ECORD

EUROPEAN CONSORTIUM FOR
OCEAN RESEARCH DRILLING

MINUTES

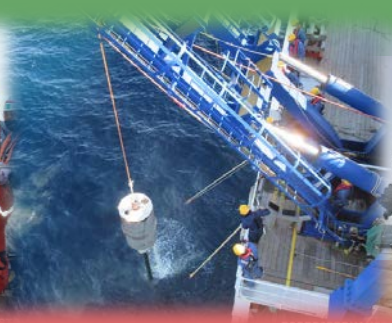
ECORD Facility Board Meeting #10

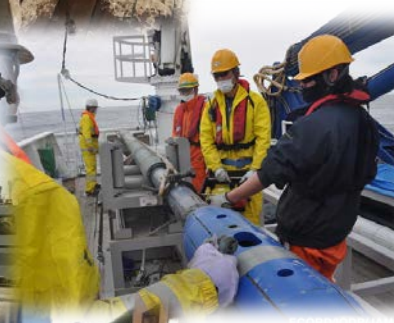
29-30 September 2021

Trieste, Italy



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***** *Apologies*
****** *By videoconference*

29 September 2021

1. Introduction

1.1 Welcome and logistics (G. Uenzelmann-Neben/M. Rebesco/G. Rivoira)

(9:04)

G. Uenzelmann-Neben welcomed the participants and opened the meeting. The meeting hosts Michele Rebesco and Giorgia Rivoira welcomed the participants and presented the logistical information.

1.2 Welcome, opening remarks and rules of engagement (G. Uenzelmann-Neben)

(9:11)

G. Uenzelmann-Neben presented the rules of engagement.

1.3 Introduction of participants (All)

(9:13)

G. Uenzelmann-Neben let all the participants begin self-introductions.

1.4 Meeting agenda approval (G. Uenzelmann-Neben)

(9:25)

G. Uenzelmann-Neben presented the agenda and the ECORD Facility Board approved the agenda.

ECORD Facility Board Consensus 21-09-01:
The ECORD Facility Board approves the agenda of the ECORD Facility Board Meeting #10.

2. ECORD Facility Board and other ECORD entities

Reports were presented for the EFB (G. Uenzelmann-Neben), EMA (G. Camoin), the BCR (U. Röhl), the EPC (S. Draper), ESO outreach (U. Prange) and ESSAC (A. Morris).

2.1 EFB: Membership and activities since last meeting (G. Uenzelmann-Neben)

(9:27)

G. Uenzelmann-Neben gave an update on the ECORD Facility Board (EFB) activities.

The EFB members with voting rights are 1) the six Science Board members: EFB Chair Gabriele Uenzelmann-Neben (GER), Michele Rebesco (ITA), Yasuhiro Yamada (JPN), Fengping Wang (CHN), Alexandra Turchyn (UK) and Beth Christensen (USA); 2) the members of the ECORD Vision Task Force: ECORD Council core members, EMA, ESO and ESSAC; and 3) NSF and MEXT with one representative each.

G. Uenzelmann-Neben gave an overview of MSP proposals at the EFB:

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

708-Full - Expedition 377: Arctic Ocean Paleoceanography - scheduled for 2022.

716-Full - Expedition 389: Hawaiian Drowned Reefs - in the EFB waiting room.

730-Full2: Sabine Bank Sea Level - in the EFB waiting room. The Principal Investigator (PI) retired in summer 2019 and there is no contact with the proponents since a couple of years.

813-Full - Expedition 373: Antarctic Cenozoic Paleoclimate - in the EFB waiting room.

G. Uenzelmann-Neben summarized MSP proposals at the SEP:

796-ADP: NADIR: Nice Amphibious Drilling - needs to be revised.

931-Pre: East Antarctic Ice Sheet Evolution - needs to be developed as full proposal.

995-Pre: Canterbury Bight Offshore Freshened Groundwater - needs to be developed as full proposal.

1003-Pre: N CAVA Volcanic Ash - needs to be revised.

ECORD Facility Board Action Item 1: EFB
To get in contact with the other proponents of proposal 730-Full2: Sabine Bank Sea Level as the PI retired.

A call for MagellanPlus workshop proposals with a deadline of 15 May 2021 has been issued in order to get more MSP proposals into the system (see agenda item 8).

G. Uenzelmann-Neben presented the MSP operational plan:

2.2 ECORD News and Budget (G. Camoin)

(9:36)

G. Camoin presented the ECORD news, the budget situation for FY21 (Tables 1 and 2), FY22 (Tables 3 and 4) and budget projections until FY24.

2019-2023 ECORD Memorandum of Understanding (MoU): At the moment ECORD has 15 member countries. Spain and Germany still need to sign the 2019-23 ECORD MoU.

ECORD membership: In 2019 and early 2020, ECORD was in contact with its past members Israel, Poland and Belgium as well as with Croatia, Greece and Russia concerning a potential membership. Since the start of the COVID-19 crisis there was no contact anymore, but the contact will be started again as soon as the global health situation improves. In 2021, ECORD has been in contact with the United Arabian Emirates concerning a potential ECORD membership.

There are following changes in the ECORD structure:

1) M. Webb (UK) is ECORD Council Chair in 2021. G. Lüniger (GER) is incoming Vice-Chair since 1 July 2021 and will become Chair on 1 January 2022.
2) A. Morris (UK) is ESSAC Chair until 31 December 2021. A. Camerlenghi (ITA) is incoming Vice-Chair before becoming Chair on 1 January 2022.
3) G. Uenzelmann-Neben (GER) will be EFB Chair until 31 December 2022. Alexandra Turchyn (UK) will be Vice-Chair in 2022 before becoming Chair on 1 January 2023.

The ECORD Council core group consists of five members: the Chair, the Vice-Chair and three additional Council delegates. The three major contributors will automatically belong to this core group. The current members of this core group are M. Webb (UK), G. Lüniger (GER), S. Guillot (FRA), M. Engelhardt (NOR) and B. Westerop (NLD).

Lisa McNeill (UK) is SEP Co-Chair until 30 April 2022 and Henk Brinkhuis will replace Dick Kroon (NLD) as IODP Forum Chair on 1 October 2021.

Post-2023 international scientific ocean drilling has been discussed during various ECORD and IODP meetings as well as during bilateral meetings with China and Japan. Bilateral meetings with NSF, ANZIC and IODP India will be organized soon.

Upcoming (hybrid) meetings to discuss the future of scientific ocean drilling:
IODP Forum, PMO and Inter-Governmental meetings in Rome, Italy: 11-13 October 2021
ECORD Council-ESSAC meeting in Granada, Spain: 20-21 October 2021

G. Camoin summarized the ECORD FY21 budget situation (Tables 1, 2). At the moment ECORD has 15 member countries. France, Ireland and Spain are paying in euros, Denmark in krones and the UK in pounds. FY20 ended with a positive balance of $26.28M USD, which was carried over to FY21. Together with the FY21 member contributions of $16.97M USD (Table 1), the FY21 income will yield $43.26M USD. The expenses will be of $20.77M USD and include the implementation of Expedition 386: Japan Trench Paleoseismology as well as a first payment for IODP Expedition 377: Arctic Ocean Paleoceanography. ECORD provided $2M USD to MarE3 to use the Japanese vessel R/V *Kaimei* for IODP Expedition 386, in

addition to the annual payment of $1M USD for the *Chikyu*. FY21 will finish with a positive balance of $22.48M USD (Table 2).

Table 1: ECORD FY21 member contributions

FY21 Contributions (US$)	
DFG (Germany)	5 600 000
CNRS (France) *	3 908 000
UKRI (United Kingdom) *	3 364 000
Forskningsradet (Norway)	1 100 000
FNS (Switzerland)	600 000
NWO (The Netherlands)	600 000
CNR (Italy)	600 000
VR (Sweden)	400 000
MCIN (Spain) *	163 000
DAFSHE (Denmark) *	146 000
GSI (Ireland) *	109 000
CCOD (Canada)	115 000
ÖAW (Austria)	100 000
FCT (Portugal)	90 000
Academy of Finland	80 000
TOTAL	**16 975 000**

** Contributions in other currencies*

Table 2: ECORD FY21 budget

ECORD FY21 Budget (US$)		
FY20 balance	26 284 157	
FY21 contributions	16 975 000	
ECORD-NSF MoU		7 120 000
ECORD-MarE3 MoU		3 170 000*
ESO		2 419 483*
X377 - SPRS		6 700 000
EMA		343 480
MagellanPlus		86 800
IODP Chairs Support		169 000
ESSAC		290 675
BCR		365 490
Outreach basic		56 150
Award		50 000
TOTAL	43 259 157	20 771 078
FY21 balance	**22 488 079**	

** Including X386 implementation costs*

G. Camoin summarized the ECORD FY22 budget situation (Tables 3, 4). The FY22 member contributions will be of $16.97M USD (Table 3). Together with the positive FY21 balance the FY22 income will yield $39.48M USD (Table 4). FY22 expenses will be of $30.32M USD and FY22 should finish with a positive balance of $9.16M USD (Table 4). ESO FY22 expenses include the implementation of IODP Expedition 377: Arctic Ocean Paleoceanography.

Table 3: ECORD FY22 member contributions

FY22 Contributions (US$)	
DFG (Germany)	5 600 000
CNRS (France) *	3 908 000
UKRI (United Kingdom) *	3 364 000
Forskningsradet (Norway)	1 100 000
FNS (Switzerland)	600 000
NWO (The Netherlands)	600 000
CNR (Italy)	600 000
VR (Sweden)	400 000
MCIN (Spain) *	163 000
DAFSHE (Denmark) *	146 000
GSI (Ireland) *	109 000
CCOD (Canada)	115 000
ÖAW (Austria)	100 000
FCT (Portugal)	90 000
Academy of Finland	80 000
TOTAL	**16 975 000**

** Contributions in other currencies*

Table 4: ECORD FY22 budget

ECORD FY22 Budget (US$)		
FY21 balance	22 488 079	
FY22 contributions	16 975 000	
ECORD-NSF MoU		7 120 000
ESO		4 065 738*
X377 - SPRS		TBD
EMA		192 696
MagellanPlus		134 310
IODP Chairs Support		162 000
ESSAC		190 720
BCR		343 419
Outreach basic		46 550
X377 Outreach Officer		30 000
X377 TV doc		35 000
TOTAL	39 488 079	TBD
FY22 balance	**TBD**	

** Including X377 implementation costs*

G. Camoin continued to present the predictions for the ECORD FY21 to FY24 budgets*.

COMMENT on the FY24 budget:
There is an agreement with NSF that ECORD will provide half of its current contribution in FY24 to the funding of the JOIDES Resolution, i.e., $3.5M USD (G. Camoin). Many JR expeditions have been postponed during the pandemic, but ECORD paid its membership. This amount was taken into account in Table 5. The final approval by the ECORD Council will be done at the upcoming ECORD Council-ESSAC meeting in Granada (G. Camoin). NSF said that any member of the JR consortium will have full membership rights for all FY24 expeditions. ECORD will provide $3.5M USD in FY24, however, this contribution is not required to sail ECORD scientists, but it is a help to implement more JR expeditions in FY24, which is an option year (J. Allan).

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

(9:48)
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 purposes. The MARUM is also involved in data management tasks, outreach and training.

Activities over the last year: A high level of sampling has been performed despite an overall lockdown of 3.5 months and a 50% staff reduction. From June 2020 to August 2021, 23,491 samples for 221 requests have been taken. Remote support has been provided for IODP Expedition 386: Japan Trench Paleoseismology. The 2020 and 2021 ECORD Training Courses as well as the 14th ECORD Summer School "Sea level, climate variability, and coral reefs" have been postponed to 2022.

Milestones in 2022: The BCR received the cores from IODP Expeditions 395C and 395E and cores from IODP Expedition 396 will arrive soon. In addition, cores from the upcoming IODP Expeditions 391, 390, 393 and 377 will be sent to the BCR. The BCR will host the Sampling Parties for IODP Expeditions 396 and 390/393. BCR staff will participate at the sampling of IODP Expedition 386 cores onboard DV *Chikyu* as well as participate at the offshore phase and organize the Onshore Science Party of IODP Expedition 377. The ECORD Summer School will be organized in 2022. A new database for BCR curation and MSP expeditions will be implemented.

U. Röhl suggested minor changes in the MSP Standard Measurements document.

ECORD Facility Board Consensus 21-09-02:
The ECORD Facility Board approves the changes in the MSP Standard Measurements policy.

* See confidential annex.

The BCR currently archives about 158 km of cores from the Atlantic Ocean, Arctic Ocean, Mediterranean Sea, Black Sea and Baltic Sea. Since 1969 about 1.78M samples have been taken from BCR cores.

QUESTION about BCR capacity:
D. Kroon asked if there is sufficient space to accommodate new cores over the next years. There is still capacity in the existing reefer and there will be a new reefer in a new building in about two years (U. Röhl). The remaining capacity in the current reefer is sufficient until the new reefer will be in operation (U. Röhl).

2.4 ESO: Downhole logging data and core petrophysic measurements (S. Draper)

(10:04)
S. Draper presented the activities of the European Petrophysics Consortium (EPC).

IODP Expedition 386: Japan Trench Paleoseismology: K. Hochmuth remotely supported the offshore phase of Expedition 386 as Petrophysics Staff Scientist. EPC provided Quality and Control for MSCL, bathymetry and sediment echosounder data. EPC is in the planning stage for the Onshore Science Party.

IODP Expedition 377: Arctic Ocean Paleoceanography (ArcOP): Two Petrophysics Staff Scientists, K. Hochmuth and E. Le Ber, as well as two EPC logging engineers will be part of IODP Expedition 377. EPC is working on new logging equipment and a revised logging protocol for ArcOP.

ECORD Summer School: The 2020 ECORD Summer School has been cancelled. An online logging summer school has been organised in 2021: Downhole Logging for IODP Science, renamed from Petrophysics Summer School. Thirty participants from nine countries by institution and eleven countries by nationality attended this online course. There is continued support from both the U.S. and Japan.

Equipment: The MSCL in the new IODP lab at the University of Leicester has been recently upgraded.

New appointment: Marisa Rydzy joined the EPC team in August 2021.

QUESTION about the course Downhole Logging for IODP Science:
D. Kroon asked how the training courses could develop in the next years. Participants have been satisfied with the online course, although they would prefer an in-person meeting (S. Draper). EPC would intend to go back to in-person courses, but consider both in-person and online courses (S. Draper).

2.5 ESO: Outreach activities on MSP expeditions (U. Prange)

(10:16)

U. Prange presented outreach activities on MSP expeditions. U. Prange took over as ESO outreach manager from D. McInroy.

IODP Expedition 386: Japan Trench Paleoseismology:

- Press release on 11 March 2021 to announce the expedition
- Exp. 386 blog: https://expedition386.wordpress.com/
- Expedition flyer
- Social Media
- News item for the end of the offshore phase
- Marine Studies Group: Deepest of the Deep - online seminar for students on 12 May 2021
- Interviews: Wired, Austrian TV ORF, Terra Mater Magazine of Red Bull Media Publishing (Vienna), The Weather Network, Austria Press Agency
- Featured in: NatGeoKids, BBC News
- Fox News and Stephen Colbert (American comedian): "Japanese researchers dig deepest ocean hole in history"
- Japan Broadcasting Corporation (NHK) plans to include scenes from Exp. 386 in a documentary about earthquakes

IODP Expedition 377: Arctic Ocean Paleoceanography (ArcOP):

- Press release on the implementation of ArcOP (17 February 2021)
- Pre-expedition flyer
- Expedition logo
- Communications Plan
- Production of a TV documentary: interviews with four companies took place and Galaxie has been selected; distribution will be handled by Galaxie
- Call and interviews for an Onboard Outreach Officer
- BBC reporting - an independent journalist will join the offshore phase
- Close cooperation with activities organized by SPRS possibly from the *Oden*

Meetings and conferences in 2020/2021:

- vEGU 2021: joint booth with ICDP with a series of five workshops; ECORD-ICDP Townhall Meeting with a ship-to-shore video call to the R/V *Kaimei*
- JpGU 2021 (30 May - 6 June): booth and 15-minutes flash report

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

(10:37)

A. Morris gave an overview of the staffing, the ECORD Summer Schools, the ECORD Training Course, the ECORD Research Grants and the Distinguished Lecturer Programme (DLP).

Angelo Camerlenghi is the incoming ESSAC Vice-Chair and he will become ESSAC Chair on 1 January 2022.

SEP membership (see agenda book page 22): Since June 2021, there are three new ECORD SEP members: Christoph Beier (FIN), Anne Briais (FRA) and Clara Bolton (FRA).

EPSP membership (see agenda book page 23): Toby Harrold, Respsol Exploration Madrid, is the new ECORD EPSP member.

Staffing of ECORD scientists on IODP Expeditions (see agenda book pages 23-24):
Expedition 386: Japan Trench Paleoseismology: Staffing is completed. Ten ECORD invited scientists plus one Austrian Co-chief Scientist were sailing.
Expedition 395: Reykjanes Mantle Convection and Climate: Staffing is completed. Ten ECORD invited scientists plus one French Co-chief Scientist were sailing.
Expedition 396: Mid-Norwegian Continental Margin Magmatism: Staffing is completed. Nine ECORD invited scientists plus one Norwegian and one German Co-chief Scientist are currently sailing.
Expedition 391: Walvis Ridge Hotspot: Staffing is completed. Eight ECORD invited scientists plus one German Co-chief Scientist are ready to sail.
Expedition 392: Agulhas Plateau Cretaceous Climate: Staffing is completed. Nine ECORD invited scientists plus one German and one UK Co-chief Scientist are ready to sail.
Expeditions 390/393: South Atlantic Transect: Staffing is completed. Fourteen ECORD invited scientists plus two UK Co-chief Scientists are ready to sail.
Expedition 377: Arctic Ocean Paleoceanography: Staffing is completed. Fourteen ECORD berths plus two IKC berths for Sweden, one IKC berth for Germany as well as one German Co-chief Scientist are ready to sail.

There are two open calls for Expedition 397: Iberian Margin Paleoclimate and Expedition 398: Hellenic Arc Volcanic Field, which will close on 1 November 2021.

ECORD Summer Schools and ECORD Training Course:
All activities are on hold since the pandemic began, except for the online logging summer school “Downhole Logging for IODP Science”, which has been organised in September 2021.

ECORD Research Grants: The total budget is 18,000 € and top-ranked research grants will be funded with up to 3,000 € to support work on DSDP-ODP-IODP cores or data covering all sciences and topics relevant for IODP. In 2020, 13 ECORD Research Grants have been awarded (see agenda book page 27). In 2021, ten proposals from young scientists were received (4 from Italy, 4 from Germany, 1 from France, 1 from Sweden). The ranking will be done during the ESSAC meeting that will be held on 18 October 2021.

Distinguished Lecturer Programme (DLP): on hold due to the pandemic.

(10:45)
coffee break
(11:08)

3. Outcomes of recent MSP expeditions

3.1 IODP Expedition 386: Japan Trench Paleoseismology (J. Everest)

(11:08)

J. Everest presented a summary of the offshore operation of Expedition 386: Japan Trench Paleoseismology. The expedition has been originally scheduled for April-June 2020, but due to the global COVID-19 situation it has been rescheduled with a full Science Party for April-June 2021. An alternative plan has been proposed by ESO and MarE3 in Mid-February 2021 and a go-ahead was given seven weeks before the sailing date with 1) Japanese resident Science Party members only, 2) MarE3/JAMSTEC operator staff only and 3) ESO to provide EPM, Curator, Sampling, Petrophysics, Outreach and Database support. On 13 April, the R/V *Kaimei* set to sail from Yokosuka where it returned on 1 June 2021. The R/V *Kaimei* spent 50% of its time operating (26% weather downtime, 17% transiting).

Fifteen sites have been cored in water depths ranging from 7445 to 8023 mbsl. A total of 29 GPC cores has been recovered with a total recovered length of 831.2 m (89% recovery vs cored length). Along the Japan Trench 90 multibeam and sub-bottom profile survey lines have been conducted. Two new records in ocean research have been set: 1) the deepest site ever cored (8023 mbsl) and 2) the deepest sub-sea level sample ever taken (8060.74 mbsl).

The Onshore Science Party (OSP) onboard the D/V *Chikyu* was planned to start on 6 October 2021, but had to be postponed to 14 February 2022. A go/no-go decision will be taken on 23 November 2021 as global travel restrictions related to the COVID-19 crisis are still an issue. A revision of all Science Party sample plans is underway within ESO to enable the OSP to run as efficiently as possible. ESO is investigating various scenarios regarding scheduling and staffing options.

See agenda book pages 29-32 for further information about IODP Expedition 386.

3.2 IODP Expedition 364: Chicxulub K-T Impact Crater (J. Morgan)

(11:23)

J. Morgan presented the scientific objectives and the latest results of IODP Expedition 364.

4. Upcoming MSP expedition: IODP Expedition 377: Arctic Ocean Paleoceanography - ArcOP (D. McInroy)

(11:55)

Expedition Staffing: The Call for Scientists has been open from 16 March to 14 May 2021 and during this time an ArcOP Information Webinar (30 March) and an EGU Webinar (27 April) have been organised. The PMOs forwarded shortlisted Science Party candidates to ESO on 25 June 2021 so that ESO could select a provisional Science Party together with the Co-chief Scientists on 19 August. Pre-invites have been sent to the Science Party on 3 September and all pre-invites have been accepted until 15 September. A full Online Invitation Pack will be issued that needs to be accepted before officially joining the Science Party. The closing date for a Special Call for a Paleogene radiolarian specialist is on 30 September 2021.
The provisional Science Party includes a total of 37 scientists: 17 from ECORD, 8 from the U.S., 4 from Japan, 1 from ANZIC, 1 from China, 1 from India and 1 from Korea as well as one observer from Russia, the Special Call and the two Co-chief Scientists from the U.S. and Germany. This is the largest Science Party on an MSP expedition.
The ESO Online Invitation Pack has been introduced to give information to the Science Party, to confirm the completion of certain actions like offshore safety training or to provide information to ESO for the operational planning.

Operational Planning: The offshore phase is planned for August-September 2022. The targeted port of departure is Tromsø and the fleet should leave Tromsø as close as possible to 1 August. The aim is to leave the ArcOP drill sites before mid-September. The timing of the OSP is still under discussion; it could be organised in late 2022 or early 2023. AMS and ESO watched ice conditions over summer 2021: the ArcOP drill sites have been a marginal ice location in August and the ice started to build in September. According to AMS, the ice conditions in 2021 would have been good to implement ArcOP. The ArcOP fleet is composed of the drilling vessel *Dina Polaris* from Geoquip Marine with an integrated GMTR120 rig, the Swedish icebreaker *Oden* (SPRS) and the Russian icebreaker *Viktor Chernomyrdin* (Rosmorport).

COVID-19: The Online Invitation Pack contains a section with COVID-19 measures. All participants will need to be vaccinated to the fullest extent possible, and provide evidence. All participants must accept the possibility of extra COVID-19 measures before and during the expedition.

ESO Operations Team: Three recruitment exercises for a new ESO Operations Manager in spring-summer 2021 have not been successful. ESO decided to split the duties of the ESO Operations Manager among the six existing BGS staff: Graham Tulloch, Michael Wilson, Oliver Peppe, Grant Affleck, Dave McInroy and Jez Everest.

Medevac: The ArcOP sites are 640 km away from the nearest coastline, the Russian airbase Temp. In case of a medical emergency during a research cruise, the operation stops and the ship sails to the nearest port. A helicopter might help to minimize the transfer time. If the ship

has no helicopter deck or a helicopter is not available, the ship must continue to a port to offload the patient. This is the standard Medevac model. The ArcOP sites are 1115 km, 2.1 days by ship, away from the nearest port Tiksi, i.e., maybe seven days of operation would be lost. Tiksi has an airport and medical facilities. In case of a serious medical emergency, it is unlikely under this standard Medevac model to complete the expedition. During ACEX this risk was mitigated by arranging a stand-by helicopter service onshore. The premium option for ArcOP would be to hire a long-range helicopter that would travel with the fleet onboard the icebreaker *Oden*. This helicopter could transport a patient to the shore within hours instead of days and without any interruption to the operations. To hire such a helicopter for the whole duration of the expedition would cost about $650K USD.

DISCUSSION about Medevac:
Maybe there is the possibility for a private insurance premium that all participants could pay for so that potential costs of a helicopter evacuation would be spread across the science party and the crew (B. Christensen). This option and potential costs need to be discussed with AMS (D. McInroy). Insurance costs need to be included in the operational budget (D. McInroy). One could argue that the costs for a long-range helicopter are not high compared to the costs of the whole expedition, but there are always costs that could be added to better protect the project (D. McInroy). A. Camerlenghi asked if the scientists and the shipboard staff have the same or a separate insurance. The discussed insurance concerns the helicopter provision. Costs to get scientists off the ship are part of the operational costs (D. McInroy). The scientists are asked to insure themselves from arriving at an onshore medical facility.

See agenda book page 33 for further information about IODP Expedition 377.

(12:30)
lunch break
(13:47)

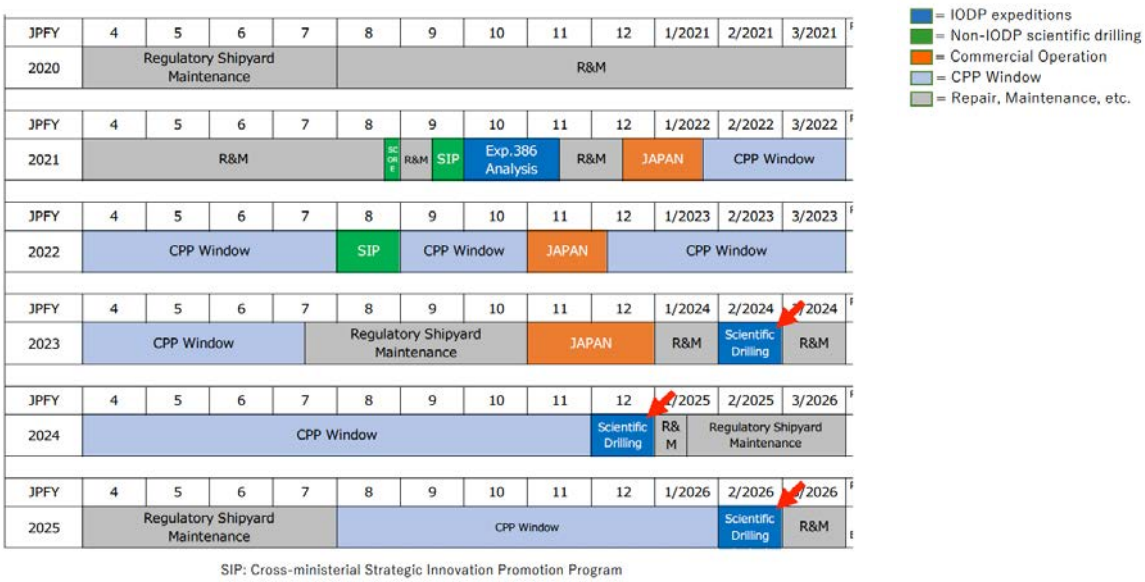
5. IODP Facility Boards and entities

There were reports on the *Chikyu* IODP Board (N. Seama), the *JOIDES Resolution* Facility Board (C. Neal), the *JOIDES Resolution* Science Operator (G. Acton), the IODP Forum (D. Kroon), the Science Support Office (C. Meth) and the Science Evaluation Panel (L. McNeill/G. Christeson).

5.1 *Chikyu* IODP Board (N. Seama)

(13:47)
The last CIB meeting was held online on 13-14 June 2021.

N. Seama presented the tentative *Chikyu* operational plan for JPFY2020 to JPFY2025. There will be fewer commercial operations. Only riserless proposals currently at SEP or the JRFB are considered for possible implementation in the three-month operation window(s) for IODP.



N. Seama presented nine out of 13 CIB consensus statements (see agenda book pages 34-35):

- CIB Consensus_0721-03 on the Japanese commitment to a post-IODP programme
- CIB Consensus_0721-04 on the JAMSTEC fleet contribution to Scientific Ocean Drilling
- CIB Consensus_0721-05 on suspending the Certificate of Conformance (COC)
- CIB Consensus_0721-06 on potential riserless proposals
- CIB Consensus_0721-07 on the fate of unimplemented riser proposals
- CIB Consensus_0721-08 on the JRFB Working Group on Science Framework Proposals report
- CIB Consensus_0721-09 on the Technical Advisory Team (TAT) report
- CIB Consensus_0721-10 on the new Kochi Core Center repository

For further information:

- Minutes of the CIB June 2021 meeting: https://www.jamstec.go.jp/cib/

5.2 *JOIDES Resolution* Facility Board (C. Neal)

(13:59)

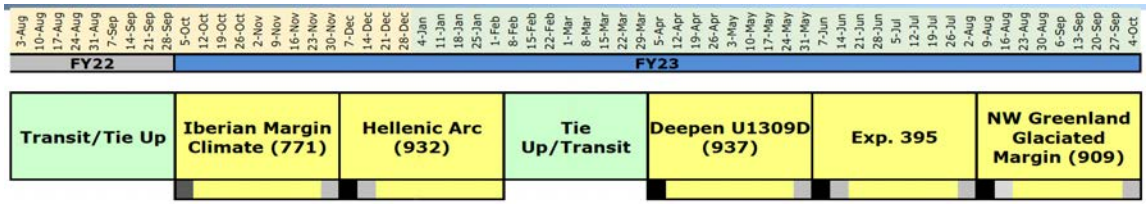
C. Neal presented the JRFB Working Group on Science Framework Proposals (JRFB-WG-SFP) report, outcomes of the 2021 JRFB meeting and the FY23 JR schedule.

The JRFB-WG-SFP considers only requirements and review processes for proposals that would use a proposed U.S. non-riser drillship. The current SEP-type system of combined site-science review works well and should be continued. Placing limits on the number of possible revisions to proposals would benefit a future programme. The operator should be involved at an early stage to mitigate cost, success and risk (already implemented for MSP proposals). Cost categories should be captured for different operational scenarios. Flagship Initiative proposals will be guided by workshops.

The June 2021 JRFB hybrid meeting resulted in 24 Consensus Statements and 11 Action Items (see agenda book pages 36-39 for JRFB Consensus Statements).

- The JRFB-WG-SFP report has been received and accepted (Consensus Statement 2).
- The JRFB recommended the approval of the JRSO and SSO programme plans.
- It was decided that the JR will stay in the Atlantic and possibly get to the eastern Pacific by the end of IODP in FY24 (Consensus Statement 8).
- No new proposals that require the JR to address the Science Plan will be accepted.
- The next JRFB Chair will be Larry Krissek starting on 1 October 2021.
- At the last submission deadline in April 2021 five new and four revised proposals have been received. At the moment there are 99 active IODP proposals in the system: 74 JR, 11 *Chikyu*, nine MSP and five Multiple proposals.
- Proponents of undrilled proposals and orphan sites need to submit revisions that follow the guidelines for proposals addressing the 2050 Science Framework (Consensus Statements 9 and 10).
- Working Group on development of draft guidelines for proposals addressing the 2050 Science Framework (Consensus Statement 13).
- Set up a working group to explore the scope and requirements for developing Virtual Expeditions (Action item 6).
- The addition of a Science Communications Plain Language Summary to all proposals to improve science communication (Consensus Statement 2a).

FY23 JR schedule:



For further information:

- Final report of the JRFB Working Group on Science Framework Proposal Requirements and Assessments: https://www.iodp.org/docs/meetings/1124-jrfb-wg-sfp-final-report/file
- Minutes of the JOIDES Resolution Facility Board June 2021 meeting: https://www.iodp.org/jrfb-minutes/1128-jrfb-2021-june-minutes/file

DISCUSSION about post-IODP:

One recommendation was that proposals should be re-reviewed before incorporation into a future programme. NSF is not seeking a drillship for a global, unified programme, but for an U.S.-led programme (J. Allan). There will be several programmes in the future. NSF has made a determination to extend the award of the Science Support Office by one year through 2024, the option year of IODP (J. Allan). NSF will not support the proposal database after USFY24 for a variety of reasons including unclear partnership (J. Allan). Proposals need to meet the needs of the new U.S. drill ship that can take five years under a leased model to ten

or more years under a built model (J. Allan). This has implications for the other operators. Virtual exeditions seem like a Flagship Initiative to explore legacy data, to provide a synthesis of existing data and to find sites that could be drilled, and to help to answer larger questions (B. Christensen). The working group on virtual expeditions needs to come up with ideas to maintain the interest of the community in scientific ocean drilling when there will be no U.S. drillship (C. Neal).

5.3 *JOIDES Resolution* Science Operator (G. Acton)

(14:21)

G. Acton presented the JRSO response to the pandemic, results of IODP Expeditions 390C: South Atlantic Transect Reentry Installations, 395E: Complete South Atlantic Transect Reentry Installations, 395C: Reykjanes Mantle Convection and Climate as well as an update on the ongoing IODP Expedition 396: Mid-Norwegian Continental Margin Magmatism (see agenda book pages 40-44).

JRSO developed COVID Mitigation Protocols Established (COPE) for Safe JR Operations: http://iodp.tamu.edu/scienceops/JR_COVID-Mitigation-Protocols.pdf
COVID-related travel and port restrictions significantly disrupted crew rotations and ultimately led to postponement of five expeditions (390, 391, 392, 393, and 395). It was decided to make operational progress where possible (international waters) without science parties onboard: IODP Expeditions 384 (Engineering Testing), 390C, 395E and 395C. IODP Expedition 396 sailed with a reduced shipboard science complement. IODP Expedition 391: Walvis Ridge could have a full science party.

JRSO staff changes: Since 1 September 2021, Mitch Malone is the new JRSO Director and Gary Acton is the JRSO Assistant Director. Katerina Petronotis is Manager of Science Operations, Leah LeVay is Supervisor of Science Support and Marcia Walker is General Manager of Administrative Services.

5.4 IODP Forum (D. Kroon)

(14:31)

D. Kroon presented the IODP Forum consensus statements from its virtual April 2021 meeting and the agendas of the upcoming IODP Forum, Inter-Governmental Representative and PMO meetings, which will be held on 11-13 October 2021 in Rome, Italy.

- Consensus Statement 1: document by the Science Framework Working Group
- Consensus Statement 2: IODP core repositories; proposed extension of the Kochi Core Centre
- Consensus Statement 3: establishment of a discussion group consisting of representatives of the funding agencies to discuss post-2023
- Consensus Statement 4: JRFB-WG-SFP report

For further information:

- Consensus Statements of the April 2021 IODP Forum meeting: https://www.iodp.org/forum-minutes-and-consensus-items/1123-forum-2021-april-consensus-items/file

5.5 Science Support Office (C. Meth)

(14:48)

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 provide an IT platform (PDB, SSDB); and 4) to maintain the IODP website.

Proposal submission history: At the last submission deadline in April 2021 five new and four revised proposals have been received. Since the start of the International Ocean Discovery Program in 2013, 177 new proposals have been received. Of those, 50% have been declined, 25% are under active review at SEP and 12% were forwarded to the Facility Boards for scheduling. An additional 22 proposals carried over from the Integrated Ocean Drilling Program are still active in the system.

C. Meth summarized the proposal statistics (see agenda book pages 48-54). At the moment there are 98 active IODP proposals in the system: 73 JR, 11 *Chikyu*, 9 MSP and 5 Multiple proposals. Of those, 58 are at the Facility Boards and 39 are at SEP (1 is in the holding bin). The proposals target mainly the Pacific (41) and the Atlantic (24) Oceans. ECORD and the USA are nearly equal in the number of lead proponents (ECORD: 39, U.S.: 37, Others: 22). ECORD has the highest number of unique proponents (ECORD: 513, U.S.: 373, Others: 354). Of the 98 active proposals, 58 are full proposals and 24 are pre-proposals, plus ten APL and six umbrella proposals.

5.6 Science Evaluation Panel (L. McNeill/G. Christeson)

(14:58)

G. Christeson gave a panel update. SEP is responsible for the evaluation of all IODP proposals in terms of scientific excellence as well as completeness and quality of the site characterization data packages.

SEP membership: The Science Subgroup has 31 members and the Site Subgroup has 21 members (as of July 2021; see agenda book page 56). The new SEP Science Co-chair is Kathleen Marsaglia starting on 1 April 2022. A pre-SEP introductory meeting will be organised for new panel members and a similar meeting will be held before every SEP meeting.

Five watchdogs with expertise in science, site survey data and operation are responsible for the evaluation of an IODP proposal. General evaluation criteria for IODP proposals include 1) wide interest of scientific questions, 2) compelling and feasible scientific proposal, 3) advancement of the IODP Science Plan and 4) engagement of new communities or other

science programmes. Site Characterization Classification to assess if the reviewed data are sufficient to support the scientific objectives.

So far, SEP organised three virtual meetings in June 2020, January 2021 and July 2021.

At the June 2020 SEP meeting, 24 proposals have been reviewed, of which 23 were JR and two *Chikyu* proposals. Seven proposals have been revised and 17 new proposals were received. The results of the June 2020 SEP meeting are shown in Table 5. Of the 17 new proposals, five proposals need to be developed as full proposals, four need to be revised and eight proposals were deactivated.

Table 5: Outcomes of the June 2020 SEP meeting. Proposals submitted for the April 2020 deadline. Orange: revised, blue: new proposals.

ID	Type	Review Result	PI	Short Title	Ship
886	Full	Deactivate	Tomoaki Morishita	NW Pacific Bend-Fault Hydrology	NR-Chikyu
941	Full2	External review	Yasuhiko Ohara	Godzilla Megamullion Lithosphere Architecture	JR
955	Full	Revise	Julie Huber	Axial Seamount Observatory	JR
967	Full	Revise	Takashi Sano	Ontong Java Nui LIP	JR
972	APL2	Revise	Brandon Dugan	New England Slope Hydrogeology (APL)	JR
973	Full2	External review	Torsten Bickert	NW Africa Neogene Climate	JR
976	Full	Revise	HansChristianLarsen	N Iceland Rift Propagation	JR
978	APL	Deactivate	Joerg Geldmacher	Eirik Drift Basement Magmatism	JR
979	Full	Revise	Wolfram Geissler	Arctic Atlantic Gateway Paleoclimate	JR
980	APL	Revise	Keir Becker	Guatemala Basin Hydrothermal Pits	JR
981	Pre	Deactivate	David De Vleeschouwer	Tasman Leakage History	JR
982	Pre	Deactivate	Bradley Opdyke	Totten Glacier Climate Vulnerability	JR
983	Pre	Full	Thomas Westerhold	Kerguelen Plateau Climate Chronicles	JR
984	Pre	Full	Nathan Bangs	Chile Megathrust	JR
985	Full	Revise	Renata Lucchi	Eastern Fram Strait Paleo Archive	JR
986	Pre	Deactivate	Makoto Otsubo	Okinawa Trough Backarc Opening	JR
987	Pre	Deactivate	Bernard Coakley	Western Arctic Climate and Tectonics	JR
988	Pre	Deactivate	Pedro Terrinha	Atlantic-Margin Subduction Initiation	JR
989	APL	Revise	Susana Lebreiro	Tore Seamount Paleoenvironment	JR
990	Pre	Full	Rie Nakata	Hyuga-Nada Observatory	JR or Chiky
991	Pre	Deactivate	Lindsay Worthington	Queen Charlotte Faults and Fans	JR
992	Pre	Full	Peter Haeussler	Prince William Sound Subduction and Climate	JR
993	Pre	Full	Fabio Caratori Tontini	Havre Trough Backarc Formation	JR
994	Full	Deactivate	Steffen Leth Jørgensen	Arctic Mid-Ocean Ridge Carbon Cycling	JR

At the January 2021 SEP meeting, 16 proposals have been reviewed, of which 15 were JR proposals, two *Chikyu* and one MSP (995-pre). Eleven proposals have been revised and four new proposals were received. The results of the January 2021 SEP meeting are shown in Table 6. Proposal 995-pre: Canterbury Bight Offshore Freshened Groundwater is most likely an MSP proposal and needs to be developed as full proposal.

Table 6: Outcomes of the January 2021 SEP meeting. Proposals submitted for the October 2020 deadline. Green: back from external review, orange: revised, blue: new proposals.

ID	Type	Short Title	PI	Recommendation
885	Full2	Ulleung Basin Landslides	Jangjun Bahk	External Review
945	Add3	Brazilian Equatorial Margin Paleoceanography	Luigi Jovane	JRFB
951	Full	Hawaiian North Arch Crust	Susumu Umino	Revise
955	Full2	Axial Seamount Observatory	Julie Huber	External Review
967	Full2	Ontong Java Nui LIP	Takashi Sano	External Review
973	Full2	NW Africa Neogene Climate	Torsten Bickert	Holding Bin
976	Full2	North Iceland Rift Propagation	Hans Christian Larsen	External Review
979	Full2	Arctic Atlantic Gateway Paleoclimate	Wolfram Geissler	External Review
980	APL2	Guatemala Basin Hydrothermal Pits	Keir Becker	Revise
985	Full2	Eastern Fram Strait Paleo Archive	Renata Lucchi	External Review
989	APL2	Tore Seamount Paleoenvironment	Susana Lebreiro	Decline
990	Full	Hyuga-Nada Observatory	Rie Nakata	Revise
995	Pre	Canterbury Bight Offshore Freshened Groundwater	Aaron Micallef	Full
996	Full	Aleutian Basin Formation	Robert Stern	Decline
997	Pre	Mariana Trench Water-Rock interaction	Fengping Wang	Pre2
998	Pre	Antarctic Cryosphere Origins	Robert McKay	Full

At a spring 2021 SEP meeting, proposal 927-full2: Tyrrhenian Magmatism & Mantle Exhumation and proposal 973-full2: Neogene Climate of NW Africa have been forwarded to the JRFB.

At the July 2021 SEP meeting, 16 proposals have been reviewed, of which 14 were JR, one *Chikyu* and one MSP (1003-pre). Four proposals have been revised and five new proposals were received. The results of the July 2021 SEP meeting are shown in Table 7. MSP proposal 1003-Pre: N CAVA Volcanic Ash needs to be revised.

Table 7: Outcomes of the June 2021 SEP meeting. Proposals submitted for the April 2021 deadline. Green: back from external review, orange: revised, blue: new proposals.

ID	Type	PI	Short Title	Recommendation
885	Full2	Jangjun Bahk	Ulleung Basin Gas Hydrates	HB
955	Full2	Julie Huber	Axial Seamount Observatory	JRFB, excellent
967	Full2(Add)	Takashi Sano	Ontong Java Nui LIP	JRFB, excellent
971	Full2	Alessio Sanfilippo	Kane Megamullion Deep Drilling	External Review
972	APL3	Brandon Dugan	New England Slope Hydrogeology (APL)	JRFB
976	Full2(Add)	Hans Christian Larsen	North Iceland Rift Propagation	JRFB, good
979	Full2(Add)	Wolfram Geissler	Arctic Atlantic Gateway Paleoclimate	JRFB, excellent
980	APL3	Keir Becker	Guatemala Basin Hydrothermal Pits	JRFB
984	Full	Nathan Bangs	Chile Megathrust	Revise
985	Full2(Add)	Renata Lucchi	Eastern Fram Strait Paleo Archive	JRFB, excellent
999	Pre	Marguerite Godard	New Caledonia Ophiolite L2S	Workshop
1000	Full	Denise Kulhanek	Argentine Margin Cretaceous Tectonics & Climate	Revise
1001	Pre	Atsushi Matsuoka	Trans-Pacific co-evolution record	Decline
1002	Pre	Bradley Opdyke	Totten Glacier Climate Vulnerability	Full
1003	Pre	Ann Dunlea	N. CAVA Volcanic Ash	Pre2
1004	APL	Uisdean Nicholson	Nadir K-Pg impact Crater	Revise

The next SEP meeting will be held on 11-13 January 2022 in La Jolla, CA, USA.

(15:10)
coffee break
(15:47)

6. Review of the MSP proposals @ EFB

Three MSP proposals that are currently at the ECORD Facility Board were reviewed and discussed: 1) #637 New England Shelf Hydrogeology; 2) #716 Hawaiian Drowned Reefs (Expedition 389) and 3) #813 Antarctic Cenozoic Paleoclimate (Expedition 373).

6.1 Proposal 637-Full2+Add7: New England Shelf Hydrogeology

6.1.1 Summary of objectives, SSD and previous EFB decision (Y. Yamada)

(15:47)

Y. Yamada 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). In 2019, the proponents submitted a full proposal to ICDP, as an amphibious drilling plan (1-2 onshore and 2-3 offshore wells). In addition, the proponents submitted IODP proposal 972: New England Slope Hydrogeology, which has been forwarded to the JRFB in August 2021 and the EPSP review is expected for February 2022. In August 2021, NSF decided to fund an onshore seismic survey, which is planned for January 2022, to support the revised ICDP proposal. In January 2023, a revised ICDP proposal will be submitted.

6.1.2 Drilling operations and costs (D. McInroy)

(15:58)

P637 New England Shelf Hydrogeology Lead proponents: Brandon Dugan and Mark Person			
Water depths:	33 – 79 m	Timing:	March - August
Penetration:	3 x 550 mbsf (1 hole at each site)	Constraints:	Avoid hurricanes and winter storms
Lithologies:	Sands, silts and clays.	Permitting:	US Federal and State
# of sites	3 primary, 1 alternate	IKC Potential	None identified to date

The proposal has been descoped in fall 2017. The number of sites has been reduced 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 or a large liftboat could be used. ESO will not dictate the platform in the call for tender, but leave the bidders and suppliers suggesting their preferred platform option. A liftboat might give a recovery advantage in the predicted lithologies. The descoped proposal with fewer, shallower holes and wireline logging offers a significant cost reduction compared to past versions of the proposal. The proponents still desire casing, packing and pumping. D. McInroy presented the cost estimate assuming three holes with wireline logging.[*] Ships are currently in the region doing windfarm development. The decision should be taken 2-2.5 years before anticipated implementation due to a lengthy permitting process, which might take up to a year.

DISCUSSION about an expedition based on proposal 637-Full2+Add7: New England Shelf Hydrogeology:
G. Camoin asked if there would be any implications for the scientific objectives if two instead of three sites would be drilled. Drilling two holes during an MSP expedition would be fine if the JR would drill the deeper site (Y. Yamada). This proposal has already been significantly descoped in 2017 with fewer and shallower holes (D. McInroy).
There could be a window of opportunity as currently a windfarm is being developed in this region (B. Christensen). It is always beneficial if vessels are working in an area when going for tender for any MSP expedition (D. McInroy). There would be minor savings of mob-demob costs when having vessels nearby, but this expedition would be still a moderate cost operation (D. McInroy). Cost savings would not be enough to implement this expedition in the current programme. The seafloor cable density must change rapidly when developing new windfarms in this area (A. Morris). The situation might change by the time of decision to the implementation of the expedition when there is an active development of windfarms (A. Morris). ESO has consulted development maps and the windfarm development area is west of the drill sites, i.e., there are no cables at the proposed drill sites (D. McInroy). The seafloor infrastructure will be checked again when the expedition will be scheduled (D. McInroy).
Using multiple platforms will be important for the future of scientific ocean drilling and implementation should start whenever one platform is ready so that no opportunities get lost (A. Camerlenghi).

6.2 IODP Expedition 389: Hawaiian Drowned Reefs

6.2.1 Summary of objectives, SSD and previous EFB decision (B. Christensen)

(16:18)
B. Christensen summarized the scientific objectives, the drilling plan and the proposal history. Co-chief Scientists are Jody Webster and Christina Ravelo. Eleven primary sites and nine alternate sites were proposed. In 2018, the EFB scheduled the expedition for September-October 2019. In March 2019, the postponement due to contractual issues was anounced. The EFB decided at its meeting #8 in 2020 that this expedition would be the back-up expedition for 2022 if ArcOP was drilled in 2023.

[*] See confidential annex.

6.2.2 Drilling operations and costs (D. McInroy)

(16:24)

P716 / X389 Hawaiian Drowned Reefs Co-chief Scientists: Jody Webster and Christina Ravelo			
Water depths:	134-1154 m	Timing:	Apr-May or Sep-Oct
Penetration:	55-170 mbsf (4 are >= 120 mbsf)	Constraints:	Whale season, weather (swell)
Lithologies:	Carbonates, minor volcanics	Permitting:	US Federal and State
# of sites	11 primary, 9 alternate	IKC Potential	Research vessel, none arranged

The weather conditions and the presence of whales allow drilling only in April-May and September-October time windows. The water depths range from 134 to 1154 m. Penetration depths are 55-170 mbsf with four holes at >= 120 mbsf. A geotechnical vessel with coring rig cannot be considered due to permitting issues. The MeBo systems will not be available for IODP expeditions until after 2023 due to the postponement of projects during the pandemic. There are two platform options using a commercial seafloor drill: 1) a hired vessel and 2) a research vessel as IKC. D. McInroy presented cost estimates for these two options.[*] The deepest proposed penetration is 170 mbsf. Seafloor drill limitations mean sites < 120 mbsf are now targeted. Permitting work was well progressed for 2019 implementation and the content will still largely apply in the future. There is a rescheduling opportunity in 2023: April-May or September-October.

DISCUSSION about IODP Expedition 389: Hawaiian Drowned Reefs:

The site survey data are excellent and this expedition is a good promise of success (G. Camoin). The most important scientific objective is the climate reconstruction. Constraining sea-level change is problematic as the subsidence rates must be known, but here the objective is also to reconstruct the subsidence history (G. Camoin). The sea-level record would not be accurate. Nonetheless, this expedition would provide a valuable climate record offshore Hawaii. B. Christensen asked for a potential high-resolution correlation of Hawaii to Tahiti and the Great Barrier Reef. Hawaii could deliver a long-term sea-level record, but the Tahiti sea-level curve concerns only the last deglacial period, i.e., the temporal overlap of Hawaii with Tahiti and the Great Barrier Reef is relatively small (G. Camoin).

A. Turchyn asked about the duration of the permitting process. This might take a couple of months (D. McInroy). The suppliers need to be assessed even if there would be the same suppliers. Time and costs could be partly saved (D. McInroy).

The meeting was closed at 16:36.

[*] See confidential annex.

30 September 2021

(9:08)
G. Uenzelmann-Neben opened the meeting.

6.3 IODP Expedition 373: Antarctic Cenozoic Paleoclimate

6.3.1 Summary of objectives, SSD and previous EFB decision (A. Turchyn)

(9:21)
A. Turchyn summarized the scientific objectives, the drilling plan and the proposal history. SEP forwarded this proposal to the EFB in January 2014.

6.3.2 Drilling operations and costs (D. McInroy)

(9:33)

P813 / X373 Antarctic Cenozoic Paleoclimate Co-chief Scientists: Trevor Williams and Carlota Escutia			
Water depths:	353 – 1407 m	Timing:	Dec - Feb
Penetration:	Up to 16 x 50 mbsf	Constraints:	Minimum ice season
Lithologies:	Semi-lithified siltstone, mudstone, sandstone, conglomerate, lignite	Permitting:	Antarctic Treaty, UK FCO consulted
# of sites	16 primary, 47 alternate	IKC Potential	RSV *Nuyina*, challenging to secure

The water depths range from 353 to 1407 m. Penetration depths are 16 x 50 mbsf. A 2018 contract notice exercise demonstrated that commercial vessel options are likely to be beyond budget. Any option that uses an academic seafloor drill needs to be ruled out as the MeBo systems will not be available for IODP expeditions until after 2023 and the RD2 is also not ready for IODP operations. The RD2 will be used for an upcoming NERC sponsored project starting in March 2022 where the RD2 might demonstrate its performance. There are two platform options using a commercial seafloor drill: 1) a hired vessel and 2) a research vessel as IKC. D. McInroy presented cost estimates for these two options.[*] The area is remote from the vessel market. Commercial vessel options are expensive and there are only few research vessels that can carry a commercial seafloor system. Projects have been postponed due to the pandemic and there is a high demand for these vessels so that it is unlikely to get a vessel as IKC. The RVIB *Nathaniel B. Palmer* would not be an IKC, but a contract arrangement. A promising option is the new Australian research and supply icebreaker RSV *Nuyina*. The delivery of the RSV *Nuyina* is delayed by COVID-19 and the ship is currently in transit to Hobart. Getting this vessel as IKC is difficult as it still has to undergo further testing and trials, and the Australian Antarctic Division (AAD) wants to implement a project in the first few years. ECORD could use this vessel in the next few years if an Australian scientist would lead the submission of a proposal to the AAD and other researchers would propose science that is aligned with the scientific objectives of the AAD. Even if the day rate would be affordable, it seems that the availability of this ship will not be there in the next couple of years. Significant funding is needed to hire a vessel or a vessel needs to be secured as IKC, the RSV *Nuyina* or any research icebreaker that could carry a commercial drill. ESO will

[*] See confidential annex.

continue to liaise with the AAD on potential availability, technical specifications to accommodate a seafloor drill, and costs. IKCs will need to be negotiated and agreed between ECORD and the AAD.

7. MSP proposal(s) that could potentially be forwarded by SEP in the future

Proposal 796-ADP: NADIR: Nice Amphibious Drilling

7.1 Summary of scientific objectives (L. McNeill/G. Christeson)

7.2 Site survey data (L. McNeill/G. Christeson)

(9:42)

G. Christeson presented the scientific objectives, the drilling plan and the proposal history. The aim is to characterize the strata of the Plio-Quaternary Var aquifer, and the marine metastable slope E and W of the 1979 collapse structure and its redeposited material downslope at the Ligurian margin (Nice, France). The proposal was last reviewed by SEP in June 2015 and needs to be revised. There is no current ICDP proposal: proposal was submitted to ICDP in January 2015; proponents were asked for a revision; proposal has been rejected in 2016 with encouraging feedback. The proponents are planning to resubmit and have communicated recently. The proposal will need reformatting into the new joint Land-2-Sea proposal format. Two onshore and four offshore sites along a narrow corridor have been selected. Good quality, high-resolution site survey data exist.

COMMENT on proposal 796-ADP: NADIR: Nice Amphibious Drilling:
ICDP would accept a full proposal (C. Meth).

7.3 Drilling operations and costs (D. McInroy)

(9:49)

P796-ADP: NADIR: Nice Amphibious Drilling Lead proponent: Achim Kopf			
# of sites	4 primary, 4 alternate, 3 holes per site	Timing:	June to August (if using barge)
Water depths:	31-50 m (pri), 20-104 m (alt)	Constraints:	Weather/ swell (if using barge)
Penetration:	60-150 mbsf (pri), 100-130 mbsf (alt), total drilling 1200m, total coring 400m	Permitting:	France EEZ, airport nearby
Lithologies:	Gravel to clay, pro delta sequences, transgressive shelf deposits	IKC Potential	Research vessel to carry seafloor drill (if used), none arranged

The proponents proposed four primary and four alternate sites at water depths of 20-104 m and with 60-150 m penetration depths. There are two platform options: 1) a moored barge with a mining rig and 2) a commercial ship with a geotechnical rig. D. McInroy presented cost estimates for these two options.* The barge approach would be much cheaper, but require low-swell conditions. The significant wave height is generally below 1 m (August 2013).

* See confidential annex.

Another technical option is to use seafloor drills, but this might complicate instrumentation installation. The proponents have stated that they have 3rd party requirements to install borehole instruments. The drill sites are located in French waters close to the airport of Nice so that there might be special requirements. Onshore and offshore operational components could be ligned up as perhaps the same infrastructure, the coring rig, could be used. Mobilisation costs could be shared and operational consistency could be achieved if the same equipment is used for both operational phases.

COMMENT on proposal 796-ADP: NADIR: Nice Amphibious Drilling:
Based on the scientific objectives and the location of the drill sites close to Nice, the proponents should request an IKC from the regional authorities and from the government (G. Camoin). This message should be forwarded to the proponents.
The proposal needs to be restructured from an ADP into a Land-2-Sea proposal (G. Uenzelmann-Neben). ICDP agrees with the resubmission of a full proposal to IODP (M. Yamamoto). The proponents can keep the same proposal number (M. Yamamoto).

ECORD Facility Board Action Item 2: EFB
To send a letter together with SEP to the proponents of proposal 796-ADP: NADIR: Nice Amphibious Drilling to inform them about restructuring their proposal from an ADP into a Land-2-Sea proposal.

Proposal 931-Pre: East Antarctic Ice Sheet Evolution

7.1 Summary of scientific objectives (L. McNeill/G. Christeson)

7.2 Site survey data (L. McNeill/G. Christeson)

(9:56)
G. Christeson presented the scientific objectives and the drilling plan. 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 was submitted for the October 2017 deadline and the proponents were asked to develop a full proposal. The proposal was last reviewed by SEP in January 2018 and needs to be revised.

7.3 Drilling operations and costs (D. McInroy)

(10:00)

P931-Pre: East Antarctic Ice Sheet Evolution Lead proponent: Amelia Shevenell			
# of sites	7 primary, 6 alternate, assumed 1 hole per site	Timing:	Dec – Feb
Water depths:	336-679 m (pri and alt)	Constraints:	Weather / ice
Penetration:	200 mbsf each site. Maximum core ~1400m.	Permitting:	Antarctic Treaty, UK FCO consulted
Lithologies:	Diamict, silt, sand, and mud	IKC Potential	Research vessel to carry seafloor drill, none arranged

The proponents proposed seven primary and six alternate sites with up to 200 m penetration. There are three platform options: 1) an IKC vessel with the MeBo200, 2) an IKC vessel with a commercial seafloor drill and 3) a commercial ship with a seafloor drill. D. McInroy presented cost estimates for these three options.* A 60 days project is assumed with about 14 days of transit and 46 days on site. The MeBo200 would be an appropriate corer.

DISCUSSION about proposal 931-Pre: East Antarctic Ice Sheet Evolution:
G. Uenzelmann-Neben asked if the two proposals, 931-Pre and 813-Full (IODP Expedition 373), could be clustered as the drill sites are close to each other. This approach could save costs as mobilisation would only be done once; however, the environmental window of opportunity is relatively short (D. McInroy). Maybe both proposals could be descoped so that they can be combined (A. Morris). This could be suggested to the proponents; proponents of both proposals need to exchange and both proposals could be scoped if there is the chance that their scientific objectives are overlapping (G. Uenzelmann-Neben). This could make the implementation of both proposals easier. It is uncertain what kind of IKC could be received (J. Allan). The Australian RSV Nuyina would require a lot of work on behalf of an Australian PI. Any advice or guidance to merge the proposals should be done in the context that there will be an Australian proponent who could take over the task of getting an IKC (J. Allan). The aim should be to secure the Australian icebreaker and to see what is allowable to be implemented (J. Allan). The EFB could suggest to the proponents of proposal 931-Pre to talk to the proponents of proposal 813-Full as the EFB foresees possible problems to implement them (C. Meth).

ECORD Facility Board Action Item 3: EFB
To send a letter to the proponents of proposal 931-Pre: East Antarctic Ice Sheet Evolution to make them aware about possible problems implementing this proposal and to suggest them to get in contact with the proponents of proposal 813-Full: Antarctic Cenozoic Paleoclimate in order to explore potential scientific overlaps.

Proposal 995-Pre: Canterbury Bight Offshore Freshened Groundwater

7.1 Summary of scientific objectives (L. McNeill/G. Christeson)
7.2 Site survey data (L. McNeill/G. Christeson)
(10:10)
G. Christeson presented the scientific objectives and the drilling plan. The aim is to study the hydrogeology, biogeochemistry and microbiology of an offshore freshened groundwater system in the Canterbury Bight, New Zealand. This project would contribute to estimate the amount of offshore freshened groundwater, improve hydrological and reactive transport models, evaluate environmental controls and mechanisms, and the distribution of microbial communities. This new proposal was reviewed by SEP in January 2021 and needs to be developed into a full proposal. The offshore freshened groundwater cannot be imaged with

* See confidential annex.

seismic data and there are no CSEM data available for the proposed sites. New data are required before evaluating the sites and the feasibility. A workshop has been recently held together with ESO representatives.

7.3 Drilling operations and costs (D. McInroy)

(10:16)

P995-Pre Canterbury Bight Offshore Freshened Groundwater Lead proponents: Aaron Micallef, GEOMAR			
Water depths:	63 – 130 m	Timing:	March - May
Penetration:	3 x 600 mbsf (1 hole at each site)	Constraints:	Not yet known
Lithologies:	Sands, silts and clays.	Permitting:	New Zealand EEZ
# of sites	3 primary, 3 alternate	IKC Potential	None identified to date

This proposal is very similar to proposal 637-Full2+Add7: New England Shelf Hydrogeology in terms of distance to shore, lithologies and penetration, but the water depths are slightly deeper. There are two platform options: 1) a geotechnical vessel and 2) a large lift boat, if available in the region. D. McInroy presented cost estimates for these two options.* The geotechnical vessel seems to be the more cost-effective option. ESO attended a proponent workshop, which was held on 19-24 April 2021. The full proposal will include options for 1, 2 or 3 holes per site at two sites (64-104 days). The proponents' preferred approach would be to have three holes at two sites each: one hole for coring, a second hole for logging and a third hole for hydrogeological testing. The least preferred approach with one hole at two sites each for all activities would be the most financially feasible approach, which has also been adopted for proposal 637-Full. ESO did not yet look into the New Zeealand permitting.

COMMENT on proposal 995-Pre: Canterbury Bight Offshore Freshened Groundwater:
The full proposal has been received on 29 September 2021 (M. Yamamoto).

Proposal 1003-Pre: N CAVA Volcanic Ash

7.1 Summary of scientific objectives (L. McNeill/G. Christeson)

7.2 Site survey data (L. McNeill/G. Christeson)

(10:21)

G. Christeson presented the scientific objectives and the drilling plan of proposal 1003-Pre: Northern Central American Volcanic Arc (CAVA) Volcanic Ash. The objective is to construct ~5-13 Myr records of the frequency, magnitude, and composition of the volcanic ash (layers and dispersed) in the marine sediments offshore of Southern Mexico and Northern Central America; and to constrain the effects of subseafloor postdepositional alteration of volcanogenic material on carbon cycling pathways and the subseafloor biosphere. This new proposal was reviewed by SEP in July 2021 and the pre-proposal needs to be revised. Mechanisms and feasibility need a better development, and the operational plan and the choice of location needs a better justification. Site data appear to exist, but it is unclear if they are complete or sufficient. Clearance from five countries would be needed.

* See confidential annex.

7.3 Drilling operations and costs (D. McInroy)

(10:26)

P1003-Pre Northern Central American Volcanic Arc (CAVA) Volcanic Ash Lead proponents: Ann Dunlea, Woods Hole Oceanographic Institution			
Water depths:	1208 – 4714 m	Timing:	November - June
Penetration:	2 x 100 mbsf at up to 28 sites = up to 5.6 km	Constraints:	Not yet known
		Permitting:	5 EEZs! Costa Rica, Nicaragua, Guatemala, El Salvador, and Mexico
Lithologies:	Clay, silty clay, ash layers		
# of sites	28 primary, 28 alternate	IKC Potential	Yes, Marion Dufresne or other research vessel with long GPC

The proponents proposed 28 primary and 28 alternate sites at water depths of 1208-4714 m and with 100 m penetration depths. This proposal could be the next MSP Giant Piston Coring - GPC expedition. ESO met virtually with the proponents on 31 August 2021. There are two platform options: 1) an IKC research vessel with GPC (~60 m) and 2) a geotechnical vessel with Advanced Piston Coring - APC (100 m). D. McInroy presented cost estimates for these two options.* The proponents would need to accept a lower penetration depth when using GPC; the Calypso Corer on the R/V *Marion Dufresne* takes regularly 50-60 m cores. The number of drill sites needs to be reduced in order to keep the expedition within 60 days. At the moment, the proponents propose three holes at every site, and maybe two or one hole per site could be discussed. It is recommended to reduce the number of countries to get clearance from five to four or three, if possible. This could be a low-cost expedition considering the GPC and IKC possibilities.

A. Camerlenghi declared a COI as co-author of proposal 796-ADP: NADIR: Nice Amphibious Drilling.
G. Uenzelmann-Neben declared a COI as co-author of proposal 931-Pre: East Antarctic Ice Sheet Evolution.

(10:32)
coffee break
(10:49)

8. 2050 Science Framework, MSPs and MagellanPlus workshops

(10:49)

The nine implemented MSP expeditions reveal a large diversity of scientific topics and cover well the seven Strategic Objectives and the majority of the five Flagship Initiatives of the 2050 Science Framework. Land-to-Sea drilling is one of the Enabling Elements of the 2050 Science Framework.

The submission of MSP proposals has been encouraged through the organization of workshops. For example, UK IODP organised an MSP proposal writing workshop, which was

* See confidential annex.

held on 9-11 February 2021. Fifty-two participants have been mentored by 13 experienced IODP scientists. Presentations have been given by scientists and the operator. This workshop resulted in the development of six proposals.

MagellanPlus workshops allow scientists to develop new and innovative scientific drilling proposals for IODP and ICDP. The MagellanPlus workshop programme provides financial support of up to 15 k€ per workshop. A call for workshop proposals with a deadline of 15 May 2021 was issued and five of the Strategic Objectives of the 2050 Science Framework as well as five teams have been identified to bring together scientists who explore how MSPs could be used to address these Strategic Objectives. Six proposals have been received, of which four are directed to regular workshops to develop a drilling proposal and two to exploratory workshops. The MagellanPlus Steering Committee decided to fund two regular and two exploratory workshops. The other two workshop proposals need to be revised and resubmitted by the next deadline on 15 January 2022. The two exploratory workshops are "Investigating the Oceanic Life Cycle of Tectonic Plates with MSP Drilling" (April 2022; Lead: Michelle Harris) and "MSP Approaches to Assessing Natural Hazards That Impact Society" (July 2022; Lead: Hugh Daigle). The MagellanPlus Steering Committee suggests to issue two calls for proposals with deadlines of 15 January and 15 May 2022. The ECORD Council approved a budget increase from 70 k€ to 110 k€ for 2022 (ECORD Council Consensus 21-06-10) in order to fund two additional workshops and to provide more travel grants: 60-75 k€ for regular workshops, 15-30 k€ for exploratory workshops and 20 k€ for travel grants.

For further information:

- 2050 Science Framework : https://www.iodp.org/2050-science-framework
- MagellanPlus Workshop Series Programme: https://www.ecord.org/science/magellanplus/

DISCUSSION about MagellanPlus workshops and future drilling proposals:
B. Christensen asked if MagellanPlus workshops could be used to bring together scientists synthesizing existing data or developing virtual expeditions. MagellanPlus workshops could cope with virtual expeditions once they are established (A. Morris). Two additional groups of scientists will submit proposals for exploratory workshops (G. Camoin). These are potential proposals to address the 2050 Science Framework, but there are no guidelines yet to develop scientific ocean drilling proposals (C. Neal). ECORD is committed to continue implementing MSP expeditions post-2024 and this initiative is thought to get new proposals into the system to fill the future programme (A. Morris). Many early-career scientists as well as scientists without an IODP background are involved in the MagellanPlus workshops (A. Morris). Scientists need to be guided in the right direction to develop a proposal to be drilled in the next phase of scientific ocean drilling (C. Neal). The working group on proposal guidelines is in general in favour of the existing guidelines (G. Uenzelmann-Neben). The present guidelines are a good guide to start developing an ocean drilling proposal (G. Uenzelmann-

Neben). This should not be assumed as there might be different outcomes from the working groups concerning proposal guidelines (C. Neal). The present guidelines can be used for the development of MSP proposals and the proponents will be guided in case modifications will occur over the next few years (G. Uenzelmann-Neben). ECORD takes the momentum to develop ideas into proposals.

9. Discussion of the FY23/24 MSP operation schedule

9.1 Closed session (EFB members)

(11:10)

ECORD Facility Board Consensus 21-09-03:
The ECORD Facility Board recommends to schedule IODP Expedition 389: Hawaiian Drowned Reefs in FY23.

ECORD Facility Board Consensus 21-09-04:
The ECORD Facility Board recommends to implement an expedition based on IODP Proposal 637: New England Shelf Hydrogeology in FY24, if budget allows.

9.2 Open session (G. Uenzelmann-Neben/All)

(12:04)
The outcomes of the closed session have been presented to all.

(12:10)
lunch break
(13:52)

Live broadcast from the *JOIDES Resolution*
(14:06)
The new IODP Forum Chair Henk Brinkhuis reported live from the JR, which is currently implementing IODP Expedition 396: Mid-Norwegian Continental Margin Magmatism.

10. ECORD and MSPs in the new programme (D. McInroy/G. Camoin/G. Uenzelmann-Neben/A. Turchyn)

(14:22)
A. Turchyn has been member of the JRFB Working Group on Science Framework Proposals (see agenda item 5.2). Only requirements and review processes for proposals that would use a proposed U.S. non-riser drillship have been considered. The key findings of this working group have been that future proposals need to be centered around the 2050 Science Framework. Future proposals need to consider risks, costs, success criteria as well as science

communication. It needs to be discussed to which extent the EFB wishes to adopt these new proposal guidelines for MSP proposals.

(14:26)
G. Camoin presented ECORD's future intentions for 1) 2024 as a continuation of the current IODP and 2) post-2024.

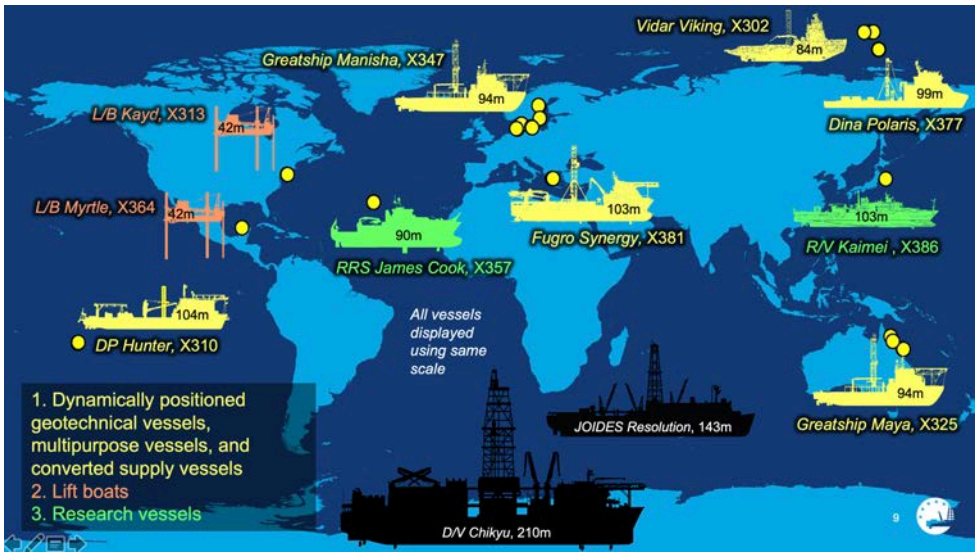
2024: The Cooperative Agreement between NSF/OCE and JRSO will be valid until the end of September 2024, i.e., the JR could be used in USFY2024. The ECORD-NSF 2019-2023 MoU includes 2024 as an optional year funding the JR. ECORD intents to provide half of its current contribution in FY24 to the funding of the JR, i.e., $3.5M USD. The ECORD Council will take a decision about 2024 at its upcoming ECORD Council-ESSAC meeting #10. In addition, the ECORD Council needs to discuss the extension of the ECORD-JAMSTEC MoU by one year until the end of September 2024.

Post-2024: ECORD reaffirms its commitments to the 'philosophy' of the successive scientific ocean drilling programmes: a single international Science Plan, international staffing of expeditions and advisory panels, programme-wide standard policies and guidelines, sustainable management of knowledge-based resources (samples, data and publications) and public access to knowledge-based resources. The ECORD science community is very healthy and must continue to participate to post-2024 scientific ocean drilling. Based on the well-established operation of the ECORD infrastructure, its successful implementation, its competitiveness in the international research landscape and maximum return from investment, ECORD intends to continue to play a prominent role in post-2024 scientific ocean drilling. ECORD has systematically pushed the IODP boundaries by providing access to new drilling environments, opening up IODP to new scientific topics/themes/fields, reaching new scientific communities and introducing new technologies in IODP. ECORD reaffirms its strong will to continue to be an independent platform provider and to globally operate MSP expeditions post-2024. A prominent role for MSPs is anticipated to achieve the goals of the 2050 Science Framework. ECORD intends to develop the MSP concept by diversifying drilling and coring technologies and applying them to all drilling environments, as determined by scientific priorities, operational efficiency and better value for money. ECORD will encourage active collaboration with other platform providers (e.g., JAMSTEC/MarE3) and other programmes/initiatives with similar scientific objectives (e.g., ICDP) to implement joint expeditions regardless of the technology and/or the drilling/coring environment. ECORD reaffirms its commitments to a multiplatform approach to fulfill the scientific objectives of the 2050 Science Framework and aims to partner with other platform providers. In case the JR is not operating beyond 2024, a phase with platforms operated in an MSP-mode provided, for example, by ECORD, China and Japan as well as collaboration with ICDP could be implemented at least for the five first years of the new programme (2025-2029). Flexibility and diversity are key to achieve the objectives of the 2050 Science Framework.

(14:36)
D. McInroy presented the MSP concept and capabilities and how this concept could be applied in the future.

MSPs are needed to work in shallow water (< 90 m), to work in ice-infested waters, to overcome physical obstacles (e.g., low bridges) and to work in lithologies where alternative coring methods might yield better recovery. The MSP concept can be expanded, i.e., MSPs can be used in traditional JR and *Chikyu* realms. For example, ECORD could use a deep-water drillship. MSP basic elements include following basic elements: 1) offshore: a platform, coring method and offshore analytical facilities to describe the cores and to perform some measurements without splitting them, 2) a 2-3 months long pre-onshore phase to ship the cores, to review offshore data, to perform pre-OSP analyses and measurements, 3) onshore analytical facilities (onshore science party) to split the cores, to fully describe the cores, to sample and to analyse the cores.

So far, nine MSP expeditions have been completed and a tenth expedition is in planning (ArcOP). A different platform has been used for each expedition. Three categories of platforms have been used: 1) dynamically positioned geotechnical vessels, multipurpose vessels, and converted supply vessels, 2) lift boats, and 3) research vessels.



Geotechnical vessels and coring systems used for MSP expeditions:

- Platform water depth capability: ~10 m – ∞ (limited by coring method)
- Platform water depth MSP experience: 23.1 m – 1288 m
- Typical coring system: offshore heave-compensated wireline
- Full downhole logging possible
- Borehole instrumentation possible

Lift boats and coring systems used for MSP expeditions:

- Platform water depth capability: ~4 m – 110 m
- Platform water depth MSP experience: 19.8 m – 35 m

- Typical coring system: mining-style wireline
- Full downhole logging possible
- Borehole instrumentation possible

Research vessels and coring systems used for MSP expeditions:

- Platform water depth capability: ~10m – ∞ (limited by coring method)
- Platform water depth MSP experience: 768 m – 8023 m
- Typical coring system: alternative (e.g., seafloor drills and GPC)
- Downhole logging: limited (seafloor drills) to none (seafloor drills/GPC)
- Borehole instrumentation: limited (seafloor drills) to none (GPC)

Possible future MSP platforms:

- All platforms and platform styles already used for MSPs
- Research icebreakers, e.g., RSV *Nuyina*, RRS *Sir David Attenborough*, new JAMSTEC icebreaker
- Other platforms not used as MSPs to date, e.g., moored barges; modular, self-elevating platforms

Land-2-Sea proposals: MSPs offer the opportunity for operational collaboration between domains, as well as scientific collaboration (e.g., share coring infrastructure and equipment)

MSPs will continue to offer scientific drilling access to a wide range of geographic areas and science targets. The MSP concept could be expanded into domains traditionally covered by the other IODP platforms. MSPs are sourced as needed and there is no major infrastructure to be maintained. They allow the coring methods to be chosen according to the scientific requirements. MSPs can be assembled to accommodate novel instrumentation and/or analyses if required. MSP expeditions will continue to offer many possibilities and levels of collaboration (e.g., Land-2-Sea initiatives, joint operator expeditions).

(14:59)
G. Uenzelmann-Neben summarized issues that need to be considered for the future:

- Review process (SEP and EPSP): funding of SSO, SEP and EPSP will end in September 2024
- Fate of existing proposals at SEP and at the EFB: proposals need to be linked to the 2050 Science Framework; addenda need to be reviewed by SEP.
- Programme administration: SSO equivalent
- Future facility board(s) for MSP proposals
- Data management: site survey data, expedition data
- ECORD expedition reports and publications
- Core storage
- Future ESO

- New implementation approaches: regional or technological clustering, collaborations with other platform providers and ICDP, implementation in several phases

DISCUSSION about transfer of MSP proposals to a post-2024 programme:
A transfer of existing MSP proposals to a post-2024 programme would require linking the proposals to the 2050 Science Framework (G. Uenzelmann-Neben). The EFB would ask the proponents of MSP proposals to outline in an addendum the link to the 2050 Science Framework to be reviewed by SEP (G. Uenzelmann-Neben). SEP would consider this as there are not so many MSP proposals in the system (G. Christeson). The EFB did not yet outline MSP proposal guidelines for future MSP proposals, i.e., there could be other items to be outlined in an addendum (C. Meth). Whatever happens with the structure of the programme, mature MSP proposals need to be forwarded to the EFB to avoid a break in MSP operations (A. Morris). It is not clear what may happen post-2024 and at the moment scientists can still submit MSP proposals although it is unkown what might happen with those proposals (D. Kroon). The EFB should state its intention to transfer proposals to a post-2024 programme to have proposals ready that could be implemented in 2025 (G. Uenzelmann-Neben). The timing is difficult (D. Kroon). The EFB should decide that existing MSP proposals should be transferred to a new structure when the current SSO stops operating (A. Morris). A single SEP-style review panel involving SEP and EPSP should be continued (C. Neal). The EFB could state that there should be support by a single SSO.

ECORD Facility Board Consensus 21-09-05:
The ECORD Facility Board requires the transfer of MSP proposal packages currently at the EFB and SEP to a post-2024 MSP scientific ocean drilling programme.

COMMENT on ESO capacity:
B. Christensen asked about implications of implementing more than one MSP expedition per year. The BGS would need to grow its resources as more staff would be needed (D. McInroy). The operator would need to grow compared to the current model when two MSP expeditions would be implemented within one year (U. Röhl).

12. Next EFB meeting (G. Uenzelmann-Neben)

(15:23)

ECORD Facility Board Consensus 21-09-06:
The next ECORD Facility Board meeting will be held in September 2022 in Aix-en-Provence, France.

11. Review of Decisions and Actions (N. Hallmann/G. Uenzelmann-Neben/All)

(15:26)

G. Uenzelmann-Neben presented the consensus items.

13. Any other business (G. Uenzelmann-Neben)

None.

Acknowledgements

ECORD Facility Board Consensus 21-09-07:
The ECORD Facility Board warmly thanks Dick Kroon for his exceptional leadership of the IODP Forum, especially during challenging times throughout the COVID-19 pandemic. We are especially grateful to him for the skill with which he has driven forward planning for the future of scientific ocean drilling. Through his infectious enthusiasm and positivity, he has energised the international community allowing us to face the challenges of the future and embrace the exciting opportunities to come with confidence.

ECORD Facility Board Consensus 21-09-08:
The ECORD Facility Board warmly thanks Clive Neal for his pivotal role as JRFB Chair and his definitive and enthusiastic support of the MSP concept. His exemplary leadership of the JRFB has been instrumental in ensuring the continuity of scientific ocean drilling throughout the pandemic. We wish him all the best for his future endeavours, and we know we will always be able to rely on his passion for IODP as we approach the end of the current programme and design its successor(s)… "Fly us to the moon" Clive!

ECORD Facility Board Consensus 21-09-09:
ECORD warmly thanks our hosts, Giorgia Rivoira and Michele Rebesco, for the perfect organisation of the ECORD Facility Board Meeting #10 as well as Julia and Flavia for their technical support.

G. Uenzelmann-Neben closed the meeting at 15:32.

LIST OF ACRONYMS

AAD: Australian Antarctic Division
ACEX: Arctic Coring Expedition
ADP: Amphibious Drilling Proposal
AMS: Arctic Marine Solutions
ANZIC: Australian and New Zealand IODP Consortium
APC: Advanced Piston Coring
APL: Ancillary Project Letter
ArcOP: Arctic Ocean Paleoceanography, IODP Expedition 377
BCR: Bremen Core Repository
BGS: British Geological Survey
CCOD: Canadian Consortium for Ocean Drilling
CIB: *Chikyu* IODP Board
CNR: Consiglio Nazionale delle Ricerche – National Research Council, Italy
CNRS: Centre National de la Recherche Scientifique - National Center for Scientific Research, France
COC: Certificate of Conformance
COI: Conflict of Interest
CSEM: Controlled Source Electromagnetic
DAFSHE: Danish Agency for Science and Higher Education
DFG: Deutsche Forschungsgemeinschaft - German Research Foundation
DLP: Distinguished Lecturer Programme
DSDP: Deep Sea Drilling Project
ECORD: European Consortium for Ocean Research Drilling
EFB: ECORD Facility Board
EGU: European Geosciences Union
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
FCT: Fundação para a Ciência e a Tecnologia - National Funding Agency for Science and Technology
FNS: Fonds National Suisse de la Recherche Scientifique - Swiss National Science Foundation
FY: Fiscal Year
GPC: Giant Piston Corer
GSI: Geological Survey of Ireland
HB: holding bin
ICDP: International Continental Scientific Drilling Program
IKC: In-kind contribution
IODP: Integrated Ocean Drilling Program (2003-2013) & International Ocean Discovery Program (2013-2023)
JAMSTEC: Japan Agency for Marine Earth Science and Technology
J-DESC: Japan Drilling Earth Science Consortium
JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling
JPFY: Japanese Fiscal Year
JpGU: Japan Geoscience Union
JR: *JOIDES Resolution*
JRFB: *JOIDES Resolution* Facility Board
JRFB-WG-SFP: JRFB Working Group on Science Framework Proposals
JRSO: *JOIDES Resolution* Science Operator
MarE3: Marine-Earth Exploration and Engineering Division
MARUM: Zentrum für Marine Umweltwissenschaften der Universität Bremen - Center for Marine Environmental Sciences, University of Bremen
mbsf: metres below seafloor
mbsl: meters below sea level
MCIN: Ministry for Science and Innovation, Spain
MeBo: Meeresboden-Bohrgerät - seafloor drill
MEXT: Ministry of Education, Culture, Sports, Science & Technology, Japan
MoU: Memorandum of Understanding
MSCL: Multi-Sensor Core Logger
MSP: Mission-specific platform
NSF: National Science Foundation
NERC: Natural Environment Research Council - UK
NWO: Nederlandse Organisatie voor Wetenschappelijk Onderzoek - Netherlands Organisation for Scientific Research
OCE: Division of Ocean Sciences, NSF
ODP: Ocean Drilling Program
ÖAW: Österreichische Akademie der Wissenschaften - Austrian Academy of Sciences
OGS: Istituto Nazionale di Oceanografia e Geofisica Sperimentale - National Institute of Oceanography and Experimental Geophysics
OSP: Onshore Science Party
PDB: Proposal Database
PI: Principal Investigator

PMO: Program Member Office
RD2: Rockdrill 2
SEP: Science Evaluation Panel
SPRS: Swedish Polar Research Secretariat
SSD: Site Survey Data
SSDB: Site Survey Data Bank
SSO: Science Support Office
TAT: Technical Advisory Team
UKRI: UK Research and Innovation
USFY: U.S. Fiscal Year
USSSP: U.S. Science Support Program
VR: Vetenskapsrådet - Swedish Research Council