Chikyu IODP Board #6 meeting
19–20 March 2018

Takikawa Memorial Hall

Kobe University

Final minutes

#6 Chikyu IODP Board Meeting
List of participants

Member		Institution
Keir	Becker	University of Miami, USA
Gilbert	Camoin	ECORD Managing Agency (EMA), CEREGE, France
Benoit	Ildefonse	University of Montpellier, France
Hiroshi	Kitazato	Tokyo University of Marine Science and Technology, Japan
Shin'ichi	Kuramoto	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Jim	Mori	Kyoto University, Japan
Tatsuya	Watanabe	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Yoshiyuki	Tatsumi	CIB Chair - Kobe University, Japan
Ben	van der Pluijm	University of Michigan - Ann Arbor, USA
Liaisons		Institution
James	Austin	IODP Forum chair - University of Texas, Austin, USA
Brad	Clement*	JR Science Operator (JRSO), USA
Bob	Gatliff*	ECORD Science Operator (ESO), British Geological Survey, UK
Holly	Given*	IODP Science Support Office - Scripps Institution of Oceanography, USA
Sean	Gulick*	SEP Co-chair - East Carolina University, USA
Tsuyoshi	Ishikawa	Kochi Core Center (KCC) - JAMSTEC, Japan
Barry	Katz*	EPSP Chair - Chevron Corporation, Houston, TX, USA
Anthony	Koppers	JR Facility Board Chair - Oregon State University, USA
Gilles	Lericolais*	ECORD Facility Board Chair - IFREMER, France
Ken	Miller	SEP Co-chair - Rutgers University, USA
Sally	Morgan	ECORD Science Operator-University of Leicester-,UK
Observers		Institution
Naokazu	Ahagon	Kochi Core Center (KCC) - JAMSTEC, Japan
Jamie	Allan	National Science Foundation, USA
Leanne	Armand	Australian and New Zealand International Ocean Discovery Program Consortium(ANZIC), Australia
Wataru	Azuma	JAMSTEC, Japan
Akiko	Fuse	Marine Works Japan, Ltd.
Lallan	Gupta	Kochi Core Center (KCC) - JAMSTEC, Japan
Nadine	Hallmann	ECORD Managing Agency (EMA), CEREGE, France
Gaku	Kimura	Japan Drilling Earth Science Consortium (J-DESC) - Tokyo University of Marine Science and Technology, Japan
Shota	Kobayashi	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Harue	Masuda	Japan Drilling Earth Science Consortium (J-DESC) - Osaka City University, Japan
Antony	Morris	ESSAC, University of Plymouth, UK
Shigemi	Naganawa	Akita University, Japan
Sho	Nan	Kochi Core Center (KCC) - JAMSTEC, Japan
Mika	Saido	Marine Works Japan, Ltd.
Kiyoshi	Suyehiro	JAMSTEC, Japan
Yasu	Yamada	JAMSTEC, Japan
Michiko	Yamamoto	IODP Science Support Office - Scripps Institution of Oceanography, USA
Greg	Yaxley	Australian and New Zealand International Ocean Discovery Program Consortium(ANZIC), Australia
Hiroshi	Yonezawa	Mantle Quest Japan Company Ltd., Director and General Manager, Marine Operations Dept.Japan
JAMSTEC		Institution
Chihiro	Baba	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Yumi	Ebashi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Nobuhisa	Eguchi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Nori	Kyo	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Kazuhiro	Maeda	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Eigo	Miyazaki	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Toshimune	Nakamura	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Tomohisa	Nawate	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Yoshinori	Sanada	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Tomokazu	Saruhashi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Ikuo	Sawada	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Kae	Takahashi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Sean	Toczko	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Takehiko	Yano	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan

non-attendance*

Chikyu IODP Board meeting
#6 19 - 20 March 2018

Takigawa Memorial
Hall Kobe University

Executive Summary (List of Consensus Items) Draft ver. 0.2

3. Approval of Agenda

CIB_Consensus_0318-01: Approve agenda.
The CIB approved the #6 meeting agenda as is.

4. Approval of Last Meeting Minutes

CIB_Consensus_0318-02: Approve minutes.
The CIB approved the last meeting's minutes without modification.

10. TAT

CIB_Consensus_0318-03: CIB member participation to DWOP'.

The CIB recognized the importance of the DWOP' (Drill Well On Paper Prime) exercise planned for Summer 2018 in preparation for IODP Exp. 358, and decided to send a liaison to witness it. The primary candidate is Keir Becker, but if he is not available, the CIB Chair or Benoit Ildefonse will attend.

11. Chikyu Proposals

CIB_Consensus_0318-04: CIB workshop documents revision.

The CIB recognized some discrepancy between the "CIB Full proposal development workshop terms of reference" and the "Chikyu Expedition planning process flow chart". The CIB will revise the terms of reference to match the flow chart and ensure consistency with the IODP Proposal Submission Guidelines.

CIB_Action Item_0318-01:

CIB secretariat to revise the documents related to CIB_Consensus_0318-04 and distribute them to CIB members for discussion and approval.

12. Long Term Strategy for Future Chikyu Implementation

CIB_Consensus_0318-05: Proposal 898 Workshop proposal

The CIB supports the objectives of a workshop to discuss preparation of a drilling proposal to investigate the geophysical, chemical, and biological subseafloor environment of the Izu-Bonin-Mariana forearc. However, before approving the workshop, the budget needs to be clarified, especially in terms of what specific travel costs are being requested to CDEX. The CIB requests the submission of the relevant budget clarification by the end of April 2018.

CIB_Consensus_0318-06: New riser projects.

The CIB actively encourages new *Chikyu* riser-based projects for consideration along with current active proposals for future implementation. Projects can be based on prior, as well as new, community planning activities, and will be considered, as available, at the 2019 and 2020 CIB and SEP meetings. Workshops and pre-proposals for new projects will be solicited through direct communications and various posting venues.

CIB_Consensus_0318-07: CRISP/IBM/Hikurangi proposal Updates

The CIB reaffirms the importance of the 1 October 2018 deadline specified in its 2017 consensus (0317_09) requesting updates for the CRISP (537), IBM (698), and Hikurangi (781) riser proposals. The CIB intends to review these updates by email in the month following the deadline, thus allowing a potential assistance from SEP in their evaluation before the January 2019 SEP meeting. SEP's feedback will be considered for prioritization of future riser drilling projects after NanTroSEIZE and Lord Howe Rise at the 2019 CIB meeting.

CIB_Consensus_0318-08: IODP Proposal 925-Pre

The CIB agrees that years of seismicity monitoring and much better site characterization at the Blanco Fracture zone would be required before any consideration of the scientifically innovative, but politically sensitive, objectives proposed in 925-Pre, using *Chikyu* riser capabilities. Therefore, the CIB declines to invite a workshop proposal to develop a full riser proposal. The CIB notes that SEP suggested a multiphase approach, with initial riserless drilling and long-term monitoring to characterize the fault zone architecture and state of stress in the region. The CIB suggests that these would be important scientific objectives in their own right and that the proponents could focus first on these initial phases. Thus, the CIB deactivates the current riser pre-proposal and encourages the submission of a riserless pre-proposal.

16. Chikyu/IODP Performance Review

CIB_Consensus_0318-09: Chikyu IODP Operation in JFY2017

The CIB commends CDEX for several aspects of IODP operational successes of *Chikyu* in JFY2017. These include: (1) installation in riserless mode during Expedition 380 of the Site C0006 LTBMS in the planned configuration with the savings of 17 operational days; (2) the successful CLSI@Sea educational/research activities conducted in concert with Expedition 380; and (3) the cooperation with ICDP in the *Chikyu* core logging phase of the Oman Drilling ICDP Project. Based on the TAT report, the CIB is also very impressed by the CDEX engineering preparations during JFY2017 for the Expedition 358 resumption of riser drilling in Site C0002 during JFY2018.

CDEX planning activities for engineering development and collaboration with IODP *JOIDES Resolution* Science Operator for field testing the new Turbine Driven Coring System, as well as promoting younger engineers' efforts in engineering scoping for the Mohole to Mantle (M2M) project are very well received by the CIB.

Outreach activities included a highly successful exhibition at the National Museum of Nature & Science, popular open-ship during portcalls in Hachinohe and Shimizu, and a sustained twitter campaign of updates and notification of all these activities. English-language social media efforts should be added to raise the profile of *Chikyu* on an international basis.

Although the CIB appreciates the complex funding pathway for *Chikyu* operations from MEXT-JAMSTEC-CDEX, the CIB encourages greater activity in riser drilling for IODP operations. The *Chikyu*/IODP scientific achievements to date have generated outstanding contributions to ocean science and better understanding of subduction zones, all of which have a great impact in societal relevance and promotion of public safety in Japan and the world.

18. Next CIB meeting

CIB_Consensus_0318-10: Next meeting and CIB Chair term.

The CIB agrees that Chair Yoshi Tatsumi's final term will effectively end at the next CIB meeting in the week of 10 June 2019. The final date should be chosen to avoid travel conflicts with the SEP and TAT meetings.

19. Any Other Business

CIB_Consensus_0318-11: Farewell Jim Mori.

Dr. Jim Mori is leaving Chikyu IODP Board now. He has been a very efficient, and always smiling member of CIB, as well as a great lead proponent and chief scientist of IODP JFAST expedition.

We will miss him on the CIB. We were happy to watch his performance during a big “Deep Ocean” exhibition at the National Museum of Science and Nature in Tokyo, during which he has attracted more than 600,000 citizens with his nice speech about the fascinating IODP sciences endeavours. We have no doubt that he will stay present in IODP community as a brilliant research scientist and science communicator.

CIB_Consensus_0318-12: Farewell Ben van Der Pluijm.

The Chikyu IODP Board expresses its gratitude to Ben van der Pluijm (pronounce "ben") for his service to the IODP community as a European, US-based member of the CIB. Unlike the Flying Dutchman, our Drilling Dutchman is far from being a ghost; he has been a very active member of the Board, adding enthusiasm and a much appreciated multicultural perspective to his great knowledge of the past and current ocean drilling programs, and to his vast scientific expertise as a structural geologist (and more).

"Dank u zeer" Ben! You're leaving big shoes for the next Board member to fill.

Chikyu IODP Board #6 meeting

19–20 March 2018

Takigawa Memorial Hall Kobe University

Minutes ver. 2.5

Day-1 **Monday, 19 March 2018**

Agenda Items

1. Welcome Remarks (Shin'ichi Kuramoto) (09:00 h.)

First Chair Yoshiyuki Tatsumi welcomed everyone to Kobe and then asked Shin'ichi Kuramoto for his welcome remarks.

Kuramoto welcomed the CIB members, liaisons, and observers, showing his appreciation to the Chair for providing such a nice venue for the #6 CIB meeting (3rd time in Kobe) after mentioning the awesome ice breaker the night before. In addition, Kuramoto briefly emphasized the importance of CIB to future *Chikyu* operations as well as the contributions that CIB provided, such as for the upcoming *Chikyu* Nankai expedition and also for the recent CDEX activities. His opening remarks ended with the expectation of some fruitful outcomes from this CIB meeting and appreciation to all the attendees.

2. Introductions and Logistics (Kazuhiro Maeda) (09:03 h.)

The Chair moved to Agenda Item #2, Introduction and Logistics. Kazuhiro Maeda briefly explained the participants current location (Takigawa Memorial Hall) and the emergency escape routes in case of Earthquake/Tsunami (follow CDEX staff). In addition, he briefly showed how to connect to the Wi-Fi network, and provided information on the evening's reception.

Participant self-introductions started at 09:07 h.

3. Approval of Agenda (Chair - Tatsumi) (09:12 h.)

The Chair shared the latest agenda (ver. 1.5) and asked the group if there were any comments, mentioning that there were changes in the Day-2 items order. Eguchi and James Mori confirmed which version was distributed in the agenda book. The Chair read out the agenda items planned for Day-1, and asked if anyone has a conflict (COI: Conflict of Interest) with any agenda items.

Keir Becker responded that he was a Co-chief for Expedition 380 and might have some COI, depending on where the discussions went.
Mori mentioned that as a proponent he had COI for the IODP proposals J-TRACK (835) and 866 (Japan Trench Paleoseismology, Lead proponent: Strasser). Nobuhisa Eguchi replied that those items are related to agenda items for Day- 2.

The Chair confirmed with the group that for Agenda Item #12, *Chikyu* Proposals (update and discussion), Mori might need to leave the room when any decision-making regarding proposals 835 & 866 were required. In addition, the Chair himself declared that he was an IBM proponent (698), and he would have a conflict too. No comments and questions arose.

The Chair confirmed the agenda with the group, and it was approved as is.

CIB_Consensus_0318-01: Approve agenda.
The CIB approved the #6 meeting agenda as is.

4. Approval of Last Meeting Minutes (Chair - Tatsumi) (09:17 h.)

The Chair continued onto the next agenda item, Approval of Last Meeting Minutes. He asked the group if there were any comments, including the CIB consensus decision on inviting a proposal (Proposal 898 pre: Fore Arc Mohole-to-Mantle) for a workshop after the last CIB meeting in Kobe.

Becker suggested having CIB consensus for the approval.
The Chair confirmed this with the group, and the last meeting's minutes were approved with no changes.

CIB_Consensus_0318-02: Approve minutes.
The CIB approved the last meeting's minutes without modification.

5. CIB Decisions since the Last Meeting (Chair - Tatsumi) (09:18 h.)

The Chair mentioned again that IODP Proposal 989 was approved for the workshop through CIB email discussion (additional CIB consensus made following the last meeting). He also mentioned that Proposal 898 had a workshop proposal to be discussed later during this CIB meeting (Agenda Item #12).

Mori directed a general question at the group. He explained that there was some confusion regarding the process for approving the workshop, between the website directions, and the text available from the CIB.

The Chair and all confirmed that the clarification of workshop (WS) procedures will be before tomorrow's discussion. Eguchi suggested that these issues should be separated and discussed before Agenda Item #12 since Mori is in conflict. The Chair and the group agreed to discuss this on day-2 (before Item #12).

6. CIB Action Item Status (Chair - Tatsumi) (09:20 h.)

Regarding the update requests on riser drilling projects: CRISP (537), IBM (698), and Hikurangi (781) (**CIB_Consensus_0317-08**), the Chair told the group that only one report from CRISP was received. He looked forward to receiving the remaining two projects' updates by the due date, October 2018, and will discuss them at the next CIB meeting.

Becker suggested evaluating these updates before the next scheduled CIB meeting since it will be 15 months away from now. The Chair responded that CIB would discuss those suggestion during Day-2. Ken Miller pointed out that the agenda item mentioned the potential involvement of the SEP co-chairs, but in reality, any requests would go through the Science Support Office.
Eguchi responded that when the CIB secretary sends messages to proponents, those messages are copied to the SEP co-chairs and Science Support Office.

The Chair provided some additional news; IBM was going to have a meeting next summer, and they would provide updates after that.

Eguchi added that the JR Hikurangi drilling is currently ongoing and an update would be available after completion.

The Chair confirmed that there were no more comments here and continued to Agenda Item #7 before the coffee break.

7. Other FB, IODP Forum, and Agency Activities

a. IODP Forum (James Austin)

(09:24 h.)

James Austin started by introducing the purpose of the Forum. Austin explained that the forum is now 4 meetings old; he is now in his 3rd and final year. Austin said that most people are aware of what the Forum is now. This is the latest phase of a scientific ocean drilling collaboration effort that is 50 years old. Collaboration tagged by the funding agencies has been (relatively) clean and easy. As far as the community has concerns, the group of the people who write the proposals are there, it's a program.

Austin also added that the Forum reminds everybody that IODP is a program. The IODP Forum has multiple platforms, providers, multiple actions, areas, although program funds are not comingled in a visible way. But as far as proposal writers are concerned, this doesn't matter. We should all remember that this program depends on proposals written by an international community. This is a vital part of the IODP forum that reminds everybody that we are a community. This is a volunteer effort, with no budget. The last meeting in Shanghai went very well, and he discussed the consensus items from that meeting.

The Forum listens to program reviews, by both ECORD and ANZIC and they were quite positive. Austin said that consensus item 17-02, showed that Biosphere Frontiers, needs to be fostered better. This was brought up during the JRAW US Workshop, held this past September in Denver. There is a lot of enthusiasm for this community to stay in ocean drilling. We strongly

suggest that FBs and SEP find people and theme-based activities to promote this, as we see it is potentially underutilized. The IODP Forum thinks it's an important part in science plan, and we want to build it strongly as we can do in future proposals

Austin talked about Forum Consensus Item 17-03, where it's important to develop a "look", a pre-drilling "look" at how the science is doing relative to the science plan. consistent. IODP has a science plan, and this science plan should to guide us through the next 5 years of scientific ocean drilling. This powerpoint on the SSO web site is primarily focused on pre-drilling, so what IODP Forum is worried about is what is beginning to be assessed throughout the program. These are post-drilling assessments of how our science doing relative to the science plan, as exemplified by the US JRAW report.

JRAW is an assessment of the *JOIDES Resolution* as a Facility in the US. The workshop that was held in September and looked at *JR* based on a series of responses from the outside community. About 80 people gathered in September in Denver to look at how the *JR* is doing related to the science plan. This JRAW report has been circulated to the National Science Foundation, and it will be out shortly. The forum would like to pass it along to encourage the other pieces of the program to do similar post-drilling assessments; both here in Japan, relative to the *Chikyu* operation, and as far as the MSP for ECORD as well. We need pre-drilling looks, primarily by proponents writing proposals, showing how they related to the science plan, and then have post-drilling assessment by the program, invite the community, and take a close look at how we do the drilling. If we want to think about writing another science plan for renewal, we've got to have a robust feeling for how we've done with the plan we have.

Next Austin talked about Forum Consensus Item 17-04. There was discussion at the IODP Forum about the science plan. We also had a small meeting yesterday, to discuss the fundamental question of if there is "life after 2023". We shouldn't kid ourselves; if we are thinking of going to decide the post-2023 program, we've got to be thinking about starting the process of planning pretty soon. So, by 2019, there should be a decision by NSF about funding the *JR* for the next five years, and when Japan will be more clear about what the future of *Chikyu* will be, what ECORD will have in mind

for the MSP capabilities will be, we have a fundamental task as an international community to think about what that next phase will look like.

Some activities are already begun, which Gilbert will tell you about for ECORD, while JRAW is the first step about thinking about it in the US, although not specifically as a post-2023 activity. We definitely want to think about that, as soon as next year if want a vision of a program after 2023. That's the pretty fundamental question we've got to face.

In Forum Consensus Item 17-05, Austin said that scientific ocean drilling is 50 years old. A lot of activities could be appropriate in commemoration of this, and one is underway. Anthony Koppers, the chair of JRFB, is the lead editor, and this (presentation slide) is going to be published in *Oceanography*. The table of contents for that volume is out. A lot of authors are being asked to write short articles in support of that volume. Funding proposals are underway, and Antony may want to talk more about this later. Austin said this is the one activity among many that the Forum thinks are appropriate to commemorate 50 years of highly productive work in ocean drilling.

Austin discussed Forum Consensus Item 17-06, Austin explained that the IODP Forum was contacted by the Science Evaluation Panel in 2015, concerned about the rolling gap between high quality imaging and the science that we were proposing in the program. Many of us in the Forum have been aware of this, and over the last 3 years we've been trying to encourage the recognition that high-quality seismic imaging is a crucial part of scientific drilling. We would like to continue to foster some things that have happened already, such as the paper authored by Nathan Bangs and Austin in *Eos* regarding the RV *Langseth*, the US imaging vessel which is very much at risk now. Imaging is as expensive as drilling in some cases. We want to continue to call attention to the relationship of imaging, to make imaging a global and potentially coordinated activity partly in support of scientific ocean drilling. If we don't have good images, we won't have a good scientific ocean drilling program. With a reduction in price of oil, with the diminution of industry-based imaging around the world, this need is going to be larger and not smaller in years to come.

In Forum Consensus Item 17-07, Austin explained that based on reviews from ECORD and ANZIC, they heard about continuing relationship of "E and

O". We always talk about these being together and have been encouraged to decouple them. Education has been something chronically underfunded, being member, language, and culturally specific. What the Forum and ECORD are saying now is they want to argue about having a programmatic point of view on outreach, particularly outreach with measurable capability. This is happening. USSSP, ECORD, and ANZIC are all headed in this direction and the Forum would like to see that continue and are working towards this. We need to use our meagre resources primarily to showcase the program and what it does, and make products available to education specialists as we can, but not specifically linked education and outreach.

In Forum Consensus Item 17-09, Austin explained that next IODP Forum meeting is in Goa, India, 19-21 September. Our Indian colleagues are trying to have a workshop to talk about some programs they're interested in the Indian Ocean. Prior to the forum meeting, the IODP Forum will try to foster efforts for our country members that are trying to stay actively involved in the program. There are some concerns. One is that *JR* moves to Atlantic. Austin mentioned his personal concerns about both Indian participation and sees that Korean is at some risk. We hope the forum meeting will both nurture and energize the Indian community to stay involved in the drilling program.

Austin announced that the search for the next forum chair is underway. He has received two applications from talented individuals. These applications have been forwarded to the review committee. CIB members should have a decision in shortly. Austin hoped that new chair for the next 2 years will take over his role starting at the Goa meeting.

The Chair thanked Austin, and asked for questions and comments.

Miller asked about the duration of the Forum chair. He thought the term was 3 years. Austin replied that it is 2 years. Austin explained that his role was extended due to the circumstances.

Koppers asked how do you see the role of Forum as the guardian of the science plan, so how does the Forum make certain to get enough proposal pressure for all 3 platforms.

Austin replied that they are trying to push the need, but the Forum has limits. Talks like this, and the powerpoint, are there to stress the need and show our progress. Word has reached the community about the Biosphere, and about the MSP capabilities. But it is up to the facility boards to make sure the word gets around if they have enough proposal pressure. That's what's happened in the ECORD facility board and CIB as well.

But the bottom line for both is that we have to respond to the proposal should submitted. We have to figure out every mechanism possible to keep the community of proposed writers excited. JRFB are doing the same thing, *Eos*, documentation on the web site. The MSP proposal flow is down, and CDEX is trying to energize riser proposals while understanding the expensive costs and the doubts that *Chikyu* will leave Japan waters, and so on. Let's be honest, we need to get young people to spend at least 3 years learning how to develop the proposals. We are ready to open that discussion.

Ildefonse asked if there is any other specific initiative that can be taken at programmatic level. Austin answered that Camoin will talk about this. We will approach the AGU committee to highlight Scientific Ocean Drilling, particularly for the 2019 AGU meeting. AGU is going to make the funding available. At every opportunity, we should provide the resources as well. At the same time, we also should energize young people to get workshops running to support this.

Koppers said that this is tied to renewal, post-2023. Because we do not have enough proposal pressure in the bank, it does not look good for renewal. We have to carefully look at how to energize all 3 platforms to get the proposals. Austin replied that the funding agencies are reluctant to make any commitment for post 2023. We know at least 2 years is needed to get a proposal on the platform. How do we convince young people to write a proposal in the system where the future is so cloudy? But we do need to do it. Because the funding agencies don't consider the proposal flow. It's worth discussing.

The Chair asked if there were any comments or questions; there were none.

b. *JR* Facility Board (Anthony Koppers) (09:42 h.)

Anthony Koppers briefly introduced the new IODP structure. Five years have passed since the new program started. The panel structure is being slimmed down. It is more efficient, streamlined and allows the FB more capability to do the original planning of expeditions. It is really working well.

Koppers introduced the JRFB centric overview, showing a slide with the JRFB the middle and on the left, how it is comprised: 3 US scientists including the Chair,

3 international scientists, and the funding agency, NSF, with JRSO as the operator, and including other financial partners, such as ECORD, ANZIC, etc. There are 14 people on the JRFB with 2 oversight parts, one is JRSO, the science operator, and SSO holding the site survey data bank and also perform proposal preparation. One of the JRFB tasks is to approve the science plan once a year. The other part, includes two panels, SEP and EPSP, which advise the JRFB. Of course, other entities give advices to JRFB and it is very helpful.

Koppers talked about the JRFB mandate.

In particular it's been hard for the community to see how the facility board actually works. So, at the last meeting, we had a lot of consensus statements and we tried to re-emphasize the role of JRFB. This one basically says that one of the primary goals of the JRFB is to implement all proposals. These are thoroughly reviewed, scientifically evaluated, and forwarded by SEP and have been recommended for approval by the EPSP.

We try to make things very clear-cut and understood. To do that job, we look at all proposals to make sure everything is good, the science plan is good, so by the time it comes to the facility board, it is ready to implement. We make decisions on scheduling, which depends on the planned regional track of *JR*, maximizing the fit and balance of proposals to the IODP science plan, funding and ship time availability, safety, permitting and other logistical items. Overall, SEP and EPSP works very hard and they can filter out

poor/bad proposals. That is a very important point.

Koppers explained that JRFB sets the terms and references. This is not only for JRFB but also SEP and EPSP. JRFB also sets all the policies and guidelines for SEP and EPSP. All policies and guidelines are posted on the web for everyone to see.

Koppers showed the new format of guidelines and policies, which is a clear and simple format. This is all maintained by the SSO on the IODP web site so that everyone can find them.

Koppers showed the *JR* track, with the gray arrows on the map showing the long- term *JR* track. This shows expeditions which have already been completed. The red dots are expeditions finished in 2014 and 2015. The blue dots were finished in 2016 and 2017. We currently are working on the green dots and these are on the schedule. You can see we've just finished the Ross Sea West Antarctic expedition and are now close to NZ and Hikurangi. We are going to focus on the Southern Ocean for the next schedule. By 2019 we go up to the Gulf of California, and cross Panama. In 2020, we will have one CPP expedition in the Gulf of Mexico. Then we are going down south again. In 2020 and 2021 we are planning on working in the South Atlantic basin. And then we are going to go up to the North Atlantic. In 2023 we are going back to the Indo-Pacific.

Koppers explained the single global circumnavigation plan. Koppers showed the consensus statement of the community explaining *JR* is circling the globe, and expects to be back in Indo-Pacific in FY2023. This all depends, however, on proposal pressure. Koppers mentioned that more proposals for the North Pacific and Arctic in 2022–23 are needed, and also showed an early proposal call for Indo-Pacific expeditions in 2023–24. Koppers said that we hope many proposals will come into the system,

Koppers explained the JRFB's schedule.
We schedule the annual meeting once a year in May, and we schedule the JR 2- 3 years into the future. The reason we do this is to give the operators

as much time as possible, to successfully implement the expedition. Thus, we are going to be scheduling for FY20–21 from this May.

Koppers said that the JRFB stays true to the outlined regional track to guide proposal writers. Koppers added that since 2017, we are operating *JR* at full utilization which means using the vessel 10–11 months per year. We need 1–2 months for repairs because *JR* is an aging vessel, and requires care.
Koppers mentioned that *JR* has successfully implemented 4 CPP Expeditions with 1 more CPP planned in the Gulf of Mexico for 2020 with US Department of Energy (DOE) funding.

Other things the JRFB has started to do is request the operator to implement an engineering-only expedition that is scheduled sometime in 2019. We allowed *JR* owe to test out new technologies to help *JR* to figure out how to drill in locations traditionally difficult to drill with *JR*. The other one is we started short or hybrid expeditions where we get 2–3 proposals at the FB, we can sometimes run one or more together in single expedition. That's what we call a "Hybrid" expedition

Koppers showed the new *JR* schedule for FY 2019–20. Koppers said 7 expeditions and 1 CPP, the Gulf of Mexico, are scheduled.

Koppers explained the proposal pressure, showing the *JR* track map. Koppers noted that the stars on the map have not been scheduled, and some of them are at the FB. The biggest pink stars are at the FB ready to be implemented, and the smaller ones are full proposals at SEP, and the white stars are pre- proposals at SEP. You can see that on the right side of the map, there are not so many stars. Basically, all implemented then, we are looking for the newer proposals that are in the system now.

On the left-hand side, where *JR* is now starting to operate, there are quite a number of stars. The only thing that is always a little bit challenging for *JR*, is to see if all the proposals are extremely matured by the time *JR* is operating when the full proposals are ready to be implemented. Waiting proponent teams that half of the proposals mature very nicely to make sure we meet those timelines to successful so far. In the North Atlantic, there are quite a few proposals in the system and are quite a lot of pre-proposals. Koppers thinks that for the *JR* things are looking pretty good.

Koppers explained about the IODP-wide Mission Antarctica, and the big benefits of the new approach and new program. The original planning not only allows efficiency, but also allows the JRFB to start implementing expeditions in a particular region that can be combined into what we call a “Mission”. Some of the parts are much bigger. JRFB has very successfully implemented expeditions around the Antarctic and Southern Ocean. The black circles on the map are regions where expeditions are on the schedule or have already been completed, and these include one MSP, Also, you can see few pre-proposals are quite mature in the system here circled in gray. These will potentially be scheduled for *JR* next May or sometime after. So, there are 6 or 7 proposals around Antarctica that *JR* will be implementing.

Koppers explained improvements in the *JR* Facility.
Koppers explained that the *JR* is an old lady and we have to really take care of her. At least one or months are needed so that we can do repairs each year. We have to look at her if you want to make sure to cover the next five years of this phase of the IODP program. *JR* can fulfill all the scientific objectives and can also be state-of-the-art. Basically this is a call to the community to tell us if there are any particular needs for the next five years which JRFB should consider analytical capabilities for the *JR* in terms of databases, software, and equipment. This is something that community has to bring forward to us, it has to be shown as a larger need of the community,

Koppers mentioned other problems regarding *JR* improvements. Three years ago, the *JR* expedition of the South Western Indian Ridge ran into many difficulties in reaching the scientific objectives. The expedition needed 1.5 km of ocean crust penetration but only got 800 m deep. The proponents said they didn’t see clear path forward to achieve alternative goal of 3km deep that was the original proposal. There is another proposal of “Superfast” which ran into a lot of issues also.
JRFB took over and recommended to form the workshop led by JRSO. At the workshop, they discussed that how we get into more than 1.5 km. into ocean crust hard rock environments. This workshop held in October at college station. We are going to consider that how do you fulfill the engineering in 2019 based on this workshop’s report.

Koppers talked about the Special Oceanography Volume. The program is 50 years old this year. We got together in a group to make the special 50 years Volume. We don't want to be the volume that going to be looking back only but we want to use this volume to look into the future. We want to make sure that we reach out to be mid carrier and early carrier group to drive this effort. The timeline is very tight but we are already working on this. We aim to have this volume in early December for AGU meeting. We ask potential sponsorship and lots of interest of our proposals to NSF, ECORD, J-DESC, ANZIC to help us for supporting to do this getting out.

van der Pluijm asked if this would be this open access. Koppers replied that yes, all the pdfs will be free for download, separately, or the entire volume. A few printed issues will be distributed as well. This will look very professional, so can be shown to higher. But this is expensive. Ildefonse commented that he recalled a similar volume at the end of ODP, 2006. Koppers said yes.

Koppers explained about the TOC, which is circulating now. There are 11 main chapters for 14 pages,12 short papers for 2 pages long, and another 14 info boxes describing the platform to the program. It is pretty completed now. Every writing team asked about how to make the chapter or contributions to speech "what's next". We can use this volume like a springboard for new science plan potentially.

Ildefonse commented that he was amused to see the revival of the term "Mission" again. You could argue that there are other series of workshops that could be seen as "Mission". Koppers replied that these are being written, but now there are being grouped by the FB, rather than in hindsight. Before the missions were so big, they were hard to implement. There is an extra science benefit like "Monsoon", and there is a global aspect that can't be addressed by one expedition.

Ildefonse asked if he would be in COI regarding this deeper drilling workshop so if he is able to read the report. Koppers replied that it's on the website.

Ildefonse said that we had the post-cruise review committee of where always

technical issues, with some recommendations made, it is very explicit.
He said that he is curious to see if this workshop replicates that effort. Austin commented that there's nothing to do with the program. We had engineering activities in the program, much more substantially in previous years. So, we are not re-inventing the wheel, but with some new wheel.

Koppers added that in previous programs things we had special panel for technology reviews, not anymore. So, it is up to the FB to recognize engineering needs. This is a different approach, and it is more direct. The JRFB tends to implement proposals and they don't full the science objectives for some technical reasons, we want to looking into that. That's the way we are doing the business. Ildefonse said that it is frustrating. Because this kind of discussion is already at place and was not used for some reasons

Austin commented that engineering development is expensive. Allocating ship time for engineering was stopped because of the costs. Allan agreed that the costs are a big issue. We DID hope it might be less expensive though.

Becker commented that in an earlier presentation, it said that the new advisory system is working like clockwork. More than the concerns in the changes to the new system, the reduction to two panels may be eliminating opportunities for younger generation scientists to get involved in proposal evaluations. Becker asked if anyone is assessing if the younger generation is being involved or not?

Koppers replied that they try to look at multiple things, including expertise and diversity within EPSP and SEP, including the age, gender, and seniority level of the people on the panels. If you look at recent SEP, first majority is the mid and junior people. SEP is the only panel where is actually good work. Koppers asked Millar how many people are in SEP. Millar answered 30 scientists and 15 from outside science. Koppers said that 45 is a good number for young people. Another option is getting engaged in workshops like JRAW. These kinds of opportunities allow younger people to get involved. But we have to think about all the time.

Austin added that we should do more as a program to get young people to write proposals, and to figure out ways to make this happen. Having a panel is great. SEP is great, because they see how both the science and data are

coming together to make a proposal successful. Austin would like to know how many SEP members go off to proposals because he hasn't seen that.

The Chair asked Koppers about the deep drilling WS, for superfast center drilling. This should be very interesting for *Chikyu* preparations for the Mohole project. Is CDEX connected with these WS or work groups? Koppers replied that yes, CDEX members participated. Becker added that Clive Neal was there and this was presented at the CDEX TAT meeting.

The Chair called for a 35 min coffee break at 10:15 hrs.

c. ECORD Facility Board (Gilbert Camoin)

d. ECORD (Gilbert Camoin)

(10:48 h.)

Gilbert Camoin presented both the ECORD FB activities and some news updates. The presentation included the summary of the next few years of the ECORD renewal process and some more actions, such as MSP expeditions, the MagellanPlus workshop, etc.

Camoin mentioned some changes concerning the entities. EMA, which has been run by CNRS, is supposed to be renewed. However, the ECORD council decided to leave EMA with CNRS by the end of the program in 2023. He said it would be the same for ESO, which has been run by BGS, to be ended in 2023. He said that ECORD ILP (Industry Liaison Panel) has not show much progress in developing the relationship with industry other in case opportunities arise. Thus, there is no regular committee but an ad hoc one in some cases. Then Camoin mentioned two task forces. One is called the "Vision Task Force", which is usually used at the start of the program of the current IODP program, but it will be used again to think of additional opportunities within the next few years to start to think about the future program. The other task force is "Education and Outreach". Camoin stressed that the task force will be really focused on outreach activities as ECORD has been convinced of the importance of outreach to lead education with ESSAC.

Next, Camoin mentioned personnel changes: the ECORD council chair is G. Lüniger until the end of 2018, Vice-chair M. Webb will be replaced with E. Humler in mid of 2018. M. Sacchi will be a member of ECORD council core group. For ESSAC, Morris is Chair of ESSAC until 2019 and vice-chair J. Behrmann will remain until Dec 2018. As for the ECORD FB, G. Lericolais is Chair until Dec. 2018, and current vice-chair G. Uenzelmann-Nieben will be the next Chair starting from January 2019. S. Gallagher and F. Inagaki will be finished in December 2018, and ECORD would like to replace them with one Japanese member and one from associate members like India, Korea, or ANZIC. ESO Chair R. Gatliff will retire at the end of March 2018 and the next Chair will be nominated by April 2018. Outreach officer, P. Maruejol is also going to retire in April 2019, and ECORD will hire a new person starting in January 2019. Anthony Morris added that the call for new ECORD FB members has gone out with a deadline of 7 May.

Camoin next explained ECORD's post-2018 renewal status. He said most of the member countries, except for Canada, have already committed their funding contributions for FY2018. He is concerned about Canada; however, he explained that each individual country has to decide to renew its own participation in this program, since ECORD is a national level consortium. This renewal at the national level is expected to be completed by September 2018. For that, Camoin explained there are three steps. First is the ECORD external evaluation, which Camoin said was very positive for the activities from February to June 2017. Camoin said the revised ECORD MoU was completed by January 2018 and that documents would be sent to each funding agency by the end of March 2018. Regarding IODP partnerships with MoUs, the agreement with JAMSTEC is valid until 2023 with no change, and the one with NSF will be agreed shortly regarding ECORD scientists on *JR* and then for US and non-US scientists on MSPs for 2019–2023. All renewals will be confirmed with the commitment of agencies by the end of September 2018 for the second phase of the program. Camoin mentioned that ECORD renewal will mostly rely on the science results from the first phase, the success of ECORD's financial model for platform operations during the first phase, and operational plans defined for MSP, *JR*, and *Chikyu* during the second phase of IODP.

Camoin explained the ECORD budget plan based on the results of FY17

contributions. Every year, the ECORD total budget is about USD 17–19M depending on currency exchange rates. USD 1.1M for science, education, outreach and management, USD 2M for fixed operational costs and more than 80% of the ECORD budget is used for IODP expeditions. In detail, USD 7M for *JR*, USD 1M for *Chikyu*, and USD 6.5–7M provided for the MSP. There are additional project-based cash and in-kind contributions, but annual national in- kind contributions and science costs require USD 7M at a minimum for science costs with especially running a post-cruise meeting.

Camoin discussed the MSP expeditions. Exp. 347 Baltic Sea bridged the transition time of the two program phases. Exp. 357 Atlantis was conducted in 2015, Exp. 364 Chicxulub was in 2016, and Exp. 381 Corinth was in 2017. These three expeditions are already reviewed, and EFB discussed post cruise assessments and is working with Co-chiefs on assessments of scientific results. Camoin said that Exp. 364 Chicxulub was reviewed in 2017 as very successful report, with good research results from the high-quality core taken from 1.3 km below the ocean floor, combined with wireline logging data and CT scan images. The first scientific outcome was published in *Science* and we can expect more to be published. Jamie Austin noted that another paper was just accepted by *Nature* magazine.

Camoin also mentioned that Exp. 381 was also a successful expedition, using the high-end geotechnical drillship *Fugro Synergy*. They used new techniques in IODP with the SEADEVIL seabed template and the Fugro coring suite of tools. Camoin said that offshore operations were conducted last October drilling three sites, and that the onshore science party was held in February 2018. Its operational review will be held in the Netherlands in November 2018. The *Preliminary Report* will be delayed until late summer 2018, due to the submission of high-impact papers (*Nature Comm.* & *Nature Geosci.*) by the end of April 2018. The *Proceedings* will be published 1 March 2019.

Camoin discussed the MSP expedition schedule. He said that ESO decided about ten days ago at EFB meeting to postpone Exp. 377 Arctic IKC program for the budget constrains until 2021, since it is a high priority expedition for ECORD. After the last EFB, MSP expedition schedule was reconsidered to implement proposed expeditions to save money in the following order, Exp. 373 Antarctic in December 2019 with the commercial vessel, #716 Hawaii

in 2020 with the commercial vessel, and Low-Cost Expedition Japan Trench in 2021. Since the total expected the balance of budget for MSP expedition is US$45M in 2019– 2023, it will save about US$28.546–24.446 M for the last two years in 2022 and 2023. There are three proposals which have no recent activity, and recently two of them were deactivated because they were not active in over the last five years. There will be only two proposals left to wait for the actual opportunity. Camoin said that it is necessary to have some more proposals to convince funding agency including the next program.

Camoin mentioned MagellanPlus Workshop series that EFB funds annually. EFB provides budget €15,000 at maximum for each workshop. The size of this WS is 30–40 participants. This WS is concerned for all IODP platforms and ICDP activities. One common thing is a deadline for a call, 15 January. Since 2014, 26 workshops and more than 12 proposals were initiated. He introduced the latest MagellanPlus workshop in 2018, as the first one is prior to EGU in April in Vienna and three other workshops, and the last one is currently held to confirm but about New Caledonia Peridotite Amphibious Drilling Project in January 2019 at Montpellier, France. He introduced two special calls for MagellanPlus workshops. One is about 2–3 days workshop to encourage early career scientists to write proposals. The second call is 2– 3 days workshop to initiate concepts for a future ocean drilling program to be developed beyond 2023. Deadline for this call is extended to 1 April 2018 since there was only one proposal and not a good one. He wanted a community to get organized something good to implement, or there would be no program after 2023.

He told that ECORD annual report will be published this month, which includes all the activities.

Camoin told about ECORD activity at EGU in the next month. There will be the ECORD-ICDP joint booth with Japanese representatives and more outreach staffs. They will have an 8 m-long booth as a new display. There will be a town hall meeting, and six different sessions with each speaker. ECORD Council-ESSAC #6 will be held to review current expeditions in the Huge in the Netherlands from 6–8 November 2018, and ECORD FB#7 will be held from 21–22 March 2019 in Bremen, Germany.

Camoin ended with a statistic of the rate of contribution from IODP and ICDP for recent *Scientific Drilling* journal. He pointed out that IODP contribution is rather small compared to the ICDP publication contribution, and he suggested each FB to remind Co-chief scientists to contribute their report.

Mori commented about successful Chicxulub, which actually ICDP committee worked hard for 3–4 years. He said ICDP put USD millions and it is called as ICDP/IODP joint proposal. Camoin said that ECORD did not get a million, but ICDP project has benefits to call it very efficient.

The Chair asked whether Japan Trench Paleoseismology Expedition may be less contribution, and also asked *Chikyu* is a kind of vessel in-kind contribution. He said it is better for us to collaborate with MSP.

Camoin answered that it is a different scenario and for a specific expedition.
Ildefonse commented that general publication related to IODP. He said the priority is for high impact/profile paper for *Nature* or *Science*, so it is sad, unfortunate but the fact there is no count on such contribution. It needs to be pressure from the different people in charge in the program to convince Co-chiefs to write a paper for the journal as this is a long-term program journal lasting over 15 years.

Ildefonse mentioned that publishing in *Scientific Drilling* is not a big deal, it is not a priority – it doesn't show up in the Web Of Science searches.
Austin commented that it is better to ask Co-chief scientists, for post-cruise drilling assessments.

Miller commented that it doesn't look like the upcoming workshop is advertised in the US at all, which shows a of lack coordination between the PMOs. Miller strongly encouraged building more coordination between organizations so that more people could aware of what is going on. Camoin said that it is very good point and PMO should do publish the application on the website ASAP.

Morgan asked whether workshop participation is restricted to Europe. Miller said USSSP never asked. Morgan if it works by invitation or rather than

application. Miller said there was no advertisement.

Camoin said the budget €15,000 covers traveling costs of participants, and it needs to advise at an early stage for the limited number of participants.

Miller said the SEP Chair tries to attend workshops on two-weeks notice. Austin mentioned that Brenner would say the break-point for US scientists is identifying leading roles for US scientists for US people to attend. He gave the example of the Indian workshop and said considering the other PMOs is key and putting information on the website is not an end point but a starting point.

Camoin said it will be put on the website. Austin said what we are seeing is not quite enough, and that should be especially for young people, who do not know the program well, getting involved. Eguchi said he will make sure to add this issue to the JPMO agenda since he is the chair by agreeing with Miller's comment. Camoin said it is important to send the information out before this September. Most of the workshop will be held before that. Austin said he likes bottom-up approach but it won't work for a long-term plan. Since ECORD will try it first this will be an example for when JRFB needs to talk with the NSF about the next five years. Camoin said he's optimistic that there is still time before the next deadline.

e. MEXT (Tatsuya Watanabe)

(11:31 h.)

Tatsuya Watanabe talked about the personnel changes and introduced Professor Masuda who assumed the position of J-DESC IODP committee Chair. Watanabe briefly explained that he took over his present position almost one year ago.

Watanabe showed a graph of JAMSTEC's budget allocation. He explained that the JPFY starts from 1 April. The budget allocation plan is now standing in the Diet, in the House of Councilors. This will definitely be adopted by the end of March. Watanabe explained that the scale of budget to JAMSTEC has shrunk a little bit. There is the supplementary budget for the end of this

JPFY 2017 and it is about USD 5M. This cost was used for the deployment of an argo float and super computer system renewal at JAMSTEC. Watanabe added comments that the prospect of further budget allocations to JAMSTEC is not very bright; he does not think this trend will change and the budget situation is very tough in Japan.

Watanabe explained the review process. The streamlining process of J-DESC is still ongoing, but it will be finalized before May 2018. In parallel with this streamlining process, J-DESC proposed to invite the IODP Forum to Osaka in 2019. This is a sign of change at J-DESC.

The Basic Plan on Ocean Policy of Japan is under review. In the government and at the institute level, the draft is now circulated and is very close to being finalized.

JAMSTEC mid-term targets and activities plan will be assessed and renewed in the coming JPFY. The 4th term commences from JFY 2019. We will see the new guidance, direction, and activities for ocean drilling between 2019 and 2023 emerge this next year.

The Chair asked if there were any questions or comments and none arose.

f. NSF (Jamie Allan)

(11:36 h.)

Allan first of all reported on the budget. The US President's proposed FY2019 NSF budget turns out to be exactly the same as the actual budget of FY2017 approved by congress. It's important to understand that in the US, Congress sets the actual appropriation to tell government how spend the money and what activities to do. So, the President's budget does not determine funding but Congress does.

In an interesting wrinkle, Allan said the US is operating under what's called continuing resolution, and on March 23, the US government runs out money. So congress needs to pass the budget. Allan doesn't yet know what the budget is for *JR* in 2018. This prevents Allan from giving a clear financial

guidance to the *JR* Science operator for the FY2019 plan.

But overall, Allan said the financial situation for *JR* appears somewhat stable. The 2018 budget is unusually expensive, since the *JR* is doing very expensive things: CORK installation and LWD, which were approved, but turning out to be very much more expensive than we planned. Allan said we planned USD 2.5M for Hikurangi, and this means we have to look carefully before doing that again. Allan also hopes to pay an additional 1 million dollars for Icebreaker support. It's an expensive year, but made possible by the South China Sea CCP project, and these are a big help.

Allan said that one thing we should worry though, is that if you look at the future, the funding for *JR* is likely going to be flat. The main base cost for the vessel, which is borne by the ship owner are going up. *JR*, Allan said, is going to break more because it's like an old car. And at some point, *JR* will have a day rates more than we got at the contract. Those are all considerations.

Right now, *JR* is operating 10 months a year. As long as we are doing relatively simple things, we expect to cover our costs for the next few years. But when JR does hard stuff, it's expensive. Without additional funds going in, we may have to go out once a year to be able to do more expensive things. In 2019, *JR* will run an engineering expedition which the facility board decided on for a variety of reasons. But it was hoped that it wouldn't be as expensive as regular expedition. So, 2019 is also going to be an expensive year.

Allan said that right before the ECORD facility board, we had a *JR* facility performance review panel in 2017. Anthony Koppers and Jamie Austin both gave presentations there, we were very grateful that it really helped, although his is the first time we've done. The cooperative agreement requires these to be done on an annual basis. These reviews are essential aspects to determine whether or not we re-new or re-compete the cooperative agreement and for mid-course corrections.

These reports, which go to me, are confidential and cannot be posted. But the NSF response, which I will write, is public. Allan explained that this panel met at TAMU in late February and March, and included US and European

panel members. We had a lot of dropouts and had lot of substitutions. As happened in previous years, we received reports from the 2017 co-chief review, and then a panel review was held after that. Panelists were selected by consultation with the JRFB chair and JRSO; there were 9 panelists, 2 JRFB members, including facility experts within and outside scientific drilling. This is not a program that is covered by memoranda, and here, NSF pays the panelist's costs. Panelists subject to COI rules were decided by NSF.

Reviews go and follow NSF large facilities office guidelines for review of large facilities and also the internal management plan that we came up with before we awarded the cooperated agreement of *JR*.

Again, report to NSF, and NSF ODP and IPS Management attended all proceedings, and operates under Federal Advisory Committee Act and Freedom of Information Act. It is, in part, a closed meeting, for the executive sessions. We constructed the agenda to maximize the open sessions. The material that was presented at these sessions are available on the web. Reports with confidential material will be shared with NSF financial partners and JRFB.

Allan said that the panel was very impressed. Again, for the first time of the role, the performance of facility and operator. And you can read this, (Allan read the last part) "The JRSO Site Visit Panel concludes that the facility is being managed superbly well by the JRSO, with effective support from the JOIDES Resolution Facility Board and NSF, to meet the international scientific communities' Science Plan."

Allan said the panel did identify 3 challenges and 10 specific recommendations. The facility is running at a very high level. How can you go to the next step? Are there data that you can mine to predict how to modify operations for the future. Can you also make sure the operating level remains very high and how to saving the environment level? *JR* is an aging vessel and we need to take care of her, particularly data, for the next step. There were some really valuable recommendations that we received.

Allan quickly went over the new memoranda, increasing the membership

costs in *JR* Consortia. We have pretty much negotiated with ECORD in language of memoranda. And it has fairly minimum changes in language and membership on *JR* facility board and panel and thought about more flexibility to Chair to build the best to the panel.

The other way is that current program goes through 2023 but one word, looking to re-new the *JR*, we've been doing 5-year renewal which will be through FY 2024. An option for next few years, exactly how we do that is a sort of opened question. We want to make that flexibility with all our consortia, memoranda. So just in case, if you renew the *JR*, it runs through 2024, if NSF agrees. If they don't, we might see the operation in 2023 and have one year to wind things down and allow us to run for year in 2023 with options maybe for work in 2024. We are trying to provide some flexibility. The big changes are that CCs and onboard outreach members will be included in the total quota rights. This will treat all *JR* berths equally.

Allan explained more about the renewal of *JR*. NSF will welcome a new 5 yr. proposal from JRSO. Once this gets reviewed, and if very positive, we'd move internally, and then approach NSB for renewal. NSF management needs NSB authorization for funds towards the facility. Until we get that authorization, we cannot make any public announcements. However, we welcome discussion and questions. It's important that NSF management approves authorization for expending funds. They approve the facility. How we get that authorization of expend funds. We cannot speak in a public venue width. What is likely happening on post 2023 or post 2024, for what should happen, but it won't interested in Europeans though. Don't hesitate to give it to us.

Allan showed the timeline and explained it. The important point is that I asked for a proposal to be delivered for the first 2 weeks of May. The panel would be received in second week of July. And before we go to NSB, the information item should be delivered in November, and the action item will be delivered in early 2019. In the meantime, we are preparing partner memoranda, we cannot move forward on the internal approval of memoranda until after this.

Allan said that some of you may be aware of the fact that NSF has been struggling with how to provide seismic capabilities to the US research community. There was the solicitation, and one or more proposals were

received by the panel with recommendations. NSF is still working on this but it is difficult to say anything more clearly than “soon”. Most probably not everyone will be happy.

Allan talked about other news for NSF. William Easterling is the new Geosciences Assistant Director to NSF. Rick Murray is in his final year in as Ocean Science Division Director and we have opened the call for his replacement. William is a geographer and expert on climate change and food supply. He will be with us for four years. Ocean Sciences has now moved to the new Alexandria location. Allan added that it is a Secure Control building: this means public access is limited to meeting room floors, and visitors are required to have an escort to visit NSF staff-only spaces. And we are daily discovering more and more new features of this building. One of new feature is that although we have more meeting rooms, than in the old building, because of the security constraints, we actually have less meeting space than before. Now we have run panels outside the building, including the JRFB which will be held at the Holiday- Inn.

Camoin added the information because Jamie talked about CC scientists and onboard outreach members are including in total crew rides. Just want to inform to the people here that this will not be the case on MSP expeditions. We will not count as CCs and outreach members on MSP expeditions.

Kuramoto asked to Allan that NSB agrees on new facility but “not IODP” means that there is not same structure of IODP after 2023. Is that right? What do you mean “not IODP”?

Allan answered that we talked about this at the meeting yesterday is the all. We are not the position as an agency to lead the science community. We got an input from *JR* assessment workshop. We’ve just received the report few weeks ago. That was the input us, US community about what facility needs to be. And that covers through 2023 and 2024. And what was stated is that *JR* is needed to fill a 10 years science plan and doing very well as an optimal platform in its role along with *Chikyu* and MSP. What comes next is not doubt in that report. We need to solicit that input. So that is what we are.

The Chair asked how about the *Chikyu* situation for those. Kuramoto answered it is same as MSP.

van der Plujim said it seems you said that efforts should focus on outreach over the education. It is not criticism but maybe education is not the priority in this program. Is that what you mean?

Allan answered yes. It is the general conclusion from a number of different body. It highlighted in discussion from last forum. Maybe Jamie can explain that.

Austin commented that we've got input from both ANZIC and ECORD review. We haven't got *JR* report so I do not comment on it because it has not circulated. But it is very clear from major pieces of the program, the outreach with the budget is available which is small. If you are going to use the small budget and optimize the activity. The outreach is the place to do it. You can have measurable impact, and view generally the education should be left the members to pursue hopefully with project to generate for outreach in a program. Nobody is saying negative things but education the question is whether the program should support the education with program funds. And the view there is that probably isn't the best way to proceed.

Allan added the information that one thing if he can add that the panel report to NSF essentially said the situation regarding outreach officer onboard is improved dramatically. And there were issues for the first one on 2017 but the outreach officer's activity is pretty successful for last of them. Outreach efforts with Zealandia were spectacular successful. So that's good. We are moving on the right direction. But the part of the challenge is that by the direction from Geoscience directory panel looked at it. We were specifically told that cooperative agreement of *JR* should have no outreach/education budget. Last year panel told us that they didn't agree with that and should be restored. Allan said that he took that argument internally within Ocean Science management but they said no. So, this budget is in US science support program. This report stated that any eliminated funds should be collaborate with outside funds, going with other sources. So there is a limited amount of things we can do.

JRSO can provide the facility for example, internet staff, like that. There is very loud and specific that was just given from CCs meeting that needs to

be managed better. And also 2 is still problem we need to make sure with our outreach officer. Their plans onboard are totally coordinated with CC scientist and staff scientists. That is going to be a problem in the past. It's been addressed.

van der Pluijm commented that it is welcome shift but he would like to make sure to very clear to the outside of the world, outreach is getting the priority. Outreach is the future but not pushed out enough. If we push more then we get more proposals. Educational benefit is downstream. This is important to reach the younger generation people. Push more aggressively. Outreach is the future.

The Chair asked if there were any questions or comments and nothing arose.

g. ANZIC (Leanne Armand)

(12:04 h.)

Leanne Armand presented the ANZIC update. She is the new program scientist and this is her first CIB, so she has been talking to the group members to get to know them better. Armand showed some pictures of the new ANZIC office, which is supported by Australian National University (ANU). The current office is better than the old one, with one small room, and there are now three visiting desks, with one currently occupied by an American scientist, room for staff, and a small meeting room. Armand said this visiting desk is helpful for those who coming to the ANZIC office.

Regarding ANZIC Panel representative changes, Armand said they just need to notify the selected candidates for ECORD and EPSP representatives when she gets back. With about seven applications for SEP representatives, the selection process will be over around 30 March. The ANZIC Scientific Committee representative will soon be selected from 9 young applicants, focusing on bioscience research, across from the country. For CIB and JRFB representatives, new calls will be made for looking into 2019.

Armand mentioned the March Council Meeting held about two weeks earlier. The council decided to resume the ANZIC subscription to *Chikyu* for 2018–2019, and the request for invoice will be provided shortly. Armand said the ANZIC intention is to follow up in the following year with support depending on what is going on with *Chikyu* 2019 IODP related activities and what *Chikyu* is

doing. ANZIC looks forward to contributing scientists to the *Chikyu* IODP program and a new year of collaboration.

ANZIC will run out of money in 2020 with the current funding scheme, and there is a strategic plan for the bid development for the new ANZIC program. A very large council meeting held in May 2018 to focus specifically on building a strategy to do this. Taking into account the new consortium membership fees, ANZIC recently received the MOU from NSF so that it would be part of that process and we will be able to look at what options we actually have on the table. Then we will able to start to talk about the NZ future involvement for the regional perspective. ANU is strongly supportive for re-hosting the ANZIC office to remain where it is.

Armand said interesting themes at this stage are related to core analysis and technology developments. Armand said that particularly the biosphere frontiers theme is something that Australia is pushing into, and now one workshop for the such a proposal with JAMSTEC and Japanese researchers are under discussion at the moment. Armand said they are working on developing more international collaboration with South East Asian partners for IODP in the future. As for potential themes, Armand mentioned a seismic report, which ANZIC might participate in the future.

As for funding, Armand explained that status as a full associate member is planned with a minimum of USD 0.5M, however, it depends on how much funding is available. Although there will be an election in Australia in November and in March, infrastructure support should be an important initiative for this very successful program. Also, Armand is working with NZ for the new and better funding, including university partnerships to move forward.

Next Armand mentioned the recent and future IODP expeditions out of NZ. Exp. 375 is operating a little slow, having a good recovery rate about 90% by coring to 200–300 mbsf. Exp. 376 and 378 will be started after. Exp. 374 was finished.

Armand discussed ANZIC office activities; including working on the ANZIC chart in a document and organizing many PMO to fund in order and so on. The ANZIC annual report will be published in April. A communications officer is hired for 2

days a week by sharing with ANU on the other 3 days, and this for the next two years. As for funding calls, she introduced ANZIC Legacy projects, which is to work on previous research materials taken in Australia and in New Zealand, and pre-proposal development writing WS for Australia to be named in the system. Lastly, Armand discussed the biggest geoscience convention in Australia, the Australian Geological Conference, which will be held from 14–18 October 2018. Early bird registration will be available until 7 July 2018. Lastly, she introduced that there will be a specific session called 50 years of scientific ocean drilling.

The Chair asked the group if they had any questions.

Becker asked Armand to better clarify the funding goals for full associate membership as defined by facilities as they consider. Armand answered that this would be at *JR* levels, and will ensure that funding will be at that level. How we should use that funding would be based on discussions of the council. However, we want to be at least a full associate member, if possible, otherwise, everything will be up in the air on where we will put that money. I need to say this is how much we need for the membership in the strategy.

No further questions arose.

The Chair confirmed that no one would present the USSSP report, since Carl Brenner is absent.

The Chair asked Harue Masuda to present about J-DESC.

h. PMOs

J-DESC (Harue Masuda)

(12:19 h.)

Masuda reported on J-DESC activities. Masuda said they have started new research work after the NanTroSEIZE project since the next one after NanTroSEIZE project might be conducted outside of Japanese territory. Next week (the last week of March), there will be a workshop talking about the future of scientific drilling. Topics include a summary of previous and present

research, including IODP and ICDP, interaction among international communities, and future plans and strategy as a target.

van der Pluijm asked if this workshop is only for Japanese, even though talking about future IODP and ICDP roles. Masuda answered yes, that this would be only for the Japanese community in J-DESC since it is just a kick-off. However, an international symposium or workshop will be planned later for sure. We will open this to the international community. The Chair confirmed if they will collaborate with other PMOs to do this when the time comes, which Masuda affirmed.

Mori commented that speaking in Japanese is a lot easier for the Japanese, and especially since this would be an informal kind of brainstorming to get some ideas and to some plans. Mori said he thinks it is important for Japanese community to have a first level round-up of basically what they want and get to some ideas on the table.

van der Pluijm said he remembers those days if that's only productive way.

Eguchi wanted to add a comment to avoid any misunderstanding of Masuda's presentation. He said that this workshop is not about deciding the next NanTroSEIZE project, it is more like looking at the next phase of IODP and a general brainstorming workshop about the future of ocean drilling.

The Chair closed the morning session, and broke for lunch at 12:25 hrs.

LUNCH

8. *JR* Advisory Panels Report/Proposal Overview

a. Science Support Office (Michiko Yamamoto) (13:29 h.)

The Chair introduced Michiko Yamamoto as the replacement of Holly Given. Yamamoto showed milestones and timelines of:

- Current award runs through 9/2018

- Accomplishment-based renewal proposal submitted 5/17; 7 reviews
- NSF states intent to award in 1/2018.

Yamamoto added more information about future tasks. All remains essentially the same: however, some improvements. The SSDB is better, while how to maintain all current functions and design details are still under discussion. Donna Blackman is new PI since last October and SSO is very happy with her.

Yamamoto showed the proposal submission history graph. For the last October deadline, there were 20 proposals, a good number. The 14 new proposals include 10 pre-proposals. So, 4 proposals are completely new proposals.

Yamamoto summarized what happened to the submitted proposals. There are 101 new proposals since October 2013. About 45% of them have been de-activated, 37% are still active, and 18% have been forwarded to FBs. The 45% de-activation ratio is the biggest difference from the old IODP program, and the new system has lower numbers. This means proposals are fresh and active right now. But many of them are de-activated proposals.

Yamamoto gave updates of the outcomes from 2 SEP meetings. This year, there were 2 SEP meetings: January 2018, and in June 2017. Two went to the Facility board, and 6 went to external review, 4 to the holding bin, and 4 were requested to revise. About 12 for developing full proposals, including one for *Chikyu*, Mori- san's proposal. And there were 7 deactivations.

Yamamoto showed the chart of active proposals. A total of 89 proposals are active. This includes: 40 of climate and ocean, 10 of Biosphere, 20 for Earth Connections, and 19 for Earth in motion. Yamamoto has seen some growth in geophysics these past few years.

Yamamoto showed another chart of the breakdown of target oceans. Most are aimed at the Pacific or Atlantic. The number of Atlantic proposals is increasing because of updates of the *JR* track.

Yamamoto also showed the graph breaking down the proposals by science

challenges, based on the proponent's declarations. So this is not active. The proponents tend to check more challenges than the proposals actually engage.

Yamamoto showed a chart of the breakdown by review stage. SEP has 42 proposals, FB has 40, and the holding bin has 7. The 40 at the FB includes already scheduled ones. Excluding them, the JRFB has 15, and the CIB has 5.

Yamamoto showed another chart breaking down lead proponents by country. About 80% are from US or ECORD, and this includes all proponents. ECORD has betters numbers than the others, while Japan is second, and ANZIC is third.

Yamamoto briefly showed the active proponent distribution chart. Yamamoto explained that *JR* has 61 proposals, *Chikyu* and MSP have 11. Yamamoto explained the breakdown by category, with half of them being full proposals.

The Chair asked if there were any questions or comments. There were none.

b. Science Evaluation Panel (Ken Miller) (13:35 h.)

Miller reported that Science Evaluation Panel (SEP) saying that Sean Gulick another SEP Co-Chair has just got off *JR* in NZ. He said that Anthony Koppers is his boss and SEP reports JRFB about its activities, but also communicate with the other facility board, EFB, and CIB. He also said that SEP is also working closely with Holly Given, Michiko Yamamoto, and the other staffs in Science Support Office. SEP operated single panel for 9 meetings. SEP is held twice a year, and the one is held in January at Scripps, the other destination is a city in Europe. The recent one in Lisbon, and the next one is in Potsdam this summer. There are basically five watch dogs how we operate the panel. For mandate, SEP is responsible for providing selecting the best relevant proposal to be drilled. Also, SEP provides facilities board on gaps and proposal pressure and addressing the challenges of the program.

The 5 watch dogs' break-down into 2 for science, 2 for sites, and 1 for the operator. It seemed difficult after two different panels were combined by mixing 30 sites members of science panel with 15 members of site panels and it looked difficult, however, these 5 different watch dogs work very well

by getting feedback from operators.

Miller told about Site Survey Data evaluation system next. He said bottom line for the site evaluation is whether the data showed particularly science objectives that they can achieve, drilling in the right locations and to the right depth to achieve it. He told that they simplified to show the evaluation status by colors now, so it is easy to distinguish as green is good to go, and as red or yellow is not good to go. He explained about the holding bin means that the proposal is required to work with PIs (principal investigator) to make sure if the data showing drilling the right place in details.

Next, Miller mentioned the outcomes from the two meetings in Lisbon last summer and Scripps in January. The list does not include 3 Full and 1 APL that were fast-tracked in spring 2017 and in fact, 4 proposals were scheduled before May, so there are actually 16 proposals listed in total. He showed and told the outcomes submitted for 2017 October deadline at SIO in January 2018. He said the list of full proposals does not include any *Chikyu* project, but there are amazing numbers of pre-proposals submitted and discussed by SEP. In that list, there are two *Chikyu* related projects, one is 923 "Godzilla Megamullion Lithosphere Architecture" and the other one is 925 "Blanco FZ Earthquake Triggering". He said these two pre-proposals should be discussed tomorrow.

He then explained about the next six slides, which was prepared by Yamamoto, showing the map with proposed sites to drill for each *JR*, MSP, and *Chikyu*. Showing the map with *JR* proposals at SEP with the full proposal in green and with pre-proposal in yellow, he said that anticipation of the ship coming into the Atlantic going to the south, it was not yet ready about a year ago, but now it is basically ready to come into the South Atlantic. By the time FB meets in a month or so that we will have additional proposals in equivalent time for the schedule. North Atlantic is still a bit premature, but it is really nice to see about the effort that the fact of hoping numbers of full proposals are coming through and also a great number of pre-proposals, which we know some of these would come true.

Miller next mentioned MSP proposals at SEP. He first pointed that some MSP

proposals at EFB are waiting for to be scheduled, and currently three pre-proposals are listed for MSP. One of the full proposal 866-Full2: Japan Trench Paleoseismology platform is currently listed as MSP, but he said it could be changed to *JR*.

Miller said about *Chikyu* proposal and reminded the group that three proposals (886-Full2: Japan Trench Paleoseismology, 898-Pre: Fore Arc Mohole-to- Mantle", and "925-Pre: Blanco FZ Earthquake Triggering" should be talked tomorrow in Agenda Item 11. He also mentioned that proposal 923 was deactivated, but would be worth to have a few words tomorrow.

Lastly, Miller told the next SEP schedule as 26–28 June at GFZ Potsdam, Germany, 8–10 January 2019 at SIO, and June 2019 at Edinburgh.

The Chair asked the group any question, and nothing arose. And then he confirmed with Miller that there will be some proposals we should talk about tomorrow. Miller commented that the proposal which is activated will usually come back in much better shape.

9. *Chikyu* Operation/Status Update

a. Overall *Chikyu* Operation (Takehiko Yano) (13:48 h.)

Yano explained about the *Chikyu* operation history and financial plan. He said that the next term will be 7 years until 2020. Exp. 380 enabled us to position three LTBMS at NanTroSEIZE. *Chikyu* requires USD 96M based on the currency USD 1=100 yen, but USD 70M is a practical basic cost for internal location scientific project. He stressed that they need to make for IODP operation from commercial operation since government fund is keep descending. Having carry over USD 23M, now USD 39M is secured for Exp. 358, NanTroSEIZE site C0002 with the riser in 2018, which is enough for secondary target depth 4,700 mbsf for high-velocity zone. We need more money to drill to the primary goal 5,200 mbsf, so keep working on it. 2018 is the end of the mid-term, and there is no carry over money. For the next mid-term, there is LHR project waiting with the collaboration with Australia and Japan.

Yano then explained the SCORE (Shallow Core) Program, which is a new program for shallow and short period scientific drilling so that early carrier scientists can be trained with more scientific drilling opportunities. The first one was conducted 19–23 September 2017 at the offshore of Cape Erimo in Hokkaido. He then explained about ICDP Oman drilling project, core analysis onboard *Chikyu*. This project was aimed to drill the whole ophiolite sequence of the lithosphere and its laboratory activities were conducted on *Chikyu* where 24 hours study is available when the ship is at Shimizu port. There were 71 onboard scientists from 14 countries participated. The phase one was done and phase 2 is not yet official but asking under preparation. Lastly, he summarized of CDEX/JAMSTEC activities such as Exp. 380, Exp. 358, LHR, and CLSI. *Chikyu*/IODP performance review will be available on the 2nd-day Agenda Item 16, and any comments are welcome during this meeting. He lastly mentioned the review points for *Chikyu*/IODP performance review on the next day.

Koppers asked about the difference between primary target and secondly target of an upcoming NanTroSEIZE expedition. Yano said someone else should answer more in detail, but answered that it should be something to get the core sample even from the second target from the high-velocity zone. He also said that to get the core from the primary target is home and run and the one from the second target is a grand slam.

Toczko said it is the other way around.

Eguchi corrected Yano by saying secondly target is home and run, and the primary target is a grand slam.

van der Pluijm said it is win-win.

Eguchi said it is in any case, yes.

Koppers still asked the difference between the budget of the two targets. Yano said that it will be the different for operation days, because to drill to the primary target takes more days, which means it will cost more.
Mori asked how many days. Eguchi said how much, the question is about the

numbers.
Yano answered it is USD 8M.

Austin said we have been told that *Chikyu* will be on the sea for 161 days for the Exp. 358, and asked if it is still true or the days of numbers are going down. Eguchi said it includes 33 days of contingency.
Sawada said that it will take 120 days to reach 4,700 mbsf, which is about a month less.

Yano said again so it will be USD 8M to save for that. Koppers said this will be a lot. Eguchi said if this operation will go pretty well, we can reach the primary target with the current budget. Austin asked if there is a second target 4,700 mbsf will reach seismogenic zone for the scientific objective of Exp. 358. Eguchi said it is not seismogenic zone, but Kimura might be able to answer for that question from the scientific point of view.

Austin asked if CDEX was going to modify the science 500 m short from the penetration. Eguchi said that it came out from the PCT discussion if this would be home run or grand slam.

Austin asked if everybody else was at that PCT discussion. Becker commented that last year CIB agreed to shallower total penetration goal would be an objective for the observatory, but then it just got deepened again after May PCT.

Kimura explained that the NanTroSEIZE goal is the seismogenic zone, but shallower target 4,700 mbsf is a center of the hanging wall of elastic core, and lots of materials of stress field which is quite important to know elastic strength energy there. He also said that 500 m deeper primary target is extremely important, however, there is a limitation of time, money, and technology according to the estimation by CDEX. Therefore, the second target 4,700 mbsf important enough to know about the present status of Nankai Trough.

Austin said if you have a certain enough money, you can go deeper as you can. Mori commented that there is a specific reason for the target depth. He said closer to get to where the strain can be much higher is a very good justification for two different targets if it is not available to reach the primary target, seismic zone.

Ildefonse reminded that the last year consensus was approximately 1,000 m deeper than the current depth. He wanted to clear the current depth. Eguchi answered 3,000 m.

Ildefonse said that last year we approved going down to 4,000 m and installing some observatory there, so the current proposal is much better than we agreed last year, which is more ambitious if both targets include deeper target and installation of the observatory. Eguchi said Exp. 358 will not include observatory installation anymore.

Ildefonse understood that there won't be observatory anymore. Kimura said the hole will be maintained for a future observatory system. Ildefonse tried to confirm if some of the goals would achieve observatory. Becker said he was asked to attend May PCT as CIB liaison to discuss to clarify if the 1,000 m is deep enough to get into a high-velocity zone. He said that it turned out that 1,000 m is not necessarily guaranteed that. He also said that long-term technological development is required for good observatory, but this is not even funded in Japan yet.

Eguchi appreciates Becker's comment and said the funds for observatory development are not from CDEX. Ildefonse then said it would have to be considered for the next phase of IODP.

The Chair went on to the next item.

b. NanTroSEIZE

b1. PCT report (Sean Toczko)

(14:14 h.)

Toczko presented the NanTroSEIZE PCT (Project Coordination Team) update. He said that a PCT meeting was held on 10–11 October 2017 establishing the Geomechanics Team (Castillo, Saffer, Tobin, and Sugihara). He mentioned that they discussed calling the co-Chiefs for Exp. 358 science leaders instead of Co-chiefs because of USSSP funding requirements. He said that Items for real-time mud-gas monitoring are not only for safety issues but also to address science needs.

As a part of the discussion regarding the Exp. 380 plans for 12 January–24 February 2018, he mentioned that this was primarily an "engineering" leg; he introduced the completed 3-LTBMS transect in the Kumano Basin (C2), at the Megathrust (C10), and the Frontal Thrust (C6). He then mentioned the discussion regarding Exp. 358 plans. Since Exp. 358 is a long-term expedition, scientists' travel for coming and going will be increased to focus on the science during the operation. He said the PMOs would support this increased travel to/from *Chikyu* as well as the HUET training, required by CDEX for *Chikyu* helicopter transfer. He introduced some consensus items for Exp. 358. Rough dates for the expedition science window were set to be included in the call for application. Scientists need to indicate the windows they cannot sail so that the staffing schedule can be coordinated. Science team leaders need to be selected as a "dream team" since the next expedition will be the last big effort for the NanTroSEIZE project. It's hoped that they will guide the science party team leaders with their previous experience, and that the PCT science coordinator may also step in to fill the gaps of staffing during the 160+ days operation. He lastly mentioned consensus items from Exp. 380 and CLSI@sea. There were 14 applicants identified for selection, and the program schedule was developed and Gaku Kimura spent a lot of time working at CDEX to finalize the program schedule, review Site C0012 logs and cores from upper section to be included in the frontal thrust study, select pdf references for scientists' review to be available onboard, and the relevant 3D seismic data.

b2. **IODP Exp. 380 Results** (Sean Toczko) (14:23 h.)

Toczko continued to present *Chikyu* operations updates for Exp. 380. Toczko introduced the Expedition 380 science party, objectives, the site, operation summary, and evaluation results.

Toczko first introduced the Exp. 380 science members. Kimura and Machida from JAMSTEC basically led the science members, because they were on the JAMSTEC sensors development team not just for C6 but also for C2 and C10. It took a little while to get used to working as a team with the other scientists but they finally worked pretty well.

Toczko explained the objectives that were to help fundamental NanTroSEIZE science objectives including: characterizing fault slip & strain accumulation, fault & wall rock composition, fault architecture, & state variables throughout the active plate boundary system. This was to put an LTBMS right above the frontal thrust, and with it, extended the existing LTBMS network.

Toczko showed the site map and location. The LTBMS will be connected to DONET this week (late March, 2018). We should get the data from DONET soon. This target region decided during the PCT meeting.

Toczko showed the schematic of the Hole C0006G LTBMS as installed during the expedition and explained the LTBMS details. Just like C10, we installed 3 pressure sensors. One was at the seafloor and others were at the bottom of the hole. There is also no screen in the casing. We installed the strainmeter and instrument carrier which included a tilt-combo, tilt logger, geophone, accelerometer, tilt meter, and a thermistor string. We also had an acoustic modem installed on the LTBMS CORK head, because of water depth, too deep for ROV operations so we did everything via underwater TV. We had a modem on the underwater TV to communicate with sensors.

Toczko reported the Exp. 380 summary. The original plan was to complete the expedition in 40 days, but turned out that we finished in 27 days. That was mainly because of the lack of a Kuroshio current on site. Another factor was the equipment designed by the OSI, Tomo Saruhashi, which completely improved the efficiency and safety of running the observatory comepletion.

Toczko explained the evaluations from the expedition. He said that scientists didn't really use any of the facilities of the onboard lab; they were used mainly as space for the testing environment for sensors. The scientists were very happy with the food and accommodation onboard. And for the laboratory work was well. They were really happy to get support from MWJ, and worked very well together. Working with drilling engineers and CDEX drilling group also worked very well. The good teamwork was why the expedition was such a success, so the overall support evaluation was wonderful. The only drawback was the internet, which was rated the lowest since *Chikyu* operations began. We are not quite sure what cause of that is now but we were having trouble the entire expedition. The internet was the

main disappointing part for this expedition.

Toczko introduced some examples of the poor internet. He emphasized that they need to clear this for Expedition 358, and CDEX is working on getting it solved.

Toczko mentioned some solutions. They need: the help of onboard network admins and to expand MWJ tasks to oversee the network. Actually, they support it now, but we need network admin specialists, hardware gurus, or something like that. We are looking to improve this onshore as well, including data services for past expedition data and for the future.

Austin asked that when you planned for 40 days of operation, with its' budget and came away at 27 days, what happens to the extra money? Does it roll over to 358?

Toczko said yes. This was planned from the beginning and in case any money was saved, it would go to 358.

b3. Core-Log-Seismic-Integration (CLSI)@Sea Program Results (Sean Toczko)

(14:31 h.)

Toczko first explained its purpose. This program was proposed by Gaku Kimura a year ago, to look into the role of Nankai frontal Prism, and to focus on cores and logging data we already collected. Toczko said we want scientists to find and publish original research results, and also aimed to get young career scientists involved and interested

Toczko showed the timeline of the program. We started reviewing data to make the program in February 2017, and in March, we talked about this idea at the CIB meeting and got approval. We negotiated with the PMOs regarding travel and HUET coverage for participants, and the call was released in July. The NanTro PCT selected successful applicants in September, and we kicked off this program in January, together with Expedition 380.

Toczko introduced the scientists and mentors, both onshore and onboard. The

program was divided into a short and a full course. Mentors onboard, Gaku Kimura, Kyuichi Kanagawa, Michael Strasser, and Kiyoshi Suyehiro gave really good mentorship to scientists but also gave really good presentations.

Demian Saffer and Gregory Moore held ZOOM meetings to give presentations about their work and it really worked. Lena Maeda was the Lab manager and she supported the program together with the logging staff scientists, Yukari Kido and Yoshinori Sanada, who worked with the seismic data and logging data.

Toczko showed the schedule and explained that they held lots of lectures, and sampling and data analysis. On 26 Jan., the short course people disembarked. The program continued with people who were onboard until February 7, the end of the expedition. The last couple of day, were very hectic with analysis and report writing, very much like a normal expedition.

Toczko reported that Kimura talked about history of NantroSEIZE project. Strasser discussed core flow and sedimentology, core descriptions and took everybody to lab to show the core. Kyu Kanagawa also talked about lithology structure, but from a different view point. Greg Moore talked about tectonics and evolution of the Nankai Trough. Strasser gave Underwood's talk lithostratigraphy of Nankai-shikoku region, and provenance, routing and depositional models.

There was lots of interest not just for the participants but also for the expedition scientists. Suyehiro spent a lot of time explaining everything from a seismological view. Saffer talked about physical properties and hydrology. Kimura again talked about tectonics. And we took advantage of having Keir Becker onboard, to give the history and overview of CORKs. Of course, Masa Kinoshita talked about thermal structure and in-situ temperature.

Toczko mentioned the lab work they did in the program. CDEX prepared all shipboard data and IODP reports of NanTroSEIZE expeditions, 2400 archive and working core sections, sample residues of shipboard measurements collected at Site C6, C7, C12 and Techlog onboard. We had 519 samples collected and had 9 sample requests. Toczko showed the rundown of the final number of core section samples collected, 933.

Toczko continued to explain the lab work. They did sample preparation for analysis, and measurements for XRD, and particle size analysis. As for the data analysis, one of the scientists was working on taking XCT data and use it for physical properties. A lot of people were playing with seismic data as well. Everybody right now are getting together for workshop report of first mission to *Eos* and Scientific Drilling.

Toczko showed the evaluation graph: almost all categories are higher than average for all expedition evaluations, except, again, “internet services”. He also showed some evaluation comments. Shipboard curation was rated very high. They appreciated all the support they got from MWJ.

Toczko recommended that future workshops or programs like this be held. The general outline of schedule or plan, pre-cruise meeting online maybe something like ZOOM, a large bibliography of the target sides, and scanned images of working helves should be prepared in advance. And Wi-Fi and internet connection, book collection for subduction zone topics, and some low-priced software for scientists to do seismic interpretation should be improved.

Sally asked that you said that you know the hope is that a little research should come out from this. Obviously, it isn’t a standard expedition, so you come the way you were recruited for it. In some cases, did you provide some financial support? Does that to extend to a post-cruise research timeline? Toczko’s answer was no.

Sally asked how to expect that these poor young scientists can do that research and maximize the output?

Toczko replied that in many cases, what they are looking at was related to work to they were already doing for their graduate work. So, this is something we hope compliments their work.

Sally said that she is aware one of the young post-doc scientists, who doesn’t now have an official position. Toczko said that he was aware of that person and said he was one of the hardest working people aboard. Toczko

added that regular expedition has moratorium which the case we didn't have here. But I think for a lot of the scientists we brought together now have more enthusiasm in thinking about subduction zones. One of the things that the mentors pointed out is here is what we still don't know, and here are the things you can solve. These are outstanding questions.

Ildefonse said that it is not a question but I would like to say in public. When I was onboard *Chikyu* for Oman project. The science support was really remarkable.

No questions or comments arose.

b4. IODP Exp. 358 Planning – Science Perspective (Sean Toczko) (14:45 h.)

Toczko continued to present IODP Exp. 358. At first Toczko introduced science leaders as follows: Harold Tobin, Demian Saffer, Gaku Kimura, Asuka Yamaguchi, Takehiro Hirose, Hiroko Kitajima, and Matt Ikari. Yamaguchi, Kitajima, and Ikari have not been Co-chief before, but all of them have been onboard for riser expeditions and did well. It is expected to have young people as leaders. He said that there are 62 applicants: 11 from ESSAC, 18 from USSSP, 32 from JDESC, and 1 from ANZIC. Their specialties are listed on the slide. The EPM schedule is also roughly planned and Maeda and Toczko will basically rotate every month, and Y. Kubo will support for a few weeks, and then both Maeda and Toczko will come back together. The operation will be 161 days, and the ship will be at port on 7 October 2018, depart on 10 Oct. Contingency days are estimated as 33 days. Final sampling analysis is planned for quay-side in Shimizu port. We will invite selected science party members as"real-time geomechanics specialist" for real-time monitoring. We expect them to advise or predict borehole conditions as we drill down to 5,200 m.

Toczko asked the group if we need a representative from TAT and CIB to observe. Ildefonse asked to specify the objectives for that. Eguchi suggested discussing it after TAT report.

The Chair asked if there were any questions or comments. There were none.

b4. IODP Exp. 358 Planning – Operations (Tomo Saruhashi) (14:52 h.)

Saruhashi presented the Exp. 358 Planning Operation part. He first reminded us that there were three expeditions of Nankai Trough and Exp. 326 was the first trial conducted in 2010. During this expedition, there was an incident to drop 20- inch casing due to high current and lost 11 days to wait for the government approval for the second trial. Installation was successfully made even in the high 6 knot current. From this incident, we learned that vortex induced vibration countermeasure. Later on, all LTBMS we conducted until now were all successful.

He next mentioned the main achievement and incident happened from Exp. 338 which was conducted. One specific incident for this operation was the encounter of high current and cold front at the same time and losing the riser. Since very strong south wind blew from West to East, the vessel lost heading and was drifted 1.3 km so fast and riser was disengaged. The well had to be abandoned, and we came back to that well with Exp. 348. He told that operator had a DPO simulator training when facing the cold front with strong wind, and now they can manage to keep the vessel within 0.2 km distance. He then introduced the probability surface current for operation. He said it is not common to operate more than 3.0 knot to 4.5 knot in industry field, but *Chikyu* operation was conducted with such high current. He also introduced the VIV real-time fatigue monitoring and suppression, which was used for Exp. 348, got a silver medal product as spotlight technology at OTC, so the way to install riser is very safe.

Saruhashi next mentioned what kind of incidents they encountered in Exp. 348. He said they don't know the current hole condition after the accident of setting 11-3/4-inch liner hanger packer before cementing. Another specific incident was so many typhoons caused wait on weather moment for 44 days. As lessons learned, he mentioned typhoon hang off the riser, anisotropic breakout, hole cleaning, developed casing design to reach 5,200 mbsf, and casing shoe drill out. In the anisotropic breakout, he said they will apply higher mud weight to keep the hole condition well, and keep the drilling section length up to 800 m, which is shorter than before. He said they needed to change the design of special casing to allow the hole keep

larger. He said typhoon hang off riser can be performed in Hs<7 m forecast, but if the forecast is more than that, they will retrieve all the way and come back to the site, and it will take 10–14 days.

Saruhashi told the existing uncertainty by summarizing of metocean issues, anisotropic breakout, drilling into damage zone (4,700–5,200 m), 11-3/4-inch CDG cement condition, and 14-1/2-inch OH condition below 11-3/4-inch shoe. Allan asked him to tell more about the casing regarding kick off in the damage zone. Saruhashi answered that the enlarged expandable casing 9- 9/5 inch will be used first, and then changed to 9-5/8 inch casing. Once it is set, the bore hole will be secured to drill into the damage zone with full strength.

Allan confirmed then how long will the liner be.
Saruhashi said the liner stands at 2,600 m, which is required. If we change to use a hanger, it would be 800 m shorter, but then the well integrity of the pilot hole will be reduced.
Allan said that it sounds ambitious.
Saruhashi said that they are planning to have the final 50 m coring with two sections just after drilling the shoe and 7–8 coring and LWD, then start to another coring session.

Saruhashi then explained about coring sequence. He said that it would be one month may be needed for kick off, and 161 days is not perfect for some uncertainties. So they estimated 33 days are required as a minimum for contingency. That's why they discussed to have two targets (4,700 mbsf and 5,200 mbsf), which PCT thinks to reach the scientific objective.

Saruhashi told about anisotropic breakout and countermeasures. He said it hardly recovers the section by hole cleaning. It results in a shallow set of 13-3/8- inch CSG and 11-3/4-inch CSG. No pre-warning sign while drilling even passing the hole stability limit. Countermeasures are introduced in details in the slide.

Saruhashi introduced expandable casing with the movie and figure, then mentioned failure analysis. Problematic installation is 17 out of 839, and 9 out of 17 resulted in fully expanded. Remained 8 installations went for the sidetrack, which caused by pressure loss, junk, hole condition, cone

material, or procedure. No problematic installations resulted in the loss of wellbore.

Regarding 9-3/8-inch casing, Saruhashi mentioned that this is 2,635 m length with the reason and it is a quite long assembly. He said that 24 hours cementing job may be required for the Exp. 358, but still manageable he said.

Saruhashi introduced logging plan overview and coring plan to the group members. He told that LWD repeat section will have enlarged hole because of underreamers attached.

Regarding coring plan, Saruhashi introduced that SD-RCB, wireline core barrel, and industrial core barrel, that they will use. Saruhashi mentioned the metocean issue, Kuroshio large meandering. This meandering occurs after 12 yeas absence from September 2017, and global warming increases the force of Kuroshio current from West to East and makes it difficult to occur large meandering. However, it is uncertain if it would not really occur, so let's see.

Then Saruhashi explained about the estimation of contingency days because of Metocean. Typhoon may cause 16 days impact, cold front other operation technical issue. Because of the meandering period, a low current of meandering may cause 15 days impact and high current of meandering may cause 28 days impact. So, it is not enough but at least 33 days are estimated for contingency for the Exp. 358 expedition.

Lastly, Saruhashi said that EDS is expected disconnect occasion 4–5 times in the Expedition 358 although it is not that easy operation. This operation was made in Exp. 338 and Exp. 348 as well, and closed his presentation.

The Chair appreciated Saruhashi for his detailed explanation, which is important information for the *Chikyu* performance review on the 2nd day and asked the group any question, but nothing arose.

The Chair called for a coffee break for 20 min at 15:40 hrs.

c. Lord Howe Rise Project (Nobu Eguchi)

(16:00 h.)
Eguchi started talking about the LHR project, discussing the meetings in Canberra with GA, and the status. A PCT for the LHR was created at the last CIB meeting, and Nobu showed a list of the PCT members. Eguchi reminded everyone that the CIB scheduled LHR for the 2020 IODP Chikyu window.

LHR PCT has selected DLHR-5A as the primary site; this is about 800 km from Brisbane. Eguchi showed a map of the drill site and access from various ports. The draft drilling plan for this operation, with 5 casing sections, was presented. Since the formation seems to more consolidated below 1500 mbsf, ROP will likely decrease. CDEX has presented various cost estimates to GA, and these include many items. The basic cost for drilling is USD 36.6M, however, logistics add to this considerably. One issue is that under Japanese Law, crew changes are mandated every 4 weeks; at this remote location, options to handle this (floating bases, Heli support, etc.) increase the estimates by 47 to 144 M USD. Eguchi showed a slide depicting the various crew change options, including costs.

Jamie Allen noted that the transit times (14 hours) looked excessive, and Eguchi replied these were estimates of boat transfers to/from Brisbane. Benoit Ildefonse asked why logistics appeared cheaper in Japan than Brisbane? Eguchi said this involved all loading in Japan, which reduced costs of shipping to Brisbane. Eguchi added that risk assessments, including medevac options have been explored and presented to GA.

The Chair asked if there were further questions; with none, moved to the TAT report.

10. TAT Report (Kier Becker)

(16:14 h.)
Becker started to present TAT#4 update. He said that the meeting was held two weeks before in Yokohama. He commented that TAT members were impressed about the recent CDEX scientific operations and engineering developments. He also mentioned Pre-Exp. 358 modified Drilling Well on Paper effort called "DWOP-prime". Also, he stated that two consensus items

commended CDEX for LHR preparation and Exp. 380 success.

He confirmed with the members about TAT purpose such as they report to CDEX but no formal link to CIB. Then he mentioned the TAT participants External members are now only 4, which used to be 7, but there are CDEX liaisons, CDEX contractor David Castillo, more CDEX contributors, J-DESC scientists, and observers.

Becker mentioned TAT consensus. The first one was about technological developments. They are listed as follows: Newly developed running tool, underwater TV system, long-term borehole monitoring system, non-stop driller, turbine-driven coring system, and carbon fiber reinforced plastic (CFRP). The cooperation with the JOIDES Resolution science operator in the upcoming Exp. 376 is impressive. He asked the group any question, but nothing arose.

Next, he mentioned the consensus for LHR preparation. He commented that CDEX is carrying the extensive work in collaboration with Geoscience Australia to mature the business case for LHR project. TAT has advised CDEX about logistical support, including crew change arrangements and identifying available choices for medical evacuation. Also, CDEX could consider reviewing the data from Site U1506 with a view to constraining the regional stress environment to reach a preliminary determination of mud weight.

Then Becker mentioned the consensus about Exp. 358 DWOP-prime. It is planned to conduct this summer (e.g., late July) 2018. Some of the science leaders and RTG (real- time geomechanics) members, OSI, and maybe Japan drillers should be involved. Also, David Castillo probably.

The Chair asked about RTG and DWOP.
Becker answered that DWOP is a 3-day exercise on paper to know what's happening on stress changes and borehole goes on stable, so on. The Chair said so that is something like a simulation. Becker said yes and kept explaining that the RTG can have communication with the science team, but their primarily focus is to advise the CDEX drilling team. Some of the science team leaders may be involved, if internet access is robust enough to enable them to observe the drilling situation from land and to ask the team for some advice.

Allan said that elements of the team during the whole time. Becker said that supposed to be yes. Not the whole team, but some should be onboard on time.

Becker next mentioned the review of Exp. 380 operation. The expedition was finished 17 days ahead although there were a few issues. He mentioned that TAT urges the update the document for 3rd party tools used on the *Chikyu*, not about the policy but its procedure since there was a failure of it.

Ildefonse asked to confirm that Drill Ahead Tool was eventually released. Becker answered yes and said it took 32 hours to release the LTBMS already, and said that it's a new tool, and the tool itself is sent back to the factory to find out what went wrong, and now it is in the assessment process.

He wondered if it is similar kind of tool. Becker said that it is not just to install casing but also drill ahead means once that casing is installed you can actually release the bottom hole assembly down into the hole to drill out underneath the casing. That's a big improvement.

Becker next mentioned the two other short consensus statements, M2M task force team, and next TAT meeting. TAT encourages CDEX to involve representatives of the JRSO in the M2M-TFT as appropriate, and to consult with the scientific community associated with deep ocean crustal drilling o date. This item will be discussed in the Agenda Item 12d on the Day-2. The next TAT meeting is scheduled for the week of 3–7 June 2019, and TAT asks CDEX to consider whether TAT members should be involved shortly before Expedition 358 in the review of the output of the DWOP' recommended in TAT consensus 0218-05.

The Chair commented that RTG this summer is very important, and would like to send someone to the meeting. Toczko suggested choosing two for primary and alternate. The Chair considered well and then asked Becker if the time was available since he is quite open to Japan as a TAT chair. Becker answered it is fine to put his name in either primary or alternate.

The Chair next asked the group to select an alternate.

Ildefonse asked if that alternate person should have specific knowledge of the geology of Nankai region. Otherwise, it may be critical for the liaison choice.

Becker suggested that one of the TAT members, John Thorogood, who is

interested in attending the DWOP, may be a good candidate as a liaison; although not a CIB member, he is experienced and in a position to deliver a good report.
The Chair confirmed the next meeting location is CDEX and then asked J. Mori as an alternate.

Mori said he doesn't think he has enough good technical expertise for this. The Chair said Mori knows very much about seismogenic zone as a scientist. Ildefonse tried to confirm about the goal of this DOWP is to assess different scenario, so that you want science input in addition to the technical issue and geomechanical issue, and have a choice depend on scientific rationale. Becker mentioned that there will be some scientist leader there and also David Castillo will be there for scientific advice.

Eguchi said CIB liaison to DWOP is similar to NanTroSEIZE PCT. Ildefonse then confirms that it is just observing and listening so that all of us can do that. The Chair asked Mori about his acceptance, but Mori hesitated by saying he was not very good at this. The Chair commented that he was thinking that is important for the *Chikyu* performance review and asked the group member if CIB should really send someone alternate. Ildefonse asked if it is really needed.

The Chair said if any member available from this meeting, that would probably be only Becker. However, he is very busy having other responsibilities. He considered calling someone from overseas for this task.
Eguchi suggested that the Chair should come to the meeting instead.

The Chair concluded that he would attend to observe in the case of Becker won't be available for the meeting. Ildefonse commented that the Chair can as CIB principle and find someone to go even if he won't be available.

The Chair asked if there were any questions or comments on Becker's TAT report. Nothing arose.

CIB_Consensus_0318-03: CIB member participation to DWOP'.

The CIB recognized the importance of the DWOP' ("DWOP Prime") exercise planned for Summer 2018 for the success of IODP Exp. 358, and decided to send a liaison to witness it. The primary candidate is Keir Becker, but if he is not available, the CIB Chair or Benoit Ildefonse will attend.

1830- Reception

Day-2 Tuesday, 20 March 2018

The Chair began the meeting by recognizing that the discussion here would only concern information sharing, so there would be no need for either Jim Mori or himself to leave the meeting.

11. *Chikyu* Proposals (update and discussion) (Ken Miller/Chair - Tatsumi)

a. Potential *Chikyu* Proposals at CIB and SEP

(08:58 h.)

Ken Miller reviewed the proposals at SEP for *Chikyu*. Miller said there are four proposals, 2-Pre, one Full-2, and a deactivated Full-1 that should return. Miller showed a map depicting the proposal locations, which he showed the day before. Miller started with 898-Pre M2M (Mohole 2 Mantle). He showed a simple cartoon depicting the drilling targets, and where they will be drilled. The science focus is on subduction initiation, and previous attempts were made. Here they are in 6500-8000 water depth, with 500 m of planned penetration. Site survey data are limited, and only 1 out of 20 proponents is from outside Japan. The logging plan remains unclear, and proponents should consult with CDEX. SEP sees some exciting science potential in this proposal.

Next Miller discussed 925-Pre, the earthquake triggering experiment. Jim Mori is the lead Principal Investigator. Site selections were presented, along with a slide detailing societal and safety aspects of this 168-day project. While an innovative and interesting proposal, there are many weaknesses in this plan. SEP has encouraged the PIs to submit a full proposal, and if this is completed,

SEP suggests convening a workshop.

Miller moved on to proposal 866-Full2, JTRACK, which SEP anticipates being very well received. This project focuses on deep water paleosiesmicity, and the historical frequency of larger earthquakes in the Japan Trench. The PIs have been very responsive to SEP comments, which SEP values as communication with proponents is vital. Some weaknesses here relate to problems distinguishing earthquakes. This will need ultra-deepwater coring, beyond what JFAST accomplished. Although *Chikyu* can do this operation, *Kairei* and *Dufresne* are also (potentially) capable. SEP can forward this proposal to two separate facility boards (EFB and CIB).

The last proposal was 923-Full, Godzilla Mullion. This was deactivated, the PIs have been encouraged to resubmit. This is a riserless drilling project, and the rationale was presented. Overall, Miller said that this is a good idea, with reasonable objectives. Even so, there are many outstanding questions that need to be better resolved: e.g., why these sites? Why these drilling depths? The time schedule, etc.

Eguchi began discussing the weaknesses of 923-Full, saying that the proponent team wanted to have this as an APL when Chikyu went to drill LHR.

Miller noted that with a lot of time and the encouragement of the SEP for revision, this should be possible.

Koppers wondered if this could realistically fit in the LHR planning, and Eguchi thought that it could.

Miller asked why this couldn't be a JR leg, and Becker reminded everyone that the CIB said that Chikyu can do riserless drilling if needed.

Miller thought the proposal should include possible science results for 100, 200, 300 m drilling, but Ildefonse said this had already been done. The key thing here, Ildefonse added, was this is a fossil ridge and different from anything else that's been drilled. Miller wasn't so sure about the science results with depth, and noted there seemed to be something special about "150 m" depth. Ildefonse said this is based on typical bit life.

Kitazato commented on 866 – this proposal is excellent from a micropaleontological point of view. The proponents try to understand the use of nanno-foram fossils in the trench sediments, but there are lots of nanno- forams in the Hadal trench and some are deformed but should remain in the fossil record. However, the nanno-size might be out of scope from the micropaleontological approach, since the usual IODP procedures might allow 10-um sized fossils to "escape" from the sieving process. Kitazato liked the proponents' use of these fossils, since they have a very nice depth distribution and can be used to examine the size of slope failure perpendicular to the trench axis.

Miller responded that many proxies were mentioned by the proponents, but micro-forams weren't mentioned. Much of their response was based on seismic data, along with some cores, but this tracer is a great suggestion.

The Chair asked if earthquake sediments could be easily detected? Miller said, yes, this was demonstrated in the shallower cores. But as you go deeper, you get into problems with radio-chronology. The big issue is correlation between transport and dating at one site compared to another.

Ildefonse wondered about the use of M2M terminology in proposal 898-Pre? Eguchi responded that this was a result of the involvement of Michibayashi. Ildefonse noted that there being no Mohole here, as great an idea as this is, they should not mention the Mohole. Miller agreed, saying this was why he created the cartoon. Ildefonse said that even though the Mohole is a seismic feature, some people insist on acting like it is a physical object.

Miller stated this shows that while there are some good ideas here, they need the CIB to help point them in the right direction, or they won't make any progress.

The Chair returned to Jim Mori's earlier comment regarding the questions about the CIB workshop process & funding scheme, and showed the diagram. Eguchi followed up, noting that the CIB had discussed this during the 876, 835, and 877 proposal discussions. The CIB, he said, can invite a workshop (WS) proposal after the SEP passes a Full proposal to CDEX, and the CIB WS terms of reference (ToR) require that the proponents must submit the WS proposal along with their pre-proposal and the SEP evaluation. We should discuss what

revisions should be made. Miller pointed out that proposal 923 has left this cycle, after bringing in a Full proposal, but SEP would not like to penalize them for this.

Ildefonse asked if this would be applicable to proposals 898 and 925? Is the Chikyu the only platform for this? Miller said that for 925, Chikyu is the only option, since they want to inject fluids, and for 898, it's due to water depth. Mori added that JR might have some technology for 925 drilling.

Becker asked if that chart shown is for riserless or riser drilling only? Eguchi said that several WS, both riserless (JTRACK) and riser (LHR), have been supported by the CIB, so it's up to the CIB to decide if they want to support a WS or not.

The Chair looked for confirmation: will the CIB rewrite the WS ToR? Ildefonse wanted to clarify if the CIB has the option to recommend a WS or go for a Full proposal as is? Do we go on a case-by-case basis? Eguchi said that the CIB can do this. Ildefonse wanted to ensure we clarify this to the community, that they DON'T automatically get a WS, that the CIB makes this decision. Kuramoto noted that his memory was that the WS concept in this diagram was to help with complicated drilling proposals, especially for CDEX to see if they were really feasible. Eguchi agreed with this, that simple & straight proposals won't need a WS. van der Pluijm thought that the idea here was to get the CIB involved in the conversations early, and thus be better informed.

The Chair agreed, and suggested moving onto discussing the proposals in detail, beginning with 898-Pre M2M fore arc. Ildefonse suggested that the only issues here are water depth, and if other sites should be considered. Miller agreed, saying the SEP asked these same questions. Eguchi said the WS includes developing a Full proposal, so these issues need to be resolved. Eguchi noted that US funding is in hard, but what about ECORD funding? Camoin stated that he had not heard any news. The Chair was worried about the use of "M2M" in this project, since there could be some confusion when compared to the actual "Mission to Mohole (M2M)" proposal. Miller said this was something that the SEP should have sorted out, and that the PIs should clarify this.

While Eguchi looked for funding information, the Chair moved the discussion to the 925 Blanco Fracture Zone proposal; should they be invited to submit a WS

proposal? While Miller and the Chair found some innovative science in this proposal, Ildefonse pointed out that the underlying concept, triggering earthquakes, will lead to a massive negative reaction, publicity-wise. van der Pluijm said the CIB needs to be very careful here, as he feels this proposal is "idiotic" and encouraging a WS proposal will send the message that the CIB encourages these kinds of proposals. Anthony Morris was concerned as Ildefonse regarding the potential for "blowback". Allen spoke about the reality of the US giving this proposal a "green light" being close to zero, at best. Proposing to trigger earthquakes off the Northwestern US would be political suicide, pointed out Ildefonse and Morris. Austin pointed out that with a major earthquake in this region being overdue, triggering an earthquake here would be madness. Becker suggested a better path would be to investigate the stress regime in this region, which met with agreement. The Chair noted that the SEP encouraged this as a Full proposal. Koppers said the CIB can overrule this & reject this proposal. Becker suggested that CIB should mark this proposal as premature and return to the SEP suggestion to begin with riserless drilling and proceed in steps. Michiko Yamamoto pointed out that the rules state the PIs can't submit a Full proposal without a WS, the only option in this case is to withdraw.

Miller suggested that SEP advise the PIs to work on understanding the system first, and Eguchi agreed, saying this could be part of a multiphase effort. Even so, Miller said, it's too soon to do a pumping WS.

Koppers suggested that the proposal be rejected, but Kuramoto pointed out that he believed CIB should evaluate science, not politics. Ildefonse and van der Pluijm disagreed, saying this is what the CIB is here to discuss, just these kinds of issues. Austin repeated that the state of knowledge allows the CIB to reject this on science grounds alone; with no understanding of the system, no one could think of performing this experiment here. If there is such a great need, this kind of thing is happening on land all the time – look at Oklahoma and Ohio.

The Chair returned to the 898-Pre discussion, now that Eguchi found the correct version of the WS proposal. Ildefonse stated, as an M2M proponent, that no WS is needed here to define M2M, as this proposal uses mohole here, not MOHO. The Chair expressed interest in the depleted mantle and immature crust, which Ildefonse also was very interested in. However, Ildefonse said, while getting

samples here would be great, how deep do they need to go? Eguchi asked if CDEX would be partly funding this, and Ildefonse said they have no funds from ECORD, so if CDEX funds this, that would be it. van der Pluijm noted they requested 40K USD, which Eguchi believed was for Japanese travel support. van der Pluijm pointed out that this was all for US domestic travel to Hawaii, with no mention of Japan. The discussion moved around the issue of funding the travel, with Ildefonse noting that if the PIs don't get any US funding, they will only have CDEX money. The Chair said in that case they won't be able to send any US-based scientists. Becker suggested that Ildefonse message, that the CIB needs more clarity regrading funding, but also like Mori's support of the concept. The Chair suggested that Mori write the consensus on this.

The Chair called for a coffee break at 10:45 hrs.
(11:02 h.)

CIB_Consensus_0318-04: CIB workshop documents revision.

The CIB recognized some discrepancy between the "CIB Full proposal development workshop terms of reference" and the "*Chikyu* Expedition planning process flow chart". The CIB will revise the terms of reference to match the flowchart and ensure consistency with the IODP Proposal Submission Guidelines.

CIB_ActionItem_0318-01:

CIB secretariats revise CIB_Consensus_0318-04 related documents and circulate to CIB members for discussion and approval.

12. Long-Term Strategy for Future *Chikyu* Implementation (All)

a. *Chikyu* Riser proposals (11:22 h.)

The Chair said let's move on to the Long-term strategy *Chikyu* operation. We have several things we have to discuss. But since the mid-term will be end next FY, and new mid-term will start, it is very interesting for us to hear from CDEX/JAMSTEC that how is the position of IODP during the new mid-term. It is very critical for us. The Chair asked Wataru Azuma to say something about it.

Azuma commented that he appreciated having the opportunity to explain the mid-term plan and policies. As a former system, this mid-term plan must be built to achieve the mid-term goal given by MEXT. And then JAMSTEC propose the

mid-term plan and then the mid-term plan was re-built. Also, MEXT will give advice in early winter of 2019. After such, so called “catch- ball process”, implementation of the mid-term plan will start from 1st of April, JFY 2019 to ends on March of JFY 2024 under JAMSTEC president who will be newly elected. It is not Taira-san at that time. On main process, new mid- term plan is now starting the catch-ball process between MEXT and JAMSTEC. JAMSTEC is starting the hearing process for the scientists and junior international committee. Taking a science advisory committee and technical advisory committee, such as CDEX’s TAT, chaired by Becker. Just 2 weeks ago, in early March, we had a JAMSTEC advisory board chaired by Susan Avery of WHOI. As a board member, Margaret Leinen of SIO and Mike Coffin of IMAS were invited. They are deeply involved and understand the system of Ocean drilling program. CIB opinions were already reported to the JAMSTEC advisory board through CDEX. Azuma said his impression was good. Indeed, JFAST was highly evaluated by JAMSTEC advisory board. JAMSTEC management will understand that IODP is important subject in JAMSTEC in the future.

The Chair said that we had some strong comments from Azuma. The Chair move on to the next discussion, *Chikyu* riser proposal, long term strategy. The Chair asked Ben van der Pluijm to take charge as he needed to excuse himself from the discussion due to COI.

van der Pluijm said that let’s looking forward, not only at past activities, but we just need to sort out ideas that discuss the recommendations of how CDEX can move forward. It is very open conversation, but it shouldn’t lock us into anything. We should look into the projects Nankai subduction, IBM arc, Hikurangi subduction system, CRISP, and various versions of M2M Mohole drilling. We have the opportunity to see if this is enough or to think about the future, or do we need additional project and so on.

Ildefonse said he didn’t declare COI because M2M is not in the CIB bin of the proposals. Ildefonse asked to chair if he should move out. van der Pluijm said if you think you are conflicted, you should.

Eguchi said that under this agenda, the previous CIB asked for updates on CRISP, IBM, and Hikurangi. These updates will come by October 2018, and as Keir mentioned yesterday, how do we deal with these? van der Pluijm asked if it means

that is not an item of long-term agenda. Eguchi said that to think about the long-term strategy, that's what coming first is those updates for riser proposals. We do not need to treat it as a long-term strategy. Mori said that it is good to have an M2M drilling specialist in this room. van der Pluijm said that he thinks the Chair should stay as well under the same argument.

Becker said that this is the agenda which we need to decide how we are going to handle these updates of Oct 1. Once we decide it, the Chair should come back. The problem is the next meeting is scheduled for next June. It's 9 months after we request the updates.

van der Pluijm said that he is not sure about how to handle these updates that we don't have yet. Becker said that we didn't specify how we going to treat these updates in our consensus last year. There could be an added 3 months delay before the next meeting.

Mori said he thinks the reason we asked for updates was to give the PIs a chance to update because some of the proposals are old. That's why we asked, to get new information before prioritizing the next riser proposal.

van der Pluijm commented that updates shut the door for other proposals. Because we shut the door for new proposals. Eguchi said that he thinks it is not true based on the previous CIB consensus. Consensus 10 is "Call for new riser proposals", so we are not shutting the door.

Koppers asked if "long term" means post-2023. van der Pluijm said that he thought it was 2019–2024. Miller said that form the prospective of SEP, he thinks the last line of the consensus statement of 09, "The CIB will contact the JRFB chair and the SEP co-chairs for potential involvement in this process". That means the discussion of clarification. Because some of these proposals have 10-15 years history, simply do not belong someone evaluated update. The update has to go back to the whole history. It can be done but just realize this is 3 proposals with very complex long history. Someone said that CRISP is the example. Miller said CRISP is 537, and new proposal number is 96 something, it needs to be discussed.

Becker said that this w o r d i n g says the "potential involvement". CIB could elected just keep these updates at CIB last year. We should ask Koppers and Miller to be

involved. Ildefonse said that he thinks we discussed this last year.

Miller said that every review has been done for the past 15–20 years. Within the papers there would be much proposals but we still have to wait through the electronic proposals. We are willing to do so but it is realistically large task. Miller continue to said that to a solution, it might be good CIB to look at these externally determine whether or not based upon Koppers was presented whether or not science sufficiently review at board and to CIB and then go back to CIB.

Ildefonse asked that we would receive these evaluated at CIB and decided in case-by-cases basis whether you want to go back to, is that correct? Miller said we need to see if the science has moved on and left the proposal behind. If it's been updated, this can be determined. We have students who is working on the science piece for 10 years long. At first that was really good idea but after 10 years it's like stale. If there are updates, we can see this.

van der Pluijm asked to everyone that if we should discuss only these 3 projects. "We have locked in these 3 projects and that's it?" van der Pluijm does not think this is what we should do. Becker said that evaluating the updates is one of the step for long-term. That's why I would like to clarify how we are going to handle that. Yamamoto pointed out that Cesare, the PI 537(CRISP), he submitted the update. van der Pluijm asked if there are no other updates. Yamamoto answered no. Eguchi added that we are waiting for other updates now.

van der Pluijm asked to members that without the updates, we can't move. So, do we now encourage new proposals? CIB should motivate NEW proposals but not just endlessly review old ones.

Eguchi said that we should get consensus on how to treat the updates. And then move on. van der Pluijm said OK. He wants to figure out the updates.

Becker said that if we want SEP to evaluate them to update until next January meeting, or wait until June, we need to do it at the January meeting so that we can have their evaluations when we next meeting. This means look at these updates and show them it in October and then decide by e-mail. If we want to involve SEP. van der Pluijm asked if it is for all 3 or case-by case. Becker said it is case-by-case

van der Pluijm said that CIB will inform any updates they have. 3 to 4 weeks to response and then otherwise if the time passed on for January meeting. Eguchi mentioned that it is no need to be done by the January SEP meeting. But the next CIB meeting is in June. If we want to discuss at the SEP, June meeting, we need an e-mail session. The January SEP meeting is little bit short. Eguchi said he is not sure how the e-mail discussion works because even for the one consensus about the workshop proposal, we took a month or so.

Miller said that we are scheduled in June 18–20 or later. So, you cannot have a meeting in June, just after the SEP. van der Pluijm said that he thinks we've got handle these updates as they come in. Because 15 months from now we can go in the cycle in 2020 before we catch the SEP. That's only 2 years in the term. We should do that and handle these updates as they come in and CIB eliminate the time. We should be ready for these updates by the next CIB meeting. Otherwise it is late for the year of 2020.

Ildefonse agreed that we should set up the deadline. It works. There is no need to make a deadline very long probably. Eguchi said that once CIB send 1 to 3 proposals to SEP to evaluate it again, for the watch dog, there must be a huge amount of work. Eguchi asked to Yamamoto when is the decision of watch dog for those proposal. Yamamoto answered that one month before the meeting, so it is early December. Miller added it is before the AGU. Eguchi said that CIB still has 2 months

Ildefonse said that he heard one of those 3 is already in. Miller answered yes. Ildefonse said that we could actually work on them here. van der Pluijm said that We need to contact the proponents of other 2 groups to point out that "timeline is not elastic". E-mail them the updates are needed and there is timeline. Eguchi said that the Hikurangi people are at sea and hesitates to e- mail them while they are aboard JR. So, we'll do it after the expedition/leg ends. van der Pluijm said try to move forward the process.

Mori said that he thinks next CIB really need to talk about the next riser project. It really needs to make a fast decision at the next CIB. They need the information for full discussion at next CIB meeting. Eguchi agreed that the January SEP meeting is needed. Eguchi also said if CIB member is comfortable to do that it is OK but

basically e-mail discussion always goes in the trouble. Ildefonse said that we can do. As busy as we are, we are in 2 months window and we can read the proposals. I believe we can do that. van der Pluijm mentioned that we need good evaluation from SEP. Miller said that we are aware.

van der Pluijm said next is step 2. It's not the updates but beyond the updates. Is there anything in the long-term we want to do or want to see before the next meeting? Because the next riser project might be solicited. Additional new proposals revisit and exist? Nankai might return in the conversation?

Ildefonse said that it should be clear about what the long-term means in here. The timeline after 2018, we have NanTro C2, in 2019 is potentially nothing for science. There is huge window of commercial operation only. In 2020 is LHR, if money is there, until the end of 2020, there is nothing for us anyway. So, we are talking about 2021 at the earliest, which is free right now. So, what is the long term? How far beyond should we discuss. Because we have 3 proposals in the table after we have the updates. That's already taking potentially a lot of years of drilling anyway.

Austin said that this FB has no mandate beyond early 2021. There is no science plan either. So, you would be advised that it strikes to plan beyond that. Ildefonse said that "beyond that" means that it is fantasy at this point. Austin said that you cannot say that we do a lot more to do. You do not want to get in the details of any of that. Ildefonse said that's sounds like "shopping". Austin replied the shopping must work.

Becker said that it already enough to register the priority. Austin said yes, you can make a prioritized list. Becker said that we can make a prioritized list. We should re-issue that consensus statement and we are open to the new riser of pre-proposals. Both communities encourage to do it.

van der Pluijm said that some people think that there are 3 updates and that's it. CDEX is going to pick up those 3 and there is nothing else and finally people are disappointed. Because they do not know how to break it. CIB always talk about these 3. It limited automatically. That's the time for made it clear now that we are looking for the updates but it is not for the final decision of those 3. We should emphasize it.

Ildefonse added that people are familiar with the system. If they go online and

see what the active proposals are, in addition to the CIB, they know there are certain number of things at SEP level for riser drilling at the pre- proposal stage or further. For these points, for young scientists, it's going to be hard to predict him/herself in the future having that proposal in the system, thinking "OK, there is no room for me for next 20 years because there is already enough for drilling the next 20 or 30 years in the system with riser". We should send a message to the community to say, OK, there are the proposals in the system but it does not mean it is locked in. We are still looking for new ideas and so on.

van der Pluijm said we hope to do. We all know there is always same proposals. We need to avoid sending the message to say that only those big 3 we are waiting for. Ildefonse said it is true for short term. The short term means 2024. Ildefonse asked to CDEX general. When we talk about long term planning, that's mean trying to establish priorities within what we already have in hands or trying to increase the proposal pressure to have even more to go for next phase. What's the goal?

Kuramoto: Maybe I am not the correct person but Azuma will correct me if I am wrong. JAMSTEC's point of view and next mid-term will 7 years term, 2019–2025. But IODP current phase will ends at 2023. By the end of IODP current phase, it is the long term. Eguchi added that other question is CDEX need more proposal pressure or future domestic situation?

Kuramoto said that based on the returned comments, CRISP, IBM, Hikurangi, of those updates, those updates are really feasible from the science point of view, and we have to see to prioritize them.

Short term is also needed. The decision of LHR funding will be decided in first week of May this year. If that fails, we have to think about plan B for 2020. In 2019, first year of next term is 0 funding starting. No accumulation of funding for that. We maybe have shortage about doing some IODP expeditions.

Ildefonse said that Plan B in 2020, if LHR was not happening for some reason, could be IODP operation only if you can make money the year before that on commercial expedition. Is that right? Kuramoto said that's right. Money comes from outside JAMSTEC is very important.

van der Pluijm asked Kuramoto if CDEX is looking for more proposal pressure or not? Because we have 3 and it sounds like you satisfy with that. Kuramoto answered we need more proposal pressure.

van der Pluijm said that consensus item 0317_10 needs to be updated. We are thinking much beyond the updates additional proposals and encouraging the community at AGU and EGU more aggressively. Eguchi asked van der Pluijm if CIB consensus is that we do the same consensus again. van der Pluijm said he is looking for more aggressive outreach activities than we do since people are looking for something.

Austin said that's what consensus said. It says that "Pre-proposals for new projects will be solicited". You are not waiting, you supposed to be going out, looking at the workshop which has riser proposal. You got multiple documents to talk about import science, the riser drilling can be addressed. You need to go out as a board to those communities to ask for the proposals. If you just wait, you won't get anything. Because the view is that there are more mature efforts in front of you. Then they can compete the guest. You won't get anything. Be solicit. Do some work.

van der Pluijm said let's refresh the consensus statement. Ildefonse said the consensus is not enough. Nobody reads these things. van der Pluijm said no. We should say that we are thinking those things, we want new projects.

Austin said that he would write an article for the *Chikyu* and would put an ad in *Eos* or other publications like that within next 3–4 months, make it very clear that your chances are possible. Beyond what's in the system now you have chance getting riser drilling for something to be determined. But you have the workshop documents generating by the Japanese community or by international group and talk about science of riser drilling. You've got them. Go look at them, re-generate and points those people and say get the proposals. If you don't, *Chikyu* goes away.

Ildefonse asked what about these workshops that funded by CDEX after the approval by CIB. Are the CIB liaisons attending their workshop? Eguchi said yes.

van der Pluijm said we need somebody write the consensus statement to update. You have the statement which points out we are expecting those updates in the timeline that is there, we can move forward. Somebody volunteer for the consensus item 0317_3?

Ildefonse said that he does not think we need the consensus for that. The consensus is already there. We need the direct communication with the proponents. Just e-mail for the communication, reminding them about that. Again the consensus is not the right way to do it. Because we have the consensus already with the deadline. We just remind them about the deadline.

Becker said that new consensus is that we will take the first look within the month for the deadline. van der Pluijm added that moreover, the consensus in 2017. Ildefonse said OK. It is just specifying the timetable.

van der Pluijm said that it would be useful for us, again, send the message out, and move things forward.

Eguchi said we should include in the consensus that some of the proposals might be send to SEP for the evaluation by January 2019 meeting. That should be specify in the consensus.

Austin commented that writing the riser proposals is complicated and hard. You are going to have to figure out the way to the convince people that they have a chance. I don't know how to do that correctly but I would say, for example, if I were CDEX, we are going to money to be available for people to get together writing the proposals. For the NanTroSEIZE people money was made available for those people. The work solicit is the key. You've got be more active and write it.

The Chair back to the room and asked everyone if he re-start the session although it is already noon, lunch time.

CIB_Consensus_0318-05: Proposal 898 Workshop proposal.

The CIB supports the objectives of a workshop to discuss preparation of a drilling proposal to investigate the geophysical, chemical, and biological subseafloor environment of the Izu-Bonin-Mariana forearc. However, before approving the workshop, the budget needs to be clarified, especially in terms of what specific travel costs are being requested to CDEX. The CIB requests the submission of the relevant budget clarification by the end of April 2018.

CIB_Consensus_0318-06: New riser projects.

The CIB actively encourages new *Chikyu* riser-based projects for consideration along with current proposals for future implementation. Projects can be based on prior, as well as new, community planning activities, and will be considered, as available, at the 2019 and 2020 CIB and SEP meetings. Workshops and pre-proposals for new projects will be solicited through direct communications and various posting venues.

CIB_Consensus_0318-07: CRISP/IBM/Hikurangi proposal Updates

The CIB reaffirms the importance of the 1 October 2018 deadline specified in its 2017 consensus (0317_09) requesting updates for the CRISP (537), IBM (698), and Hikurangi (781) riser proposals. The CIB intends to review these updates by email in the month following the deadline, so that, if the CIB decides to request SEP assistance in the evaluation of any of them, this can be organized for the January 2019 SEP meeting. This will allow for SEP feedback at the 2019 CIB meeting, at which the CIB will discuss prioritization of future riser drilling projects after NanTroSEIZE and Lord Howe Rise.

CIB_Consensus_0318-08: IODP Proposal 925-Pre

The CIB agreed that years of seismicity monitoring and much better site characterization at the Blanco Fracture zone would be required before any consideration of the scientifically innovative but politically sensitive objectives proposed in 925-Pre, using *Chikyu* riser capabilities. Therefore, the CIB declines to invite a workshop proposal to develop a full riser proposal. The CIB notes that SEP suggested a multiphase approach, with initial riserless drilling and long-term monitoring to characterize the fault zone architecture and state of stress in the region. The CIB suggests that these would be important scientific objectives in their own right and that the proponents could focus on these initial phases first. Thus, we deactivate the current riser pre-proposal and encourage submission of a riserless pre-proposal.

The Chair called for a lunchtime at 12:00 hrs. LUNCH

b. Collaboration with JRSO (TDCS) (Eigo Miyazaki)

(13:02 h.)

The Chair re-start the session with collaboration with JRSO.

Eigo Miyazaki from CDEX Technology Department explained that TDCS is an abbreviation for Turbine Driven Coring System and is one of wireline coring for *Chikyu*. The target rocks of TDCS are medium-hard rocks and fractured rocks.

Miyazaki showed the outline picture of TDCS and explained that in the normal coring operation, other coring tools, the core bit and drilling string is rotated by the top drive on the sea. This TDCS out by its own rotating devise, such as the turbine motor. This turbine motor is composed of multi stage turbine. The turbine motor is driven by the circulated mud where the seawater from the mud pump onboard. The rotating speed is more than 1,000 RPM. It's quite high speed. The high rotating speed is effective for the coring of hard rock and uses an adapted turbine motor.

The turbine motor is made of steel. It is applicable under high temperature environment. The turbine motor rotates the inner tube and cutting shoe at the bottom of the inner barrel. TDCS has a piston cylinder mechanism and that stroke is 4.5 m. The cutting shoe goes through the main core bit and it advances 4.5 m from the main bit for cutting the core. After cutting the core, TDCS in the barrel is recovered by the wireline and the core is taking out from the inner tube on the deck. Then the hole is led by the main bit by 4.5 m and the inner barrel is dropped with freefall into the drilling string.

And it can start next coring. Miyazaki said that they have developed this TDCS but unfortunately there is no operation plan for *Chikyu* of hard rock coring. Miyazaki added that they have never tried this TDCS in the operation of *Chikyu*. So last year Miyazaki talked about this TDCS with the JRSO engineer. They were interested in TDCS and suggested Miyazaki to test TDCS on *JR* expedition. Miyazaki said that they appreciated this offer and started the collaborated work with JRSO. And, it was officially approved to test the TDCS on *JR* IODP expedition 376.

Miyazaki explained that the site of Exp. 376 is north east offshore New Zealand. The formation is volcanic rock and hardness is medium-hard. So it is suitable for TDCS. And expected temperature is very high. And this is also suitable for TDCS. In the original drilling plan, about coring tool, RCB coring will be done but generally it is difficult formation for RCB coring. So TDCS coring is planned to be tested at each coring sites. Miyazaki said that CDEX hopes to get the core by TDCS.

Miyazaki explained that during the development of TDCS, they conducted the coring test on land. First one was the coring test in the horizontal condition. Miyazaki showed the pictures of the horizontal test. Miyazaki pointed the TDCS inner tube and said that there is the rock block in front of the inner tube. Also Miyazaki said that they used the dummy core bit for the test. Miyazaki pointed the mud pump in the picture and said that it is for water circulation to drive a turbine motor. Miyazaki showed the movie of the testing and explained that the TDCS inner tube started heating by the turbine motor.

Miyazaki showed some pictures of sampled cores in the test. Miyazaki said that they could not get the actual hard rock. But they confirmed TDCS worked very well because they could get good cores.

Miyazaki explained that they did some test for cutting shoes and showed some pictures of bits such as, the surface set bits, impregnated bits and others. Miyazaki said that they used 2 types of cutting shoes, the spiral of surface set bit and the spiral impregnated bit. And they confirmed very good performance for TDCS and decided to adopt these 2 type bits as cutting shoes.

Miyazaki explained that after the TDCS horizontal test, they conducted the coring test in the vertical condition test. Miyazaki showed the setup for the vertical testing. TDCS was hung over the test hole and rock block were set at the bottom of the hole. And vertical condition test was conducted. Miyazaki showed the core sample pictures. The rock was white marble and the length was about 4.5 m. They confirmed that they could get full length core of 4.5 m.

Miyazaki told that finally they brought the TDCS to the *Chikyu*. Miyazaki showed the picture of moonpool in *Chikyu* and said that they did the TDCS

rotating test by using the *Chikyu* equipment. Miyazaki also showed the movie of the rotating test. In the movie, TDCS inner tubewas rotating with high speed. Miyazaki added that the picture is the inner tube of pre-extend and its length is 4.5 m. They continued to improve the TDCS and now ready to conduct the actual sea trial.

Miyazaki explained the TDCS schedule for *JR* expedition. IODP expedition 376 will start from the begging of this May. CDEX is now rushing to prepare for the transportation of all TDCS components to New Zealand. In this expedition, 2 CDEX engineers will be onboard. Miyazaki said that he will conduct the test of TDCS and hopes the TDCS will work to get the good cores. Also, Miyazaki hopes the TDCS contribute to the success of *JR* expedition.

Allan said that NSF are ready for that. Allan added that this is a kind of very difficult drilling condition. What we saw before, the couple of decades ago, they used more primitive turbine set. It absolutely prevented a complete barrel. This is the very exciting development. Allan asked that CDEX put 2 in

the expedition? It means when one is coring the other prepares as well. Miyazaki replied yes.

Ildefonse asked to give the estimate of penetration, at least CDEX had during the test. Miyazaki answered that they cored white marble, 4.5 m and it took 15 minutes at the test on land.

Ildefonse said Basalt may take longer. Ildefonse said that next question is difficult to answer because CDEX did not test on the sea. But does that make assembly more sensitive to the heave? Or more susceptible to break? In other words, do you need very low heave to break this to anticipate to be able to use that with?

Miyazaki answered that they have a piston cylinder mechanism and the heave affect will be canceled by this.

The Chair confirmed if there were no questions. And nothing arose.

c. Collaboration with ESO? (Proposal 866) (All)
(13:22 h.)

The Chair said that next discussion is Collaboration with ESO. This is for proposal 866. Japan Trench Paleoseismology. As Miller introduce this morning, this one could be *Chikyu* project. But yesterday, Camoin said MSP will be on this expedition, and the schedule is 2021. What we have to discuss is this one whether or not we can identify this one as *Chikyu* project or not. Mori said that he is a proponent.

The Chair asked to Camoin if he would you like to say something. Camoin said that this is still in the external review. But we heard that changes are pretty good and proposal could be forwarded to 1 or 2 FB. We begin to discuss but need to identify some options to do it. This one can be set 75 m in fact they request 40 m. Miller added that the reasonable proposal at 75 m done.

Camoin said that it is correct. So now 40 m is based on the performance update they can made. Subject to CDEX, the budget is 1.52 million in case the ship in time. In case the ship is not in time, it could be more. So, this is something that we consider for the schedule of 2020. In 2020, the ship is available. So 2020 or 2021, we definitely can do it.

The Chair said that *Chikyu* is the one of possible vessels that can do it. But the budgetary limit is very critical for them. And also *Chikyu* must have its own project within the budgetary conditions. *Chikyu* does not act as MSP in this case. I feel this is not a *Chikyu* project. Is that our consensus?

Ildefonse said that he understands you can't make *Chikyu* as an MSP. But he is not clear on which of the tool options are the problem to do the operation. Eguchi answered it is the cost. Ildefonse asked it is only cost. There are no differences from technical point of view? Eguchi answered no to him.

Austin commented that he is a little bit confused. Because he is hearing that you want to do it with *Chikyu* occasionally as used as a piston coring vessel, based on the proposal, move like *JR*100. Those will be the most expensive piston coring in the history, in the universe. If you want to use *Chikyu* that way, why don't you look at this project logically? Sally said because it is not IODP. Camoin added that SCORE is outside funding. Austin said that the *JR*100 program does not use IODP money. That was other NSF money. And Austin asked if this is true for *Chikyu* as well? The Chair said yes, SCORE is outside

IODP.

Allan commented that piston coring using cable where there is no experience dealing with those legs. Coring with *Chikyu*, where you are pretty sure that you can get these and maybe deeper. The real issue is “Who runs the show?” It should be an MSP run by ESO off of the ship using a long core? Or it should be run by CDEX as a formal IODP expedition. Piston coring is just a coring. Austin added that he looks at this as *Chikyu* having the capability to support that drill string, and still be able to core.

Austin said that this is the classic example of using what only *Chikyu* can do as a riserless vessel. She is the only tool that can access these water depths for this problem. And it is about to come back next external review as a top- flight program. So, we either tell Michael Strasser and company that it is off the table. This is as societally relevant to Japan as NanTroSEIZE. Austin said that he hopes they can explain it to Strasser.

Becker commented that he is not sure what the question was. Until it comes back from the external review, it could be forwarded to both CIB and EFB. Becker agrees with Jamie in keeping open the option for *Chikyu* to do this as IODP.

Ildefonse said that this is listed as an ESO-CDEX collaboration, but it’s either one or the another. Austin commented that was what he was thinking. This is not ESO using *Chikyu* as MSP. This could be CDEX operation, 100%.

Ildefonse commented if you use the long piston coring, there are some French people who are used to get long cores from 50–60 m. The question is what is the advantage of being able to easily go to 100 m or more using just a coring. There’s been the past questions about the quality of core as well, piston coring vs *JR* coring. I know in the France there is long standing debates. The French community was reluctant to go to *JR* because they prefer to use the long piston core. They argue the quality of the core is better than what *JR* can provide. Maybe the technology has advanced enough these days and that argument is not valid anymore.

Camoin said that we need to access the technology tools that we can use. Because who can get the same result, piston coring or calling the *Chikyu*.

Another parameter we have to take into account is the cost. Because we are facing here the same problem that we are facing with riserless options of *Chikyu* vs *JR*. We are talking about cost. I do not want to push for the vessel. If it sure for the scientific objectives are met by both techniques. I think they know the parameter that we have to take into account is cost.

Allan commented that the pots of money are different here. The part of money for MSP is different from the part of money of *Chikyu* operation. Even if the *Chikyu* operations cost 2 or 3 times as much. That pot of money is there to be able to use *Chikyu* whereas if you depended on having the contribution account. Camoin said that MSP can do it in 2021 as I mentioned just before.

Austin commented that there is feasibility issue that we do not know if the piston coring vessel can do this. Several were discussed but nobody was there at any facility board. This program is classed as LC, low cost. With a free vessel. I am not a big fan of free vessels and I don't think it exists. So, I don't think it could be cheap. You are looking at least 20-30 days, that's a lot of money. But no one uses much money as using *Chikyu* for the same period. Camoin said it's still manageable with our budget.

The Chair confirmed with Camoin if this proposal is now under external review. Camoin said yes. The Chair said that when the external review said they will evaluate the possibility of piston coring at that phase by which vessel or something like that? Camoin said he is not sure the external review has an opinion of that. Because they evaluate the science. Yamamoto said yes.

Morgan commented that there are 19 primary sites. Her understanding is that piston coring is preferred because of the core quality. But at the same time, she said they are keen to have *Chikyu* involved, from a lab prospective. It should be able to do XCT on cores very quickly. Sally said that she discussed this with Eguchi and Strasser. She thinks there are a lot of different ways to do it. If it is called a *Chikyu* project, the one way to collaborate should use the *Chikyu* labs.

Austin said that there is one another issue, and Strasser knows about this. A lot of these targets are small already. Navigating a drill string and navigating a piston core on a carbon fiber line is different for small targets. It's not just

going to be evaluating the water depth. It's going to be evaluating getting the drilling string to the point where you want to take the samples. It's not something proponents thought about. What they going to do? Sally said that they said that they can get down to 500 m.

Antony Morris commented that another thing that the time needs when it could be done with 2 basic options we are talking about. The proponents and communities would like to see this happened. We should be talking about the time that *Chikyu* might be available. Ildefonse asked it is 2021, is that correct? The Chair asked that 2021 is LHR. Kuramoto answered 2020 is LHR but we are just planning, since it depends on the money. The Chair asked if there is any drilling cruise planned for 2020. Eguchi said that that is open for commercial work. The Chair confirmed there is no space.

Ildefonse said that at this stage, we don't need to make a decision. We wait for the review and SEP will decide to forward to one or other FB. The question is, from the CDEX point of view, what is the lead time needed to have a decision that it is an IODP expedition so that eventually get the process started. And to phrase it differently, is it viable to have both operators doing the prospective work at the same time if eventually one is coming, if you don't do the drilling, sounds like useful way to use money. The Chair said that sounds reasonable.

Ildefonse said at some point, we will need to decide whether it will be a *Chikyu* or MSP operation. Somebody will have to make a decision, so that if you don't have both the operators are scoping the same thing at the same time; one of them is wasting money essentially. All, is it acceptable to actually do that. Anthony said that he will make a decision.

Miller commented that SEP won't decide which platform is necessary unless the reviewer make comments on that. These are very high sedimentation so for example, 5 m is still within the past 1000 years. So going back 100, 150, 200 m, no magic numbers perhaps. So from a science prospective, we would probably forward both to see whether or not it's going to be technologically feasible and economically feasible for each platform.

Ildefonse said that would be the best-case scenario. Both operators can start scoping the activities and eventually come out with scenario and costs. With the

understanding that they may do this for nothing. Camoin confirmed that 2 facility boards could get this proposal after SEP June meeting? Miller said yes.

Camoin asked if it means they should start discussing soon after. Because they could make the decision together and see what is the feasible for the best of science.

Miller said that where we want to liaison with the PIs to see what is the best for the science. It may be sufficient, technologically, for the piston core. Maybe, logistics, climbing, funding, if *Chikyu* is available because LHR is not going for some reason then maybe more feasible to use *Chikyu*. Camoin commented that he thinks it is important that 2 FBs discuss and involve the IOs in these discussions. The Chair said it sounds good.

Kuramoto added his comment that will be good timing after the June SEP meeting this year, we have already got some answer from Australian government about implementing LRH or not in 2020. If not, one of the possibilities would be to do plan B for 2020. Of course, we need to more carefully estimate the cost for this operation. But starting the discussion after the SEP June meeting is good timing. The Chair said that we encourage scoping by both. And the Chair asked if this is consensus or not. Ildefonse said no for the moment. It is the review process only.

No more questions and comments arose.

d. CDEX M2M Task Force Team

(Nori Kyo) (13:44 h.)

The Chair asked Nori Kyo to present CDEX M2M (Moho to Mantle) Task Force Team.

Kyo briefly introduced the M2M Task Force Team, established internally CDEX, and discussed both M2M and the mantle drilling.

Kyo said that the team objective is to consider a draft plan for M2M including the mantle drilling and kick off the feasible project. Core member consists of relatively younger people in CDEX.

Kyo explained about the team activities. They have meetings roughly once a week. The deliverable of the team is considered to submit at the end of JFY 2018 with consideration of JAMSTEC mid-term plan of JPFY 2019-2025. To make the deliverables, they define the scientific requirements for M2M drilling. And based on the scientific requirements they define the engineering specifications. Kyo said that iterating between the requirements and specifications, they make a draft plan for the Shallow hole drilling. Kyo added that they need the shallow holes including everything such as M2M and mantle drilling. If it is possible, a pilot hole of M2M is the best. But they won't decide this now. They will finalize the draft plan of M2M Hole drilling, maybe after the next mid-term based on the current budget situation.

Kyo showed four questions which they picked up from the poster about M2M on the wall in laboratory on *Chikyu*. Kyo said this is very essential and very important questions.

Kyo showed the candidate sites of IODP proposal 805MDP. There are 3 candidates in M2M site.

Kyo said that they summarized each of the candidate sites. Kyo explained the technical difficulties for each. Kyo said that they found high temperature problem in Cocos Plate site, a remote location problem in Baja California, and a deep water depth problem in Hawaii.

Kyo summarized the technical difficulties. There are lots of difficulties such as water depth, long penetration, hard rocks, high temperature and high pressure and others, such as logistics.

Kyo said that currently the team picks up each factors of technical difficulties, such as

- Are they suitable for the scientific purpose?
- Are they really necessary to reach to the mantle?
- Are they expected to be feasible in R&D?
- Are they expected to be feasible in implementation?
- Are they subject to regulations and standards?

Kyo gave example that the original 4,000 m riser system requires full riser BOP system. However, CDEX really needs a BOP for well control for mantle and M2M drilling. So that they need to consider those issues.

Kyo explained about the plan roughly. In 2017, they made the site survey in Hawaii and its data analysis is ongoing. In 2018, the team make M2M plan for R&D, after considering requirements and specifications. After that CDEX will know if they need the additional site survey or not. And then, move to the shallow hole for starting mantle drilling. Kyo added that the main objective is to put this project on the list of JAMSTEC mid-term plan.

Austin asked if the lead proponent of original proposal is still around? Kyo answered yes. Austin continued asking if Umino, the proponent could be one of the people who solicit for another proposal.

Ildefonse said yes and asked why make another proposal, there is already one? Austin said because it sounds like it is leading to Hawaii.

Ildefonse said no. Eguchi added that this future plan is a little bit misleading. We haven't decided to drill at any of these sites. That's based on the science.

Ildefonse added the information that the reason why Hawaii looks possible from others is really only for logistical and technical reasons. Logistically, it is close to the port. Technically it is only for the low temperature. Scientifically, it is definitely a less desireable site.

Austin asked it is because of water depth? Ildefonse said there are questions about the additional site survey. Yes, there are plans and they are scheduling with both UK and Germans for a site survey of Cocos Plate.

The Chair asked about the question in the slide "they are suitable for the scientific purpose" Who are they? Kyo replied that they try to continue the R&D and each R&D is the suitable for that. For example, focusing not only the full riser BOP system, but also on stream-line risers, or other options. Which one suites for the which site to be

Morris commented that as Ildefonse said, the site survey was funded by a couple

of places and also combined in the same project. Site survey should be funded.

Ildefonse commented that he would like to thank CDEX. Because so many activities are going on, while thinking about technology options. One of the things we, proponents, say from the very beginning for original workshop were made by CDEX. And second workshop in Kanazawa was we NEED to have a science community and technology people to talk together. So, time to do this now.

Morris asked if this M2M proposal isn't deactivated, isn't it? Yamamoto answered no to this question and said that it's active since they submitted the PIL last year.

The Chair confirmed if there were any questions and or comments. Nothing arose.

e. Education/Research Program onboard *Chikyu*

Note: This item was moved to discuss in the original Agenda Item #16 on Day 2, which became #15 in fact.

13. *Chikyu* Outreach Activities (Nobu Eguchi)

(13:52 h.)

The Chair moved on to the next topic: *Chikyu* outreach activities. The Chair that CDEX is very keen to receive some endorsement for this activity. Especially this year, CDEX had some good success for the CLSI@sea. This will be discussed in Agenda Item 16.

Nobu Eguchi briefly explained the *Chikyu* outreach structure. IODP *Chikyu* outreach has four components, CDEX outreach team, J-DESC, Ocean Drilling Science Center of JAMSTEC, and the JAMSTEC outreach department. Those four components are working on IODP and *Chikyu* outreach.

Eguchi updated the activities of lectures, seminars, symposiums, and workshops last year. CDEX had 12 lectures and seminars at Hachinohe and Shimizu. Most of lectures were related to open ship events. CDEX held a symposium at Hachinohe, also related to an open ship event. CDEX, together

with USSSP, ECORD, and ICDP, held the IODP Town Hall meeting at the Fall AGU meeting in New Orleans, and had a scientific drilling booth.

Eguchi briefly updated expedition outreach. The Exp. 365 video was selected in the AGU cinema 2016 top 10. The Exp. 370 video is also ranked in the AGU cinema 2017 top 10. For the second year in a row, *Chikyu* Expedition videos were selected in the top 10.

Eguchi explained the open ship events. CDEX had an open ship event in September at Hachinohe. The original plan was to have a 2-day general public event, but this becae a 1-day event because a typhoon was approaching. Even so, 5,012 visitors came onboard. Over Christmas time, CDEX also had an open ship event at Shimizu port. That was a 2-day open ship event for both VIPs and the general public. In 2 days, CDEX had almost 8,000 people visit *Chikyu*.

Next, Eguchi mentioned the special exhibition, “Deep Ocean 2017”. This was not only for *Chikyu* IODP but was all about science in the Deep Ocean. This was the second time JAMSTEC had an event at the National Museum of Nature and Science in Tokyo, the first one was in 2014. This exhibition not only showed strange creatures, or fault zone research, but also introduced deep ocean research. It was held for 79 days, from July to October. During the exhibition, 617,062 people visited this exhibit. This was the second top attendance event in National Museum history. The record of 7,811 visitors a day is the number 1 record. The #2 record is around 1000, so this record will stay at the top for at least a few years.

Of course, there were a lot of complaints from the visitors because it was too crowded to actually see the exhibition. Eguchi added that CDEX held a mini symposium about JFAST at this exhibition. Actual attendees were about 100 people but it was web broadcasted, so a total of about 16,000 people viewed this mini symposium. CDEX made several mock-ups, including the dog- house, and a scale model of *Chikyu* operation of J-FAST.

Eguchi showed the exhibition map and explained what was displayed in each section. And Eguchi explained that at the *Chikyu* corner, CDEX displayed the *Chikyu* model, real drill pipe, drill bits, and panels which explains what happened during the J-FAST expedition, Eguchi said that they brought real J-FAST fault archive core from KCC.

Eguchi added that there were some monitors in the corners, showing a video where Mori explained the J-FAST project. More than 600,000 people watched Mori's show!

Eguchi introduced the activity of CLSI@sea. Although CDEX opened a call for international participation, CDEX was nervous about how many application forms they would really receive. In the end, they received 18: 7 from Japan, 7 from US, and 5 from ECORD. The NanTroSEIZE PCT selected 14: 5 from Japan, 4 from US and 5 from ECORD. These were all young career scientists and students. The PMOs all provided the travel support as well as HUET training. This is just same as for a regular IODP expedition.

Eguchi explained the outreach statistics. CDEX held about 13 small and large exhibitions during 2017. CDEX also held 2 general lectures and 12 school lectures. When the ship was at port for open ship events, they additionally opened the ship 81 times for people to visit *Chikyu*. The total number of visitors was more than 3,000.

Eguchi also mentioned the *Chikyu* twitter account. The total number of followers in March was 19,884; however, it is mostly in Japanese. Last year there were 18,293 followers, so we gained around 1000 followers. CDEX keeps posting events from Exp. 380 and CLSI@sea almost every day. CDEX is considering how to open an English twitter account in the future. Eguchi also mentioned revising the CDEX and Chikyu web sites, via the "Web KAIZEN". The new web site will open sometime in early summer this year.

Eguchi also explained about outreach future plans. Next month will be the EGU meeting, with a session on ECORD IODP outreach, Past, Present and Future. CDEX will join the poster session. CDEX is thinking to have another video project during IODP Exp. 358 just as Exps. 365 and 370. Exp. 358 is going to be the last cruise for NanTroSEIZE, so CDEX is thinking about making a summary video to promote *Chikyu* activities. Eguchi added that special volumes of several Japanese magazines are now under consideration.

Austin commented that at the forum in Goa in September, Eguchi will be running the PMO meeting. That is good.

Ildefonse asked about the twitter, saying that CDEX should open the twitter in English soon. Ildefonse noticed that during 380, it was posted in English and that was good. However, most of the time it is in Japanese. It is critical to reach out to the international community

Also, Ildefonse asked about the *Chikyu* Facebook page, which Eguchi did not know about. There is no Facebook page officially. Ildefonse said he found the *Chikyu* Facebook page and it seems that it is maintained by some scientists. Eguchi said he will look into it.

van der Pluijm commented that those records show some fantastic efforts. This is fabulous, amazing.

No more questions or comments arose.
The Chair confirmed that next agenda item was KCC report.

14. KCC Report (Tsuyoshi Ishikawa)
(14:12 h.)
Ishikawa presented core curation activities over the past decade. He showed the world map and regional core repository oversight, and noted that KCC is in charge of samples taken from the Western Pacific and Indian ocean. The capacity of all the repositories including the old and the new cores now total 250 km. In 2008, the first core from *Chikyu* arrived at KCC, and then many more cores, mainly from *JR* or MSP, came. The total amount of core length at KCC is 130 km. For curation of core materials, New IODP comprises 23% and the old IODP 13%. Sampling parties are held mainly for the *JR*, such as for Exps. 323, 333, 346, 353, and 354. The average numbers of visitors are several to 50 and sampling parties bring more scientists. KCC regularly ships about 10,000 samples per year. Ishikawa introduced the databases KCC provides: Core catalog, and the virtual core library, which provides a 3D XCT image of data, available by PC or with a tablet. Ishikawa said that this is a KCC original.

Ildefonse asked if KCC scanned the old legacy core as well for that service. Ishikawa said no.

Ishikawa continued dcescribing the KCC databases: Deep BIOS, which is also

a KCC original. Ishikawa mentioned there are 400 samples currently stored at -80°C and -160°C. Finally, there is a *Chikyu*-specific cuttings database now available to search by the amount or grain size.

Ishikawa said that KCC is providing very quick updates on sample availability. Also, sample data for the individual samples was not previously available but is now, and searchable. He said that collaboration with BCR and GCR is going well and Lallan Gupta attended the curatorial meeting held on *JR* in NZ earlier this March.

He described the analytical facility at KCC available for the IODP community, e.g. XCT, MSCL, XRF core scanner, and core image scanner.
There are not a lot of publications based on core samples shipped from KCC. For Education and Training, KCC supports Pre-cruise training for Japan- based participants regularly, J-DESC core school, and IODP KCC booth at AGU & JpGU every year. For future activities, Ishikawa said specifically to handle more than 100 sample request per year.

Lastly, Ishikawa mentioned the Nagoya protocol was accepted in Japan last year and the first implementation of it was for Exp. 370. From now on we will need to follow this.

The Chair asked the group for any questions or comments, but there were none.

15. *Chikyu*/IODP Performance Review (All)

Note: This presentation was originally Agenda Item 16 on Day 2, however, it was presented to make some time for draft preparation.

a. JFY2017 Review (14:15 h.)

The Chair changed the agenda item order to make some time for drafting consensus before coffee break. He asked Yano to present the points of review for this fiscal year.

Yano first explained about the JAMSTEC flows of the PDCA (plan, do, check,

act) structure. Objectives are given by MEXT and plans are made by CDEX. While *Chikyu* is allocated USD 96M by MEXT, in practice, this becomes USD 70M. CDEX sends a self-assessment, JAMSTEC prepares a total self-assessment for submission, and these are evaluated by the Minister (MEXT). The evaluation will feedback to a larger plan, then the next year starts. Now we need a 5-year performance evaluation, and then CDEX will go to the next 7-year plan. Yano introduced 6 points of the review given by MEXT, and he said he would like to digest the first point for the discussion, “Efficiently operate and sharing of both facilities and equipment”. Next, he introduced what CDEX has done, for example the Exp. 380 successful installment at Site C0006 within a shorter operation schedule, the CLSI workshop held at the same time with experienced mentors, the IODP Oman project conducted at Port in Shimizu, the SCORE effort for the wider proposal opportunities, and commercial drilling contracting. These are efficient and good points. He asked the group for any positive or negative feedback for them.

The Chair asked the group for feedback and comments on these points of view.

Ildefonse said that we can be all positive for what has been done. He believes that science community wants to see way more science, but that will require more money. He asked Yano if they wanted CIB to present on behalf of the science community a statement that they desire to have more science. He doesn’t know how to but thinks it doesn’t sound too negative.

Yano understood Ildefonse’s point, and said he would work to get more money for *Chikyu*.

Ildefonse then said the message there would be a directory to MEXT through this report. He believes that we as a community hope for as much money as possible to do as much great science as possible - as has been demonstrated before.

Yano additionally mentioned that allocated budget for JAMSTEC program is USD 96M, and internal allocation is USD 70M.

Ildefonse said he didn’t know what CDEX actually need from us.

The Chair asked Yano if they need a message from CIB to JAMSTEC.

Yano said yes. He explained that there will be another *Chikyu* account for the next mid-term seven years. Now USD 70M is secured, but in the next mid- term, we don't know how much will be secured. Maybe USD 65M–60M. If so, we would be in trouble.

Ildefonse asked how we can best help you. Is it enough for us to say anything you have done so far is great or is it close? Or should we say more than that?

Yano answered more would be better.
Becker asked about where the "missing" USD 26M went.

Yano answered that it is mainly for labor, mainly employment, and other research facilities activities.

The Chair said that is difficult for us to send a message for such a thing.

Ildefonse confirmed that "us" means CIB.

The Chair said yes, and then he also said that we should strongly encourage JAMSTEC to do so.

Ildefonse said that is easy to say.

Armand asked if CDEX wants the CIB to say something like "they have been doing a great job so far given the current funding level, but if there was to be any budget cut in the future, we'll have to look at reprioritizing and there would be a loss such as contribution to the news to the public, or something that would be a loss if the funding is cut." You need to quantify what the loss is, and that they can make a decision on what to lose.

The Chair asked to clarify what kind of review result CDEX wants. It is very easy for the CIB to say something, but just words are meaningless.

Ildefonse said don't underestimate yourself.

Eguchi reminded that it should cover what Ildefonse and Armand said, such as

“*Chikyu* is doing a good job, but ideally, there should be more science”.

Ildefonse said that the money you have is just what you need to have *Chikyu* alive, which is just for sustainable purposes. We understand the difficult financial situation, but that is not for what the ship was built for, working without science.

The Chair said that we might say to encourage CDEX and MEXT work harder according to the TAT consensus.

Ildefonse said it might be something they don’t want to hear.

Austin said the decision sounds like already made, and what he is afraid of is *Chikyu* being “done”. Austin suggested summarizing NanTroSEIZE, JFAST, Shimokita, every time *Chikyu* operated, it has done something pretty important. Austin said to answer the question, “should do more?”, the answer is YES, and he would write consensus including something like social relevancy for what *Chikyu* has done. He thinks CDEX can do that.

The Chair asked if Austin meant that CIB does not need to provide comments one by one, but just list the total contributions of *Chikyu*.

Austin suggested to be specific and make a list of the contributions that *Chikyu* has done. M2M and LHR need to be done, or even CRISP and HIKURANGI, include them all. He said that it is very clear that you don't have enough money now, and it won't work, but you can say every time *Chikyu* works for IODP, it has done very good science.

Kuramoto then commented that what they expected was to have enough for a simple type of evaluation; however, it is obvious to see that the international community demands more *Chikyu* operation for science.

The Chair concluded and encouraged CDEX to make a list of their performance this fiscal year. He told them to summarize the points you would like to emphasize during the coffee break.

Ildefonse asked it this covers the last five years.

The Chair said this is only for this fiscal year. He then asked the group to take a coffee break.

Ildefonse corrected his comment that this year was a good one for science as TAT consensus, let's get science every year doing something like that. He said he would be very supportive.

Becker asked to have the full consensus list from the last year. The Chair said last

year's consensus is not the review point.

Becker said he understood but he wanted to refer to the statement. The Chair called

for a coffee break for 30 min at 14:45 hrs

16. Safety Review Committee Update (Shigemi Naganawa)

Note: This presentation was inserted before restarting the Agenda Item 15, which was original 16.
(15:20 h.)

The Chair re-started the session.
Shigemi Naganawa introduced the activities of the *Chikyu* Safety Review Committee and Sub-committee in this JPFY. Related the *Chikyu* operations, they had 5 safety committee meetings. They had 2 sub-committees and 1 Safety Review Committee to discuss Exp. 380 preparations. After that they had 1 sub-Committee and 1 Safety Review Committee in November 2017 for to discuss next year's Exp. 358.

Naganawa discussed the newly established Geohazard sub-committee, established in 2017. Naganawa explained its structure: JAMSTEC is on the top of the structure, the *Chikyu* Safety Committee is in second position, then under this, there are both Drilling sub-committee and a Geohazard sub-committee. Naganawa explained that before the Geohazard sub-committee was established, riser hole and deep section of riser-less were based on proponents' study only. After the project is shifted to the implementation stage,

the Geohazard sub- committee studies the site survey data submitted by the proponents to review potential shallow geohazards and establish deep geological safety. This sub- committee shares information with the *Chikyu* Safety Review Committee as well as the Drilling Safety Sub-committee.

The second topic was IODP Expedition 380 NanTroSEIZE (C6). Naganawa said that the *Chikyu* Safety Review committee evaluated that the well was planned based on the experience and procedures so far gained during the offset wells drilled in the past, and no major risk would be encountered for implementation. Naganawa also said that during the discussion, the key for this project was whether the cement was placed around the sensors of the observatory string as per the plan. Since this operation was riser-less operation, no information of fluid return was available. Naganawa also said that they did a successful cementing operation, however, it was accomplished by monitoring the amount of cement pumped in conjunction with the cement plug as well as by monitoring pressure indication carefully. From these discussion points, the *Chikyu* Safety Review committee confirmed this project was completed successfully.

The last topic was the discussion of IODP NanTroSEIZE (C2) riser hole, Exp. 358. In summary, the *Chikyu* Safety Review committee agreed to the casing program CDEX designed, using 3 sets of liners, including 2 sets of Expandable casing. Naganawa said that the committee focused on the improvement of collapse pressure for well integrity. The current drilling casing program plan includes:

- Use swellable packer instead of cement setting to set the liner casing.
- 9-5/8 casing needs to be tie-back to the surface to improve well integrity.
- 9-3/8 liner hanger to be expanded to 12-3/8 casing.

Naganawa said that the Geohazard sub-committee suggested the utilization of VSP in conjunction with geomechanics-study is worth considered for the last open hole section.

Naganawa showed a picture of the previous casing program, and presented what he showed in the 4th CIB meeting. Naganawa also showed the current plan and

explained some differences:

- Changed 8-1/2 open hole section
- Changed coring size to 7-3/8 inch

Naganawa explained that these changes could be achievable with 8-1/2 drilling.

Naganawa pointed out that there is still some uncertainty existing in the condition of existing casing before deepening the well during Exp. 358:

- 13-3/8 casing wear condition
- 11-3/4 casing cement condition,
- 14-1/2 open hole condition.

Naganawa explained that from these anticipated uncertainties, CDEX prepared USIT (UltraSonic Image Tool), and also prepared an 11-3/4 tie-back casing, and squeeze cementing. Naganawa said that CDEX have enough tools, and he showed the ending revised operation sequence.

Miller asked about the Geohazard sub-committee. He wondered if CDEX uses EPSP to review for the riser or non-riser safety issues. Because he recalled in the early program, CDEX said that they would not use EPSP for review, but just the Geohazard sub-committee review results. Kuramoto answered that the riser- less operations uses EPSP but the riser does not. Miller confirmed about using EPSP input for riser-less drilling. Naganawa added that the Geohazard committee discuss particularly only the deeper sections of riser-less and riser holes.

15. *Chikyu*/IODP Performance Review (All)

(15:31 h.)

The text below was edited after safety review committee update.

CIB_Consensus_0318-09: *Chikyu* IODP Operation in JFY2017

The CIB commends CDEX for several aspects of IODP operational successes of *Chikyu* in JFY2017. These include: (1) installation in riserless mode during Expedition 380 of the Site C0006 LTBMS in the planned configuration with the savings of 17 operational days; (2) the successful CLSI@Sea educational/research activities conducted in concert with Expedition 380; and
(3) the cooperation with ICDP in the *Chikyu* Oman program. Based on the TAT report, the CIB also is very impressed with the CDEX engineering preparations during JFY2017 for the Expedition 358 resumption of riser drilling in Site C0002 during JFY2018.

CDEX planning activities for engineering development and collaboration with *JR* for field testing the new Turbine Driven Coring System, as well as promoting younger engineers' efforts in engineering scoping for the Mohole to Mantle (M2M) project are very well received by the CIB.

Outreach activities included a highly successful exhibition in the National Museum of Nature & Science, popular open-ship during port calls in Hachinohe and Shimizu, and a sustained twitter campaign of updates and notification of all these activities. English-language social media efforts should be added to raise the profile of *Chikyu* on an international basis.

Although the CIB appreciates the complex funding pathway for *Chikyu* operations from MEXT-JAMSTEC-CDEX, the CIB encourages greater activity in riser drilling for IODP operations. The *Chikyu*/IODP scientific achievements to date have generated outstanding contributions to ocean science and the better understanding of subduction zones, all of which have a great impact in societal relevance and promotion of public safety in Japan and the world.

b. Current Mid-term (JFY2014–2018) Review Introduction (15:42h.)

The Chair asked the group to return to Agenda Item 15b Current Mid-term review introduction and asked Yano to speak.

Yano told the group that they have a pre-notice about the self-assessment they require for the next year, which is the end of 5 years mid-term. Since the next CIB would probably be postponed in June because of the Exp. 358 will be finished in March 2019, CDEX would like to have the CIB recommendation of review by email or by TV conference before April 2019. The Chair confirmed

Yano's request as they would like to have self- assessment in April, which means they need CIB review by the end of this year. For that, the Chair asked if CDEX can provide the summary of CDEX performance for five years with the initial plan to him by email by the end of October 2018 so that he could write a draft and again the Chair would send it to him by email to finalize later. The Chair asked if this procedure is fine with CDEX.
Yano agreed.

Ildefonse asked Yano if he knows about the process and if they use a community input. Yano asked if it is about CDEX or other research centers in JAMSTEC. Ildefonse said that performance review of *Chikyu* IODP performance. Yano answered they use community comments.

Kuramoto commented that they have answers for the questionnaires after the expedition, and that might be one of the inputs. Ildefonse said that he didn't think too much about expedition specific related questionnaire more like a general survey of the community like which is regularly done, for example, in the US, it is an international community which is asked to formulate opinions about success or fail of the program. He said he was just curious.

The Chair asked Yano once again to email him their performance summary. Eguchi said that was recorded as an Action Item plus.

17. Next CIB meeting

(15:47 h.)

The Chair said that next CIB won't be able to be held in March because Exp. 358 will be finished around the end of March. Therefore, the next open spot would be either June or July in Kobe. One concern is the Chair's term will end at the end of next March.

Eguchi explained about the next CIB meeting. He mentioned that the CIB member's term currently starts from October 1 until the end of September, and run for 3 years. That applies to Kitazato, Becker, and Ildefonse. Before that, the timing for the membership was starting on 1 April to March, and that applies to the Chair, Mori, and van der Pluijm. CIB extended the Chair's chairmanship for two years based on the idea that all the CIB meetings were to be held in March. Since Exp. 358 operations will be finished at the end of March 2019, the Chair's

final CIB meeting should be in March 2019. So, Eguchi, as CIB secretary, proposed keeping the Chair's chairmanship until March 2019. Eguchi asked the group if they agreed. The Chair added that the location will be in Kobe. There was no objection.

Ildefonse commented about having the meeting on *Chikyu*. Eguchi said in that case, the reception will be without alcohol since *Chikyu* is a dry ship.
Miller reminded the group of the next SEP meeting schedule, which will be held in 18–20 or 25–27 June. He also mentioned that 4 July is a US national holiday. Becker said that a TAT meeting is planned the week of 3 June, but it can be changed to a week earlier.

Eguchi asked the availability of the CIB members.

Ildefonse said that June is his ideal during the academic year.

Eguchi then suggested that having the TAT meeting either on 5–6 June or 6-7 June, the next CIB should be held on 10–11 June 2019.

The Chair concluded that 10–11 June 2019 will be the next CIB meeting.

CIB_Consensus_0318-10: Next meeting and CIB Chair term.

The CIB agrees that Chair Yoshi Tatsumi's final term will effectively end at the next CIB meeting in the week of 10 June 2019. The final date should be chosen to avoid travel conflicts with the SEP meeting and the TAT meeting.

18. Review of Consensus Statements and Action Items

(15:57 h.)

19. Any Other Business

(16:18 h.)

The Chair asked Kitazato to send the following words to Mori.

CIB_Consensus_0318-11: Farewell Jim Mori.

Dr. Jim Mori is going to leave from *Chikyu* IODP Board now. He has been every time made the best performances as both a board member of CIB meetings and as a lead proponent and chief scientist of IODP JFAST expedition with shiny smiles. He has been making really best jobs.

We are really sorry to miss him from CIB. However, we are happy to know that he finds a new job during a big “Deep Ocean” exhibition at National Museum of Science and Nature. During the periods, he has been fascinating more than 600,000 citizens with his nice speech and smile how IODP sciences are fascinating fields. We believe that he is staying in IODP community with his best scientific activities and brilliant science communications.

The Chair asked Ildefonse to send the following words to Ben van der Pluijm.

CIB_Consensus_0318-12: Farewell Ben van der Pluijm.

The *Chikyu* IODP Board expresses its gratitude to Ben van der Pluijm (pronounce "ben") for his service to the IODP community as a European, US- based member of the CIB. Unlike the Flying Dutchman, our Drilling Dutchman is far from being a ghost; he's been a very active member of the Board, adding enthusiasm and a much-appreciated multicultural perspective to his great knowledge of the past and current ocean drilling programs, and to his vast scientific expertise as a structural geologist (and more).

"Dank u zeer" Ben! You're leaving big shoes for the next Board member to fill.

Eguchi announced that they will edit the consensus and put some action items to finalize and will send the CIB members in the early next week.

The Chair asked if there is any other business.

Miller announced that Lisa McNeill from Univ. of Southampton has accepted the position of SEP chair effective on 1 April 2019. She will be the co-chair and replace Miller, and will attend the next CIB meeting. She will take over the task from Ken at the January SEP meeting.

The Chair checked for final comments, and there being none, thanked all the attendees and closed the meeting at 16:45 h.

Meeting adjourned