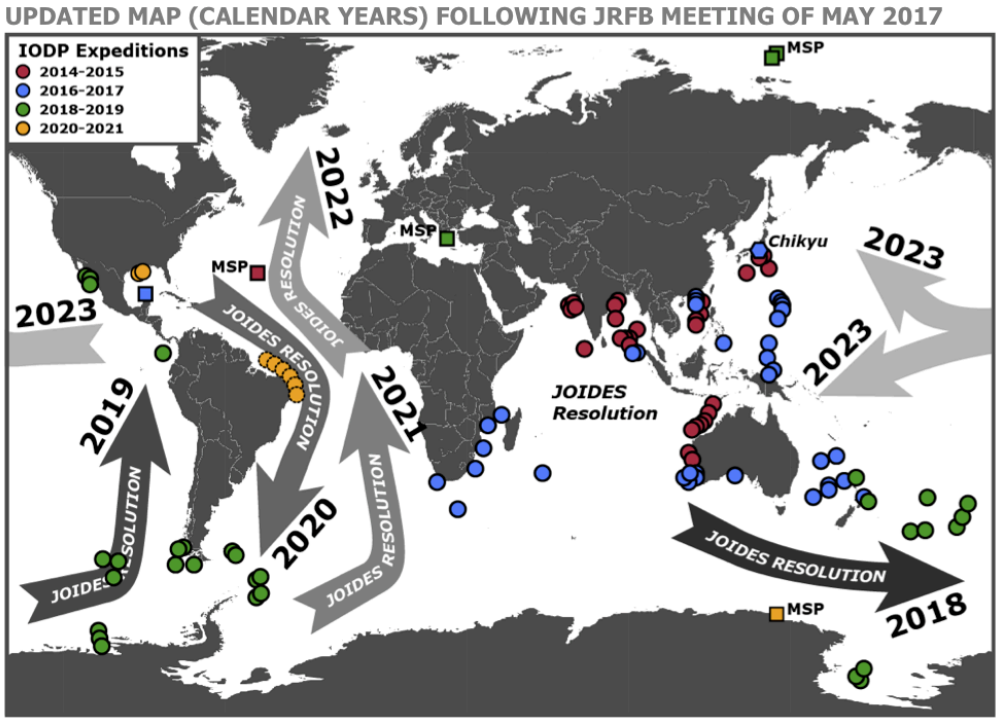


Figure 1: Long-term *JR* cruise track.

Scheduling of the *JR*: Scheduling happens during the May JRFB meeting and it is always done 2-3 years into the future, i.e. in May 2018 the *JR* will be scheduled for FY20-21. Since 2017 the *JR* is at full utilization as it is operating for 10-11 months per year. Since 2014 four CPP expeditions have been implemented and one CPP is planned in the Gulf of Mexico for 2020. An engineering-only expedition will be implemented in 2019. More time and resources have to be allocated to the development of engineering. The JRFB also schedules short and/or hybrid expeditions, such as the Hikurangi expeditions.

A. Koppers presented the *JR* expeditions scheduled for FY19-20 (Table 7). This schedule is subject to funding being available for ship operations in FY19-20.

Table 7: *JR* expedition schedule for FY19-20.

Fiscal Year 1 Oct - 30 Sept	Proposal Expedition	Title
FY' 19	Expedition 378	South Pacific Paleogene
FY' 19	Expedition 379	Amundsen Sea Ice Sheet History
FY' 19	P902 + P846-APL	Combined Expedition Iceberg Alley Paleoceanography and Falkland Water Depth Record
FY' 19	P912	Drake Passage Paleoceanography
FY' 19	Transit / Engineering / P769-APL	Transit to the Gulf of California during which various engineering tests and the Costa Rica Crustal Architecture 769-APL will be carried out (no full science party required)
FY' 20	P833	Guaymas Basin Activity
FY' 20	Transit / Tie-Up / Preparation Time	Transit to the Gulf of Mexico, one-month tie-up period for JOIDES Resolution maintenance and repairs, followed by a two-week preparation time window for P887 Gulf of Mexico operations
FY' 20	**P887-CPP**	Gulf of Mexico Methane Hydrates
FY' 20	TBD	Scheduling of at least one expedition in the western tropical Atlantic

Proposal pressure (Figure 2): There is proposal pressure in the South Atlantic, North Atlantic and Mediterranean with a lot of full and pre-proposals in the North Atlantic.

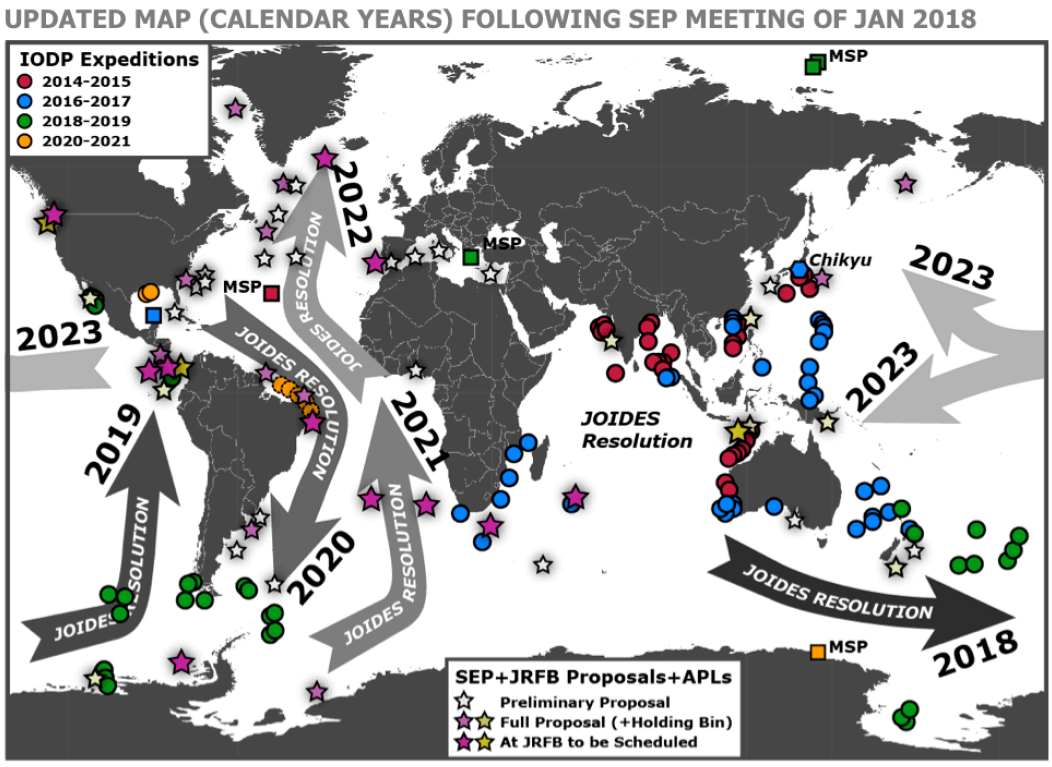


Figure 2: Proposal pressure.

IODP-wide mission Antarctica: Many Antarctic and Southern Ocean drilling proposals are in the system. Three pre-proposals were developed during the ANZIC workshop in summer 2017. So far, six proposals were scheduled, including MSP Expedition 373 'Antarctic Cenozoic Paleoclimate' Regional planning allows fuel saving and combining proposals allows to have a mission.

Improvements in the *JR* Facility: see JRFB 1705 Consensus Statements 7 and 11 (agenda book pages 79-80). The community has to bring forward any particular need to add capabilities and to identify techniques to implement challenging expeditions. Additional engineering resources are needed to improve the operations. Better risk management is needed for deeper holes. In October 2017 a workshop led by JRSO was organized to discuss drilling deeper than 1.5 km into the ocean crust. The recommendations will be considered for the engineering leg in 2019.

Special Oceanography Volume: The Oceanography Society will publish the Special Issue "Scientific Ocean Drilling: Looking to the Future" before the AGU Fall Meeting in December 2018. The overall goal of this special issue is to provide the scientific basis for continuation of scientific ocean drilling into the future and post-2023. It can be used for the development of a new Science Plan. This volume comprises eleven main chapters, up to ten short stories and info boxes, and up to four special features. The guest editors of will be Anthony Koppers, Carlota Escutia, Fumio Inagaki, Heiko Pälike, Demian Saffer and Debbie Thomas. Potential sponsors are the NSF, ECORD, J-DESC and ANZIC.

COMMENT on Special Oceanography Volume:
The ECORD Council accepted the principal of funding this special issue, but requested information about the total budget and funding plans (G. Camoin). The table of contents is done and the next step is to estimate the budget (A. Koppers).

(12:55)
lunch break
(14:16)

3.2 *JOIDES Resolution* Facility Review (J. Allan)

(14:16)
J. Allan presented the FY18 budget, the timeline for the renewal, the *JR* staffing and the NSF Seismic Solicitation.

FY18 budget: The Congress sets the actual appropriation. The financial situation for the *JR* appears stable. For FY18 ten months of operations over five expeditions are planned at $66.8 M USD. Icebreaker support for *JR* operations is additional. The NSF goal is to

have 10 months JR operations per year through FY19. International contributions to *JR* operations support FY18 *JR* operations, i.e. South China Sea CPP funds in addition to the $14.7 M USD base contributions.

JR Facility Review: The 5-year Cooperative Agreement for *JR* operation requires annual and mid-award (3rd-year) reviews. These reviews are used for "mid-course" corrections and for input on renewal or re-competition of the Cooperative Agreement. On 28 February-2 March 2018, the NSF panel met for the review of FY17 operations. A report from the FY17 Co-chief review was received.
The *JR* Facility Review panel is an NSF selected panel, in consultation with the JRFB Chair and JRSO. The Panel Review and Scope follows NSF Large Facilities Office (LFO) guidelines for the review of Large Facilities and the NSF JR CA Internal Management Plan. The report is to NSF. The report is confidential and is shared with NSF financial partners and the JRFB, but the NSF response is public. The panel report gave both three challenges and ten recommendations. The NSF is impressed with the Panel Report and will write a response soon.

JR staffing: At the moment, there are ten U.S. Science Party Members on each *JR* expedition including Onboard Outreach Program members. With the new MoU the size of the U.S. Science Party will increase in FY20. Those sailing under the Onboard Outreach Program are considered as members of the Expedition Science Party and they are in the shipboard party chain of command with the Co-chiefs and the EPMs.
In future Memoranda there will be an increase from $3 to $4 M USD for a full membership in the *JR* consortia. NSF would prefer minimal changes in language, and NSF and ECORD agree on financial and staffing details. Co-chief scientists and Onboard Outreach members will be included in total quota rights and all *JR* berths will be treated equally.

JR Facility Renewal: The NSF GEO Directorate will make soon a decision as to whether to pursue facility renewal. The standard renewal is five years (FY20-24). The National Science Board approves the authorization for expenditure of funds for the facility renewal and does not approve the IODP Program. It is too early for NSF to speculate on post-International Ocean Discovery Program, including platforms and programme(s).

J. Allan presented the timeline for the renewal (Figure 3). 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.

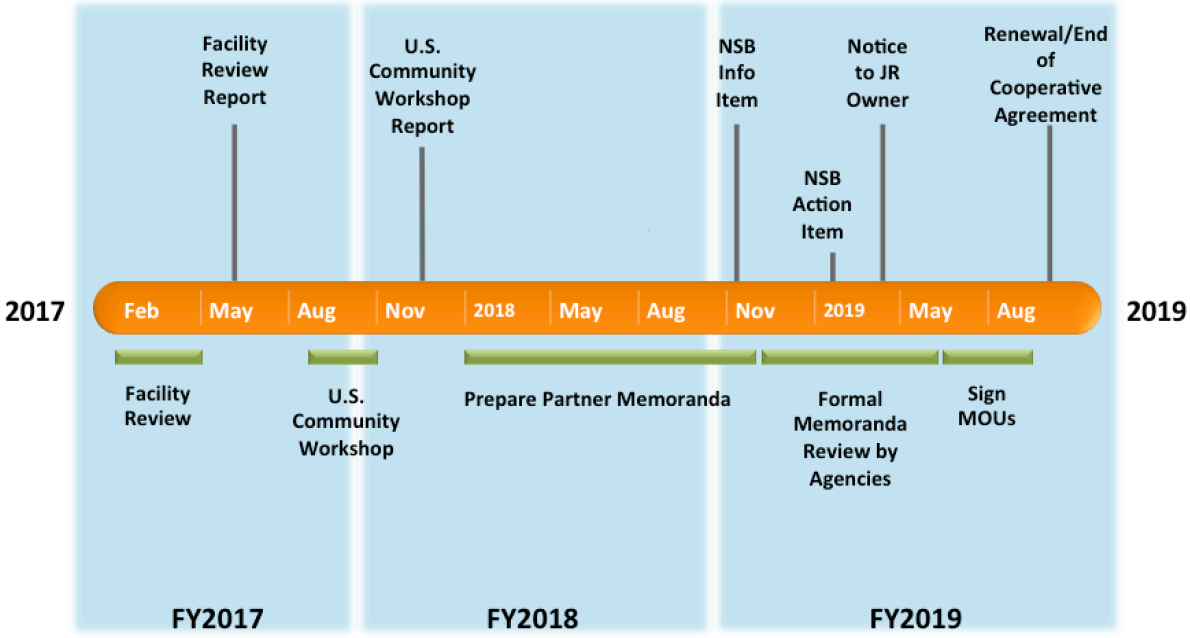


Figure 3: Timeline for the *JR* Facility Renewal.

NSF Seismic Solicitation: There is a solicitation to provide marine seismic capabilities to the U.S. Research Community. This is an up to $50 M USD for 5 years or $10 M USD per year proposal, which was due on August 21, 2017. Proposals were received for a Cooperative Agreement to provide the U.S. Ocean Science community with marine seismic support that is currently provided by the R/V *Marcus Langseth*. The R/V *Marcus Langseth* could be used or not and it could allow the commercial entity to work with academic or non-profit institutions. The panel met in November 2017 and the NSF is determining a path forward, which will be announced shortly.

Other NSF news: William Easterling is the new Geosciences Assistant Director to NSF. Larry Petersen. The Division of Ocean Sciences moved to the new Alexandria location.

(14:33)

SCIENCE TALK: Proposal #637 – *New England Hydrogeology* (B. Dugan)

(15:25)

3.3 *Chikyu* IODP Board (Y. Tatsumi/N. Eguchi)

(15:26)

Y. Tatsumi summarized the consensus items from the 2017 CIB meeting (see agenda book pages 84-86).

CIB Project Coordination Team (PCT):

The Lord Howe Rise (LHR) PCT met in Canberra in June 2017. The goal of the meeting was the basic understanding of operation and science of this project, future timeline, action items and the finalisation of the sites selection.

The NanTroSEIZE PCT met in Yokohama in May 2017 and in October 2017 for detailed discussions about IODP Expedition 380. Further agenda items have been updates on 3D seismic reprocessing and Expedition 358. The next meeting will be held in May 2018.

Y. Tatsumi gave an overview of the JPFY17 *Chikyu* operations. JPFY17 started with a commercial operation from April to July 2017. From July to September about 60 scientists were onboard the *Chikyu* for the analysis of cores from the ICDP Oman drilling project. SCORE Expedition 910 is similar to JR100 and was implemented to encourage the Japanese scientific drilling community to use the *Chikyu* for piston coring of up to 100 mbsf. From October 2017 to January 2018 the *Chikyu* has been in the dry dock for repair and maintainance. N. Eguchi continued to report on the *Chikyu* IODP Expedition 380 "NanTroSEIZE Stage 3: Frontal Thrust LTBMS", which was implemented from January to February 2018. Overall, 40 days were planned, but the expedition could be completed in 27 days. During this operation a shallow LTBMS was installed at site C6. The LTBMS was connected to the DONET undersea cable network and provides real-time pressure, strain and seismological data. Two ECORD scientists participated in this expedition. At the same time a workshop for students and young scientists on Core-Log-Seismic Integration Investigation at Sea was held onboard the *Chikyu*. They studied the role of the Nankai Frontal Prism in past tsunamigenic earthquakes and slow slip using Expedition 314 LWD data and Expedition 316 cores. There were two options: a 2-week short course or the full session of 40 days. The workshop included lectures, thematic break-out sessions, laboratory work, data analysis, presentations, discussions and writing publications. Fourteen scientists were selected out of 18 applicants: 5 Japanese, 4 US and 5 from ECORD. A workshop report will be submitted to EOS and to the *Scientific Drilling* journal.

JPFY18 *Chikyu* operations: For March until June 2018, a commercial window was set followed by a repair and maintainance period until the end of September 2018. *Chikyu* IODP Expedition 358 "NanTroSEIZE Plate Boundary Riser 4" will be implemented from 7 October 2018 to 21 March 2019. The aim is to access a subduction plate boundary fault system and its wall rocks at likely seismogenic depths for the first time. The duration of this operation is quite long with >160 days. Currently, there are 11 applicants from ECORD, 32 from J-DESC, 1 from ANZIC and 18 from USSSP.

The mid-term period will end on 31 March 2019. No funds can be carried over to the next term and therefore the new mid-term will start with a commercial operation window which will last until February 2020. Another potential IODP window will range from August 2020 to January 2021.

Chikyu Shallow Core Program (SCORE) is a new programme which provides researchers the opportunity to use the Hydraulic Piston Coring System (HPCS) to collect cores up to 100 mbsf. Applicants need a J-DESC membership or they need to form a group led by a researcher with J-DESC membership. J-DESC accepts proposals on a steady basis and evaluates them using a SEP-like procedure. Successful proposals will be submitted to CDEX. CDEX will incorporate the proposals into the *Chikyu* operational schedule to the extent possible.

The next CIB meeting will be held on 19-20 March, 2018.

3.4 Science Support Office (H. Given)

(15:44)

The tasks of the IODP Science Support Office (SSO) are: 1) to support the JRFB 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.

SSO Cooperative Agreement Renewal: The current awards runs through September 2018. An accomplishment-based renewal proposal was submitted in May 2017. In January 2018 the NSF stated that they intent to make this award. The task work is essentially the same, but a refreshment of the SSDB is anticipated. The new PI team includes Donna Blackman.

Proposal submission history: At the last submission deadline in October 2017 a large number of proposals including a high number of pre-proposals has been received. Since the start of the International Ocean Discovery Program 101 new proposals have been received. Of those, 45% have been deactivated, 37% are still under active review and 18% were forwarded to the Facility Boards (12 were scheduled or drilled).

H. Given summarized the proposal outcomes since the last two SEP meetings. Two proposals were sent to the Facility Boards; six proposals were sent to external review (1 MSP); four proposals are in the holding bin; four revisions were requested (1 MSP); twelve were invited to develop full proposals (2 MSP) and seven proposals were deactivated.

(15:52)
coffee break
(16:12)

H. Given summarized the proposal statistics (see agenda book pages 91-95). At the moment there are 89 active IODP proposals in the system: 61 *JR*, 11 *Chikyu*, 11 MSP and 6 Multiple proposals. Of those, 40 are at the Facility Boards and 42 are at SEP (7 are in the holding bin). ECORD and the US are nearly equal in the number of lead proponents (ECORD: 32, US: 38, Others: 19). ECORD has the highest number of unique proponents (ECORD: 428, US: 369, Others: 281). Of the 89 active proposals, 44 are full proposals and 27 are pre-proposals, plus 10 APL and 8 umbrella proposals.

3.5 Science Evaluation Panel (K. Miller)

(16:15)
K. Miller gave a panel update. SEP reports to the JRFB and services the EFB and the CIB. There are good communications and relations with SSO, the JRFB and the IODP Forum. SEP has been operating as a single panel for nine meetings. In January 2018 SEP met at the Scripps Institution of Oceanography (SIO) in La Jolla, USA and the next meetings will be held on 26-28 June 2018 in Potsdam, Germany, and on 8-10 January 2019 at the SIO. It is extremely effective and efficient to have both types of expertise, science and data, in the same room along with the operators (5 watchdogs).

SEP Terms of Reference: SEP is responsible for the selection of the best and most relevant proposals to be forwarded to the Facility Boards. SEP also advises the Facility Boards and the IODP Forum on any shortcomings of the proposal pool with respect to themes and challenges of the IODP Science Plan and makes suggestions for stimulating proposal pressure in those areas.

Characterizing the Site Survey Data: SEP advises proponents on data that are deemed necessary, reviews all data in the Site Survey Data Bank (SSDB), advises the proponents on the adequacy of the drill site characterisation package and provides an assessment of whether or not the scientific objectives can be accomplished based on the proposal and data package.

K. Miller presented the proposal classification system.

At the June 2017 SEP meeting, 12 proposals have been reviewed (Table 8). One *JR* proposal was placed in the holding bin (#853-Full2). Three *JR* proposals were sent out for external review (#864-Full2, #890-Full2 and #892-Full2). Two MSP proposals were considered (#866-Full and #915-Pre). #866-Full has to be revised and the proponents of proposal #915-Pre have been asked to develop a full proposal. The proponents of

proposal #915-Pre plan to organise a MagellanPlus workshop in April 2018 and to submit a full proposal in September 2018.

Table 8: Outcomes from the June 2017 SEP meeting.

ID	type	PI	title	ship	theme	destination
853	Full2	Rosalind Coggon	South Atlantic Transect	JR	EC	HB/ Endorse 1+ Expeditions
864	Full2	Tom Dunkley Jones	Equatorial Atlantic Gateway	JR	CO	External
866	Full	Michael Strasser	Japan Trench Paleoseismology	MSP	EM	Revise
882	Full2	Paola Vannuchi	Brazilian Equatorial Margin Tectonics	JR	EC	Deactivate
890	Full2	William Sager	Walvis Ridge Hotspot	JR	EC	External
892	Full2	Ross Parnell-Turner	Reykjanes Mantle Convection	JR	EC	External
913	Pre	Deniz Cukur	East China Sea Rifting	JR	EC	Deactivate
914	Full	Luigi Jovane	Brazilian Equatorial Margin Paleoceanography	JR	CO	Revise
915	Pre	Jacques Giraudeau	North Atlantic Fjord Sediment Archives	MSP	CO	Full + Workshop
916	APL	Ivano Aiello	Gulf of California Environmental Change	JR	CO	Deactivate
917	Pre	Christopher Lowery	Florida Straits Gateway Record	JR	CO	Full + Workshop
918	Pre	Minoru Ikehara	Southern Ocean Climate Evolution	JR	CO	Full

At the January 2018 SEP meeting, 20 proposals have been reviewed (Tables 9, 10). Proposal #866-Full2 was submitted for the October 2017 deadline, then reviewed by SEP in January 2018 and is currently under external review. A new MSP pre-proposal (#931-Pre) was submitted for the October 2017 deadline and the proponents were asked to develop a full proposal.

Table 9: Outcomes from the January 2018 SEP meeting. Full proposals submitted for the October 2017 deadline.

#	Type	PI	title	ship	theme	Outcome
853	Add (Full2)	Rosalind Coggon	South Atlantic Transect	JR	EC	JRFB, but work with WD to handle some questions on site location, two expeditions preferred; Rating Excellent
859	Full2	Paul Baker	Amazon Margin Drilling	JR	CO	External review. EPSP preliminary review 2/18; Fast track for potential JRFB May
864	Full2	Tom Dunkley Jones	Equatorial Atlantic Gateway	JR	CO	HB for minor issues (rating 3 to 2 and site moved needed), pending EPSP review Feb. Should go to JRFB May; rating Excellent
866	Full2	Michael Strasser	Japan Trench Paleoseismology	MSP	EM	External review. May have special EFB meeting on this in summer. May discuss at CIB
874	Full2	Oliver Friedrich	Neogene Newfoundland Sediment Drifts	JR	CO	External review. Few concerns.
890	Full2	William Sager	Walvis Ridge Hotspot	JR	EC	HB clarification of basement depths w/ ADD. EPSP Sept. should go to JRFB May; Rating Excellent.
892	Full2	Ross Parnell-Turner	Reykjanes Mantle Convection	JR	EC	HB until Addendum due to Site moved needed. Rating Excellent.
909	Full	Paul Knutz	NW Greenland Glaciated Margin	JR	CO	Revise. Challenges in operations.
911	Full	Jim Wright	Argentine Marine Deep-Water Interactions	JR	CO	Revise. Major concerns about suitability of sites.

Table 10: Outcomes from the January 2018 SEP meeting. Pre-proposals and APLs submitted for the October 2017 deadline.

919	Pre	Neil Mitchell	Late Cenozoic Pacific Internal Waves	JR	CO	Deactivate. Encourage reconsideration.
920	APL	Johann Klages	Amundsen Sea Ice Sheet Stabilty	JR	CO	Deactivate. Use Palmer to piston core
921	APL	Beth Orcutt	Hole 896A Biosphere Restoration	JR	BF	Forward to JRFB.
922	Pre	Hugh Daigle	W Atlantic Cenozoic Slope Stability	JR	EM	Develop full, drilling strategy a strong concern.
923	Full	Yasuhiko Ohara	Godzilla Megamullion Lithosphere Archtecture	Chikyu-riserless	EC	Deactivate. With strong encouragement to resubmit full expedition.
924	Pre	Lowell Stott	Chatham Rise Geologic CO2 Release	JR	CO	Develop full but only after preview by EPSP in Sept.
925	Pre	Jim Mori	Blanco FZ Earthquake Triggering	Chikyu-riser	EM	Encourage Full proposal; CIB will discuss pre-proposal and feasibility workshop
926	Pre	Ulrich Georg Wortmann	Great Australian Bight Reflux Brines	JR	BF	Full Proposal, consider operational challenges, strong concerns about microbio & seismics
927	Pre	Nevio Zitellini	Tyrrhenian continent-ocean transition	JR	EC	Develop Full. Strong concerns/long list.
928	APL	Ivano Aiello	Gulf of California Environmental Change	JR	CO	Deactivate.
929	Pre	Steven D'Hondt	Blake Nose Subseafloor Life	JR	BF	Develop Full.
930	Pre	Derek Sawyer	W Altantic Passive Margin Landslide	JR	EM	Develop full.
931	Pre	Amelia Shevenell	East Antarctic Ice Sheet Evolution	MSP	CO	Develop full.
857C	Pre	Claudia Bertoni	DREAM: Lago-Mare deposits	JR	CO	Develop full.

The proposal pressure in the North Atlantic and the Mediterranean is solid.

Five proposals are currently at the EFB:

637-Full2 'New England Shelf Hydrogeology'
708-Full 'Central Arctic Paleoceanography'
716-Full2 'Hawaiian Drowned Reefs'
730-Full2 'Sabine Bank Sea Level'
813-Full 'Antarctic Cenozoic Paleoclimate' (scheduled, Expedition 373)

Three pre-proposals and two full proposal are currently at SEP:

796-ADP 'NADIR - Nice Amphibious Drilling'
812-Pre 'Ross Sea Glacial History'
866-Full2 'Japan Trench Paleoseismology'
915-Pre 'North Atlantic Fjord Sediment Archive'
931-Pre 'East Antarctic Ice Sheet Evolution'

3.6 IODP Forum (J. Austin)

(16:26)

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 programme. The IODP Forum meets once a year and the participation is open to everybody. The most recent meeting took place in September 2017 in Shanghai, China.

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

J. Austin presented 2017 Forum consensus items (see agenda book pages 97-100 and http://www.iodp.org/iodp-forum).

Forum Consensus Item 17-02 on the need to foster the "Biosphere Frontiers" theme of the decadal Science Plan. The Forum supports a workshop-based approach.

Forum Consensus Item 17-03 on pre-and post-expedition asessments.

Forum Consensus Item 17-04 on a workshop-based approach to assess technologies needed to reach the full potential of the Science Plan.

Forum Consensus Item 17-05 on the Special Oceanography Issue "Scientific Ocean Drilling: Looking to the future".

Forum Consensus Item 17-06 on the support of seismic imaging efforts.

Forum Consensus Item 17-07 on a renewed emphasis on outreach efforts.

Forum Consensus Item 17-09 on the next meeting to be held in Goa, India, in September 2018.

COMMENTS on a future ocean drilling programme:

In the light of a new Science Plan, the biosphere theme is an important topic as it is of societal relevance, e.g. the origin of life (G. Lericolais). It is important to link science and technology and to consider all technologies (J. Austin).

3.7 ANZIC (L. Armand)

(16:37)

L. Armand presented panel representative changes, a strategy for the 2019/20 Bid Development, recent and future expeditions and ANZIC office activities. The new office is located at the Research School of Earth Sciences of the Australian National University (ANU).

Panel representative changes: An ECORD alternate, a SEP representative and alternate and three representatives of the ANZIC Science Committee are currently being selected. The selection of an EPSP representative and alternate was completed.

Strategy for 2019/20 Bid Development: Strategy Plan Development commenced. In May 2018 the Governing Council plan outline will be discussed in detail and a new committee will be formed. New consortium membership fees are taken into account. ANU has recently indicated very strong support for re-hosting the office. The themes of interest are core analysis and technology developments, the Biosphere Frontiers theme, international collaboration and potentially national seismic capabilities. The funding aim is to become a full associate member or at least to remain a 0.5 associate member. Further funding aims are a major Australian Government infrastructure support initiative and New Zealand is working hard on new funding and university partnerships.

Recent and future ANZIC activities:

For 2018 four IODP Expeditions are scheduled in the region:

- IODP Expedition 374 "Ross Sea West Antarctic Ice Sheet History" started in January 2018.
- IODP Expedition 375 "Hikurangi Subduction Margin" will start in March 2018.
- IODP Expedition 376 "Brothers Arc Flux" will start in May 2018.
- IODP Expedition 378 "South Pacific Paleogene Climate" will start in October 2018.

ANZIC office activities:

The ANZIC Annual Report will be published in April 2018. An ANZIC Communications Officer will be employed for two days a week (shared with ANU on the other 3 days) for two years. Funding calls include ANZIC Legacy projects and IODP pre-proposal development workshops.

Future IODP-related conferences in Australia: The Australian Geological Conference will be held in Adelaide on October 14-18, 2018. A session on 50 years of scientific ocean drilling and a booth will be organized.

4. Reviews of recent MSP Expeditions

G. Lericolais summarized the review of MSP Expedition 364 'Chicxulub Impact Crater' and announced the review of MSP Expedition 381 'Corinth Active Rift Development'.

4.1 364 - Chicxulub Impact Crater (G. Lericolais)

(16:47)

The offshore phase was accomplished in April/May 2016. One hole was drilled down to 1335 m using the lift boat *L/B Myrtle*. The ECORD budget limit was $8.5 M USD. The OSP was held for four weeks, starting on 21 September 2016. The expedition was reviewed on 20 June 2017 in Lisbon, Portugal. The review committee was composed of two external reviewers (Ken Miller and Agnes Kontny) and three EFB Science Board members (G. Lericolais, F. Inagaki, G. Uenzelmann-Neben).

The panel congratulated all parties for accomplishing this very successful expedition. This first IODP drilling targeting an impact crater recovered high quality cores and successfully retrieved wireline-logging data and CT-scan images. The high quality core material and logging data will significantly contribute to reach the main targets of this expedition. The first outcome of this expedition was published in *Science*.

The review panel made nine recommendations to improve future MSP expeditions. Recommendations for the offshore phase of Expedition 364 include communication between the Co-chief scientists and ESO, drill rig performance and shipping of the samples. Onshore phase recommendations concern access to MARUM labs at weekends, the need of specific material, communication on sample distribution and guidelines for ADPs.

4.2 381 – Corinth Active Rift Development (G. Lericolais)

(16:56)

The offshore phase was accomplished from 23 October to 18 December 2017. Four sites were drilled: M0078A (534 m), M0078B (52 m), M0079A (611 m) and M0080A (449 m) with the drillship *Fugro Synergy*. The OSP was held in February 2018. The ECORD budget limit was $11 M USD. The expedition will be reviewed in November 2018.

ECORD FB Consensus 18-03-02:
The EFB agrees with the nominations of Stephen Gallagher, Ellen Thomas and Gilles Lericolais as EFB internal reviewers on the Operational Review Committee of Expedition 381 'Corinth Active Rift Development'. The meeting of this committee will be held on 6 November 2018 in The Hague, the Netherlands.

ECORD FB Action Item 3: EFB Science Board and ESSAC
To nominate potential external reviewers as members of the Operational Review Committee of Expedition 381 'Corinth Active Rift Development' until the end of March.

4.3 Post-MSP expedition assessments (G. Lericolais)

(16:58)

An action item for the EFB from the ECORD Council-ESSAC Meeting #4 was to contact the Co-chief scientists of each MSP expedition to get a document summarizing the performances regarding each scientific objective of the relevant expedition.

ECORD FB Action Item 4: EFB

To review the post-expedition assessment document and to send it to MSP Co-chief Scientists upon approval.

5. Review of MSP proposals @ EFB

Five MSP proposals that are currently at the ECORD Facility Board were reviewed and discussed: 1) #708 Arctic Ocean Paleoceanography (Expedition 377); 2) #813 Antarctic Cenozoic Paleoclimate (Expedition 373); 3) #637 New England Shelf Hydrogeology; 4) #716 Hawaiian Drowned Reefs and 5) #730 Sabine Bank Sea Level. Other proposals that could potentially be forwarded by SEP in the future were also reviewed.

Ellen Thomas, Gabriele Uenzelmann-Neben, Leanne Armand, Brandon Dugan and Jamie Austin announced a conflict of interest.

5.1 Expedition 377 Arctic Ocean Paleoceanography (ArcOP)

5.1.1 Summary of objectives, SSD and previous EFB decision (E. Thomas)

(17:02)

E. Thomas summarized the scientific objectives, the proposal history and the drilling plan. The overall goal is to recover a complete (composite) stratigraphic sedimentary record on the southern Lomonosov Ridge in order to reconstruct the Cenozoic climate history of the central Arctic Ocean. A secondary objective is to perform high-resolution studies of the Arctic climate (Pleistocene and Neogene).

SEP reviewed proposal 708-Full in January 2014. In March 2015 Expedition 377 was scheduled for summer 2018. In April 2016 seven alternate sites were added and the drilling strategy was discussed. The expedition was cancelled in September 2017. The *RV Polarstern* will implement an expedition in the ArcOP area from 5 September to 16 October 2018 to record new seismic lines and to perform piston-gravity coring down to 15 m.

5.1.2 Drilling operations and costs (D. McInroy)

(17:12)

D. McInroy summarized the operational planning, the drill sites and the costs. Expedition 377 has to be a three-ship operation, including a nuclear icebreaker. Penetration depth will be higher than during the ACEX expedition where a depth of 450 mbsf was reached. The drilling plan includes two primary sites at 970 mbsf (LR-06A) and 250 mbsf (LR-02A). D. McInroy presented cost estimates for three different scenarios*. The scenarios include a two part-hole option and two one-hole options. The two-part hole option is preferred to reach the scientific objectives.

COMMENT on Expedition 377:

G. Lericolais highlighted the importance of implementing Expedition 377 until the end of the current programme. The ECORD Council set an upper budget limit for this expedition. The EFB Science Board has to decide which level of support it provides and which recommendation it gives to the ECORD Council, e.g. an increase of the budget limit to implement this expedition before the end of the current phase of the programme (G. Camoin). G. Uenzelmann-Neben and E. Thomas commented that one of the most important cruise objectives, minimizing the potential unconformity observed during ACEX drilling, may not be met at the present proposed sites as seen on the presented seismic lines (Action Item 7).

5.2 Expedition 373 Antarctic Cenozoic Paleoclimate

5.2.1 Summary of objectives, SSD and previous EFB decision (S. Gallagher)

(17:21)

S. Gallagher summarized the scientific objectives, the proposal history and the drilling plan. Expedition 373 was originally scheduled for December 2017 to February 2018 and then postponed to late 2020/early 2021.

5.2.2 Drilling operations and costs (D. McInroy)

(17:27)

D. McInroy presented the latest cost estimates for the use of a commercial seafloor drill and a vessel partner of the seafloor drill company.† ESO can design a call for tender that incorporates all options.

DISCUSSION on Expedition 373:

G. Lericolais asked for the availability risk of a vessel for the use of a commercial seafloor drill. Concerning costs the risk is not huge, but the availability risk is probably slightly

* See confidential annex.

† See confidential annex.

higher (D. McInroy). The initial budget limit is based on the use of the RVIB Nathaniel B. Palmer and the BGS RD2 (G. Camoin). Now the scenario is different and the EFB Science Board should consider all scenarios. The EFB should communicate with the ECORD Council and maybe recommend to increase the budget limit in case of support of this expedition (G. Camoin).
Originally logging was planned for the cancelled expedition and E. Thomas asked if logging is necessary to reach the scientific objectives. According to the Co-chief Scientists logging is not a critical part (D. McInroy). The original expedition was scheduled with logging (D. McInroy). G. Früh-Green asked if there are possibilities to loan out logging tools to commercial companies. This is an aspect, but the availability of these tools has to be made clear to commercial companies (D. McInroy). During ODP and early IODP the need to promote logging was stated (J. Allan). Logging was always accomplished due to a lack of policies rather than deciding if logging is really needed or not for respective expeditions (J. Allan). It is very different if multiple runs of shallow holes are done (S. Davies). The original proposal mentioned logging as an interesting add-on, but it was not mentioned in the reviews as being necessary (K. Miller). The EFB Science Board members will ask the proponents if they can clarify whether logging is necessary, or important, or unimportant for the expedition objectives.

5.3 637-Full2+Add6 New England Shelf Hydrogeology (waiting room)

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

(17:40)

F. Inagaki summarized the scientific objectives, the proposal history and the drilling plan. Proposal #637-Full2 was submitted in April 2005. In March 2014 the EFB decided to keep the proposal in the waiting room 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 2016, the EFB encouraged the proponents to reconsider various options and make it possible under the budgetary constrain.

The proponents organized a workshop co-funded by USSSP and ICDP on 22-23 May 2017 to discuss the options and the achievable scientific objectives. The proponents collected marine electromagnetic and magnetotelluric data. They also completed a 3D fluid flow model based on the high-resolution seismic data.

The proponents submitted an addendum to IODP in January 2018 to support the new drilling sites (and their number) and how they address the science objectives. Addendum 7 includes three sites with three holes (originally five sites with 15 holes). The depth extension at one of the sites from 350 mbsf to 550 mbsf needs to be reviewed by the EPSP on 4-6 September 2018.

5.3.2 Drilling operations and costs (D. McInroy)

(17:44)

In fall 2017 the proponents submitted an addendum as a result of a workshop, which was held in May 2017. They reduced the number of sites from five to three at water depths of 33-79 m and penetration depths of down to 550 mbsf at each of the three sites. A geotechnical vessel, a large liftboat or a jack-up platform could be used. The descoped proposal with fewer, shallower holes and wireline logging offers a significant cost reduction compared to past versions of the proposal. D. McInroy presented the cost estimates assuming three holes with wireline coring.*

DISCUSSION on proposal #637:
The State of Massachusetts is planning to do geotechnical drilling in order to put wind farms in this area, i.e. more data will be generated (J. Austin). ESO could explore if costs could be saved if a geotechnical vessel is already in operation in this area (G. Lericolais). It depends if this geotechnical vessel is suitable for the MSP expedition (D. McInroy). One problem could be the timing of these operations and secondly these offshore wind farms are generally only interested in the top 60 m (C. Cotterill). Even getting only the top 60 m would be helpful (J. Austin).

The meeting was closed at 17:55.

March 7th, 2018

(8:58)
G. Lericolais opened the meeting.

5.4 716-Full2 Hawaiian Drowned Reefs (waiting room)

5.4.1 Summary of objectives, SSD and previous EFB decision (E. Thomas)

(8:58)
E. Thomas summarized the scientific objectives, the drilling plan and the proposal history. This proposal was submitted for the first time in 2007. A revised full proposal was submitted in 2008. In 2014 the proposal was reviewed by the EFB and placed in the EFB waiting room. In 2016 the proposal was ranked as a high-priority, mid-cost proposal. An addendum was submitted in early March, 2017. In the addendum, the proponents added new high resolution multi-beam bathymetric data for some of the proposed sites, updated references specific to the four main scientific objects, and showed results of PROD drilling from NW Australia, to document the high quality of the recovered reef core. The PIs said that both MeBo200 and PROD have the capability to drill to the required depth (150 m; at 10 sites). The weather conditions and the presence

* See confidential annex.

of whales allow drilling only in March-April and September-October time windows. A number of local stakeholders are involved in the proposal and they started discussing permitting.

5.4.2 Drilling operations and costs (D. McInroy)

(9:08)

The water depths range from 134 to 1154 m. Penetration depths are 55-170 mbsf with four holes at >= 120 mbsf. The proposal is technically feasible using a geotechnical ship with a coring rig or a research vessel with a seafloor drill. A geotechnical ship with coring rig, a research vessel as IKC with a seafloor drill or a hired vessel with a commercial seafloor drill could be used. The deepest proposed penetration is 170 mbsf. This is beyond the reach of the current seafloor drills, but it is potentially reachable with the MeBo200. The Mebo200 is currently available to IODP from 2020. The full target depth at some sites is not reachable by commercial systems, which have typically a penetration depth of 120 mbsf. A geotechnical vessel is not recommended due to permitting issues. D. McInroy presented cost estimates for four different options.*

DISCUSSION on proposal #716:

G. Früh-Green asked for possibilities of ships provided as an IKC. Research vessels operating around Hawaii are too small, i.e. the IKC has to come from Japan or the United States (D. McInroy).

A. Koppers asked for permitting in Hawaiian waters. In 2006 cores were recovered and transported from Hawaii to the Gulf Coast Repository (D. McInroy). It was explained how these cores were drilled and there were no problems with taking the cores out of Hawaii (D. McInroy). Last year E. Thomas talked to J. Webster and he said that he had many contacts to the local university and contacts to local stakeholders, etc. The EFB Science Board members will ask the proponents to specifically outline the necessary depth of penetration for each site in an addendum as the present proposal just gives the same depth (150 m) for each site.

5.5 730-Full2 Sabine Bank Sea Level

5.5.1 Summary of objectives, SSD and previous EFB decision (S. Gallagher)

(9:19)

S. Gallagher presented the scientific objectives, the drilling plan and the history of proposal #730. It includes eleven primary sites at water depths of 26-1400 m with penetration depths of 150 mbsf. The pre-proposal was submitted in 2009 and the full proposal was submitted in 2014. This proposal was forwarded to the EFB in 2016 and since then it has been in the waiting room. It was ranked secondary priority for the sea-level studies (EFB consensus 16-06-03). There are some queries related to MeBo200

* See confidential annex.

engineering developments and high-resolution bathymetric data are required.
ECORD requested reducing the number of proposed sites and the proponents responded in February 2018. The proponents descoped their proposal and reduced the number of sites from eleven to six. In addition, the penetration depth was reduced from 150 mbsf to 80 mbsf at all sites.

5.5.2 Drilling operations and costs (D. McInroy)

(9:26)

The water depths range from 46 to 875 m. Penetration depths were reduced from 11 times 150 mbsf to six times 80 mbsf. A geotechnical ship with coring rig, a research vessel as IKC with a seafloor drill or a hired vessel with a commercial seafloor drill could be used. The target depth of 80 mbsf is within the current reach of the MeBo70 and commercial systems. The reduced penetration depth has reduced the expedition duration from 90 days down to 30-50 days. The weather window is from October to December. The permitting is unknown. D. McInroy presented cost estimates for four different options.*

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

K. Miller gave an overview of the MSP proposals at SEP. Currently, three pre-proposals and two full proposals are at SEP.

5.6.1 Summary of scientific objectives (K. Miller)

(9:32)

866-Full2: Japan Trench Paleoseismology

K. Miller summarized the scientific objectives and the drilling plan. The main objective is to track past earthquakes in the sediment record along the Japan Trench. Proposal #866-Full2 was submitted for the October 2017 deadline, then reviewed by SEP in January 2018 and is currently under external review. The challenge is the ultra deep water (8 km). The new Japanese vessel *R/V Kaimei* is equipped with a 40 m-GPC-system and can operate in water depths of up to 12 km. This vessel is currently under sea trial, but will become open for scientific operation in 2019. Another option is the *R/V Marion Dufresne*, which is equipped with a 75 m-GPC-system and can operate in water depths of up to 8 km. A potential use of the *D/V Chikyu* will be discussed at the next CIB meeting in March 2018.

915-Pre: North Atlantic Fjord Sediment Archive

K. Miller summarized the scientific objectives and the status of this proposal. The main objective is the reconstruction of the spatio-temporal evolution of post-Last Glacial

* See confidential annex.

Maximum continental and marine climates based on Fjord sediment archives in the northeastern North Atlantic. The proposal also includes a geohazards component. The proponents of proposal #915-Pre plan to organise a MagellanPlus workshop in April 2018 and to submit a full proposal in September 2018.

931-Pre: East Antarctic Ice Sheet Evolution

K. Miller summarized the scientific objectives and the drilling plan of this proposal. The target is to recover Late Cretaceous to late Quaternary strata from the Sabrina Coast shelf, offshore of the Aurora Basin, East Antarctica, in order to reconstruct ice sheet evolution and paleoclimate. The pre-proposal #931-Pre was submitted for the October 2017 deadline and the proponents were asked to develop a full proposal. The proponents proposed seven primary and six alternate sites with up to 200 m penetration.

796-ADP: NADIR - Nice Amphibious Drilling

SEP is waiting to receive the Full2 proposal.

812-Pre: Ross Sea Glacial History

There is no activity since 2012 and this proposal could be deactivated at the next JRFB meeting in May 2018.

It would be good to increase the proposal pressure for MSPs. The EFB should send a message to the community.

5.6.2 Site Survey Data (K. Miller)

(9:48)

Proposal #866-Full-2 has sufficient site survey data. For all other MSP proposals at SEP site survey data exist.

5.6.3 Drilling operations and costs (D. McInroy)

(9:50)

D. McInroy presented an overview of cost estimates for four MSP proposals at SEP.*

6. Discussion of the FY 2019 - 2023 MSP operation schedule (G. Lericolais/All)

(9:56)

* See confidential annex.

G. Lericolais presented the current MSP operation schedule (Table 11). He summarized MSP proposals at the EFB (see agenda item 5), the FY 2019-23 ECORD budget (Table 5) and potential FY 2019-23 MSP scheduling scenarios.

Table 11: FY14 – FY18 MSP operation schedule.

2013-14	2015	2016	2017	2018
347 Baltic *Drillship ‚Greatship Manisha'*	357 Atlantis *RRS James Cook & Seabed drills (MeBo & RD-II)*	364 Chicxulub *Lift boat ‚L/B Myrtle'*	381 Corinth *Drillship ‚Fugro Synergy'*	No expedition

Using a commercial seafloor drill would allow ECORD to implement Expedition 373 in 2019. In this case, the ECORD Council has to review the possibility to increase the budget limit for Expedition 373. Possible scenarios will be proposed after a closed session of the EFB Science Board.

(10:05)

Breakout meeting of the EFB Science Board members. MSP proposals that are currently at the EFB and SEP were discussed during this breakout meeting.

(11:23)

G. Lericolais presented the outcome of the break out meeting of the EFB Science Board members.

ECORD FB Consensus 18-03-03:
The EFB recommends the following MSP expedition scheduling for FY19-FY21:

1) Implementation of Expedition 373 'Antarctic Cenozoic Paleoclimate' in late FY19-early FY20 time window, providing that the ECORD Council agrees to

increase the budget limit* and that ESO identifies within the next three months a viable scenario to implement this expedition;
2) Implementation of an expedition based on proposal 716 'Hawaiian Drowned Reefs' in FY20†;
3) Implementation of a low-cost expedition in FY21.

ECORD FB Consensus 18-03-04:
The EFB recommends the following MSP expedition scheduling for FY19-FY21 if the preferred scenario outlined in Consensus Statement 18-03-03 cannot be achieved:
1) Implementation of an expedition based on proposal 716 'Hawaiian Drowned Reefs' in FY19‡;
2) Implementation of Expedition 373 'Antarctic Cenozoic Paleoclimate' in the late FY20-early FY21 time window, providing that the ECORD Council agrees to increase the budget limit§;
3) Implementation of a low-cost expedition in FY21.

ECORD FB Consensus 18-03-05:
The EFB considers Expedition 377 'Arctic Paleoceanography' (ArcOP) as a first-priority expedition and recommends its implementation before the end of IODP.

ECORD FB Action Item 5: ESO
To confirm before end of May 2018 the feasability of Expedition 373 'Antarctic Cenozoic Paleoclimate' in the late FY19-early FY20 time window.

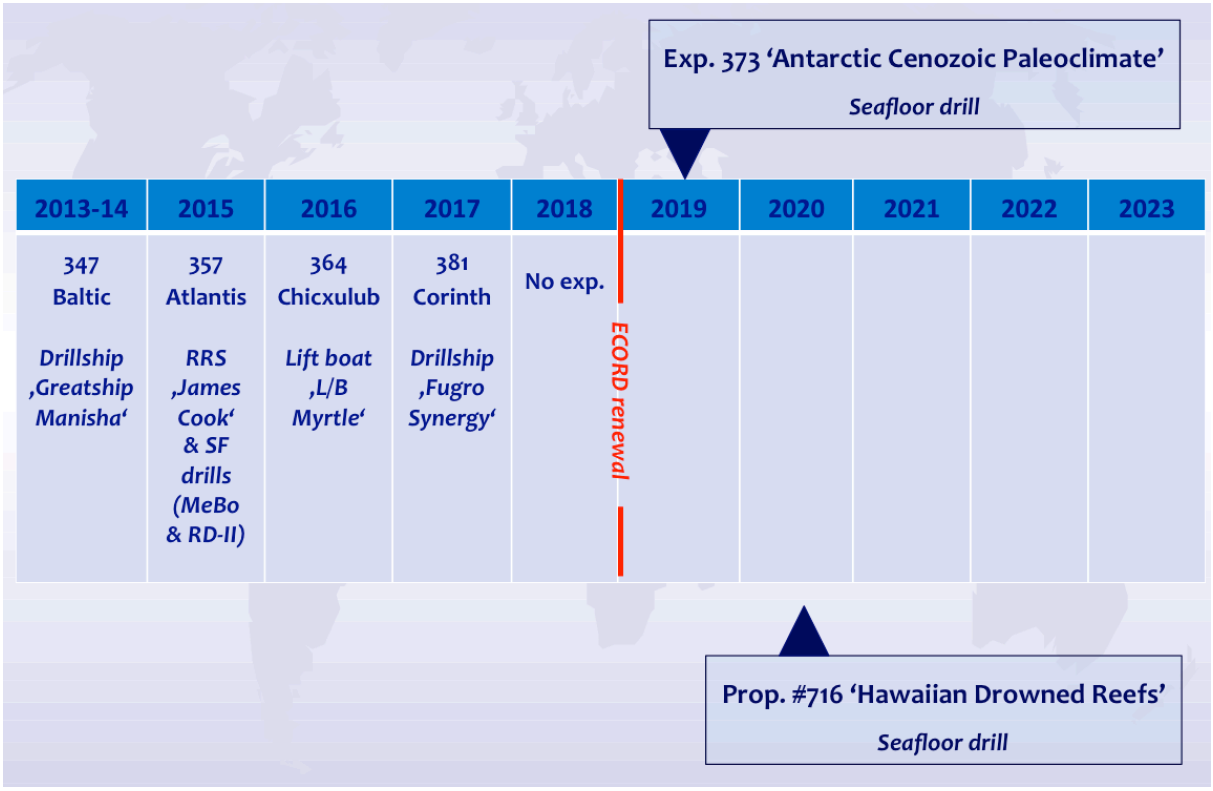
ECORD FB Action Item 6: EMA
To seek a decision from the ECORD Council regarding the reassessment of the budget limit for Expedition 373 'Antarctic Cenozoic Paleoclimate' in light of the new operational opportunities provided by ESO.

* See confidential annex.
† See confidential annex.
‡ See confidential annex.
§ See confidential annex.

ECORD FB Action Item 7: EFB
To request to the Expedition 377 Co-chief Scientists the submission of an addendum in order to confirm that the scientific objectives can be achieved at the primary drill sites.

G. Lericolais summarized the MSP operation schedule for FY19 and FY20 (Table 12). A low-cost expedition is planned for 2021.

Table 12: FY14 – FY20 MSP operation schedule.



DISCUSSION on FY19-23 MSP operation schedule:
In case proposal #716 is implemented in 2019, there is a spring and a fall time window (G. Camoin). September/October is the preferred time window for the Hawaii expedition (G. Lericolais). Plan A is to implement Expedition 373 in December 2019. C. Brenner expressed a concern about the timing to get the Science Party together. The call has to be issued by early summer 2019. Under plan A Expedition 373 would start in December 2019 and end in early 2020, and the Hawaii expedition would start in September 2020 (D. McInroy). Under Plan B the Hawaii expedition would start in September 2019 and Expedition 373 would

start in December 2020 (D. McInroy).
J. Austin asked about the status of Expedition 377 as it is a high-profile expedition. ECORD plans to implement ArcOP in 2022 or 2023 (G. Lericolais). If the EFB supports ArcOP, ESO and EMA can work on IKCs and the ECORD Council needs to review the budget limit so that ArcOP can be implemented until the end of the current programme (G. Camoin). Today there is a French-Russian science meeting about the Arctic and besides the UK, Germany and France should work at the diplomatic level to secure a Russian IKC (G. Lericolais).
A. Koppers asked if the IODP Science Plan was considered as there is a strong palaeoclimate emphasis. Most of the proposals in the EFB waiting room cover the climate theme (G. Lericolais). ECORD may ask for further MSP proposals in other fields for implementation in 2022 and 2023 (A. Koppers). At the moment there is one low-cost proposal at the SEP, but not yet in the EFB waiting room, which covers a different science theme (G. Lericolais). Further proposals are expected and will be considered (G. Lericolais). ECORD keeps sufficient budget to implement a high-cost expedition at the end of the programme (G. Lericolais)

(11:48)

SCIENCE TALK: *Technological innovations for future MSP expeditions* (R. Gatliff)

(12:21)

7. Procedures and issues regarding EFB activities and MSP operations

7.1 Policy regarding IKCs for MSP expeditions (D. McInroy/G. Lericolais)

(12:21)

D. McInroy presented the ECORD IKC policy. ECORD will encourage IKCs for MSP expeditions that can be proposed by IODP member and non-member countries. Offers of IKCs will be evaluated by ESO on a case-by case basis. Propositions and options of IKCs and their proposed cash-value based on actual costs shall be presented to the ECORD Facility Board (EFB) for discussion and then to the ECORD Council for final approval. IKCs are any service or facility that ESO would normally pay for (e.g. drilling platforms, support vessels, analytical equipment, hazard site survey (if required), onshore facility near the drill site (if required), ice management, remote logistics and assistance). IKCs shall be rewarded by extra Science Party positions on the specific expedition, and potentially other IODP expeditions if appropriate. Large IKCs may attract ECORD membership. For ECORD countries, IKC extra Science Party positions may be used to solve and/or mitigate unbalanced situations in the quota system.

Issues: One issue is that the policy says it is ECORD's responsibility to find IKCs. It should be clearly defined which ECORD entity/entities is/are meant. ESO will assist in the evaluation. The ECORD Council members could probably do more. They could help with identifying funding bodies/calls/opportunities, and scientists to apply, within their country. IKCs need to be agreed before scheduling expeditions.

DISCUSSION on ECORD IKC policy:
The ECORD Council members should push forward their diplomatic representation and use existing possibilities like the joint programming initiative where calls can be issued to access facilities when needed (G. Lericolais). The ECORD Council could advice on IKCs, but also the ESSAC delegates could give some feedback on potential vessels, as not all ECORD Council members are scientists (G. Camoin). The question is what is the actual process of getting significant IKCs from national funding agencies (D. McInroy). For example, for the BGS it is much easier to get an UK-based vessel than a French or Swedish vessel (D. McInroy). H. Given suggests compiling a summary list showing the IKCs that have been made so far so that the people can see and understand the importance. There is a short list with all IKCs from the ACEX and Atlantis Massif expeditions (D. McInroy). For the Chicxulub and Corinth expeditions a lot of assistance with permitting was received (D. McInroy). More publicity is needed (H. Given).

ECORD FB Consensus 18-03-06:
The EFB recommends that the ECORD Council members and ESSAC delegates provide guidance and support regarding potential IKCs to implement future MSP expeditions. The EFB recommends that the ECORD Council revisits the IKC procedures at its next meeting in June 2018.

7.2 Policy regarding CPPs for MSP expeditions (D. McInroy/G. Lericolais)

(12:34)
D. McInroy presented the IODP CPP policy. A Complementary Project Proposal (CPP) is a proposal with a commitment from a third-party source for a substantial amount of financial support. CPP proponents should contact the Chair of the appropriate Facility Board to enquire about the amount of outside funding required (minimum of $6 M USD for the *JR*). CPP proposals and expeditions principally follow all IODP guidelines and policies (proposal evaluation, IODP Sample, Data and Obligations Policies, Publications Policies). The level of scientific staffing for the entity contributing the CPP funds is negotiated on a case-by-case basis with the IODP Platform Provider. CPPs can receive fast-track consideration by the SEP if so required by the funding entity, operational plans, etc.

Issues: There are no issues from an ESO perspective. CPPs are similar to proposals with cash IKCs 'built in' early. The question is if the two concepts can be combined.

DISCUSSION on IODP CPP policy:

M. Sacchi asked how much a substantial amount of financial support would be. Initially, it was talked about 70% (D. McInroy). For the JR the minimum is $6 M USD and for the MSPs it says a substantial amount (D. McInroy). The amount of financial support from a third-party source needs to be flexible and negotiated back to back (R. Gatliff). ESO is always looking for opportunities to save money (R. Gatliff). Flexibility is important for MSP expeditions, however, some guidance is needed when a proposal is called a CPP or when it is a pre- or full proposal (A. Koppers). What is the minimum before a proposal can be considered as a CPP (A. Koppers)? For a low-cost MSP expedition, a third-party contribution of about 0.5 M USD, i.e. ca. 10% of the expedition costs, could be considered as a CPP (D. McInroy). Any contribution, even if it is less than 10%, would help to implement an MSP expedition (D. McInroy). There is a difference between getting a contribution and a CPP (R. Gatliff). There is a 10% trigger for the CPP status and a smaller contribution does not necessarily trigger a CPP status (D. McInroy). A CPP is more a 50% third-party contribution, but it has to be made clear that this should not affect the science ranking (R. Gatliff). Giving a CPP status means that there are also expectations from the third-party (A. Koppers). If Russia would provide an icebreaker for the Arctic expedition, the proposal could be a CPP (G. Lericolais). This would be a significant IKC, but it was not in the proposal. If this significant contribution would be in the proposal, it would have been a CPP (D. McInroy).

9. Next EFB meeting (G. Lericolais)

(12:46)

ECORD FB Consensus 18-03-07:
The next ECORD Facility Board meeting will be held on 21 and 22 March 2019 at MARUM in Bremen, Germany, with Ursula Röhl as host.

(12:55)
lunch break
(15:01)

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

(15:01)

G. Lericolais presented the action and consensus items.

10. Any other business (G. Lericolais)

(15:20)

ECORD FB Consensus 18-03-08:
Gilles Lericolais has led the EFB from 2016-2018 and will step down as Chair after its 2018 meeting. A number of difficult decisions have characterised this period, and the EFB wants to thank Gilles for his guidance and leadership. Gilles will serve the EFB for another two years as Vice-Chair, which is appreciated by the board.

ECORD FB Consensus 18-03-09:
The EFB thanks Fumio Inagaki and Stephen Gallagher for their remarkable services and commitment during their EFB term. Their enthusiasm and knowledge have largely contributed to increase ECORD's visibility in IODP.

ECORD FB Consensus 18-03-10:
The ECORD community expresses its warm thanks to Robert Gatliff for his valued contributions to ESO and ECORD over the last 14 years. We will miss his inclusive style, good humour and his friendship, and we wish him the all the best for his retirement.

ECORD FB Consensus 18-03-11:
ECORD warmly thanks our Italian hosts, Marco Sacchi, Annalisa Iadanza and Paolo Braico, for the organisation of the ECORD FB Meeting #6. We also express our gratitude to Nicoletta Maretto of the "Don Orione Artigianelli Cultural Center" in Venice for her kind and enthusiastic support to the set up of the meeting logistics.

G. Lericolais closed the meeting at 15:22.

LIST OF ACRONYMS

AAD: Australian Antarctic Division
ACEX: Arctic Coring Expedition
ADP: Amphibious Drilling Proposal
AGU: American Geophysical Union
ANU: Australian National University
ANZIC: Australian and New Zealand IODP Consortium
APL: Ancillary Project Letter
ArcOP: Arctic Ocean Paleoceanography, IODP Expedition 377
BCR: Bremen Core Repository
BGS: British Geological Survey
CAB: Curatorial Advisory Board
CDEX: Center for Deep Earth Exploration
CIB: *Chikyu* IODP Board
CNRS: Centre National de la Recherche Scientifique - National Center for Scientific Research, France
COI: Conflict of Interest
CPP: Complementary Project Proposal
DIS: Drilling Information System
ECORD: European Consortium for Ocean Research Drilling
EEC: ECORD Evaluation Committee
EFB: ECORD Facility Board
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
EGU: European Geosciences Union
FB: Facility Board
FY: Fiscal Year
GPC: Giant Piston Corer
HB: Holding Bin
HPCS: Hydraulic Piston Coring System
ICDP: International Continental Scientific Drilling Program
IGSN: International Geo Sample Number
IKC: In-kind contribution
INSU: Institut National des Sciences de l'Univers - National Insitute of Sciences of the Universe, France
IODP: Integrated Ocean Drilling Program (2003-2013) & International Ocean Discovery Program (2013-2023)
ISC: International Sedimentological Congress
ISOLAT: Integrated Southern Ocean Latitudinal Transect
JAMSTEC: Japan Agency for Marine Earth Science and Technology
J-DESC : Japan Drilling Earth Science Consortium
JPFY: Japanese Fiscal Year
JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
JR: *JOIDES Resolution*
JRFB: *JOIDES Resolution* Facility Board
JRSO: *JOIDES Resolution* Science Operator
LHR: Lord Howe Rise
LTBMS: Long-Term Borehole Monitoring System
LWD: Logging While Drilling
MAD: Moisture And Density
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
MoU: Memorandum of Understanding
MSP: Mission-specific platform
NanTroSEIZE: Nankai Trough SEIsmogenic Zone Experiment
NSF: National Science Foundation
ODP: Ocean Drilling Program
OSP: Onshore Science Party
PCT: Project Coordination Team
PI: Principal Investigator
PMO: Program Member Office
QA/QC: Quality Assurance/Quality Control
RD2: Rockdrill 2
SCORE: Shallow Core Program
SEDIS: Scientific Earth Drilling Information Service
SEP: Science Evaluation Panel
SIO: Scripps Institution of Oceanography
SSD: Site Survey Data
SSDB: Site Survey Data Bank
SSO: Science Support Office
USSSP: U. S. Science Support Program
XRF: X-Ray Fluorescence