Chikyu IODP Board meeting #7
11 - 12 June 2019

Takigawa Memorial Hall
Kobe University

Final minutes

List of participants

Name		Institution
Members		
Keir	Becker	Technical Advisory Team chair, University of Miami, USA
Gilbert	Camoin*	ECORD Managing Agency, CEREGE, France
Benoît	Ildefonse	University of Montpellier, France
Hiroshi	Kitazato	Tokyo University of Marine Science and Technology, Japan
Shin'ichi	Kuramoto	Director-General, Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Ryo	Anma	Tokushima University, Japan
Tatsuya	Watanabe	Ministry of Education, Culture, Sports, Science and Technology, Japan
Yoshiyuki	Tatsumi	Chikyu IODP Board Chair, Kobe University, Japan
David	Goldberg	Lamont-Doherty Earth Observatory of Columbia University, Palisades, USA
Liaisons		
Dirk	Kroon	IODP Forum chair, The University of Edinburgh, UK
Brad	Clements	JR Science Operator, Texas A&M University, USA
Holly	Given*	IODP Science Support Office, Scripps Institution of Oceanography, USA
Tsuyoshi	Ishikawa	Kochi Core Center, JAMSTEC, Japan
Sean	Gulick*	Science Evaluation Panel Co-chair, University of Texas at Austin, USA
Barry	Katz*	Environmental Protection and Safety Panel Chair, Chevron Corporation, Houston, TX, USA
Clive	Neal	JR Facility Board Chair, University of Notre Dame, USA
Gabriele	Uenzelmann-Neben*	ECORD Facility Board Chair, Alfred Wegener Institute, Germany
Lisa	McNeill*	Science Evaluation Panel Co-chair, University of Southampton, UK
David	McInroy*	ECORD Science Operator, British Geological Survey, UK
Michiko	Yamamoto	IODP Science Support Office, Scripps Institution of Oceanography, USA
Observers		
Naokazu	Ahagon	Kochi Core Center, JAMSTEC, Japan
Jamie	Allan	National Science Foundation, USA
Akiko	Fuse	Marine Works Japan, Ltd., Japan
Yusuke	Kubo	Kochi Core Center, JAMSTEC, Japan
Leanne	Armand	Australian and New Zealand International Ocean Discovery Program Consortium, The Australian National University, Australia
Gaku	Kimura	Japan Drilling Earth Science Consortium, Tokyo University of Marine Science and Technology, Japan
Shigemi	Naganawa	The University of Tokyo, Japan
Harue	Masuda	Japan Drilling Earth Science Consortium, Osaka City University, Japan
Mika	Saido	Marine Works Japan, Ltd., Japan
Kiyoshi	Suyehiro	JAMSTEC, Japan
Asahiko	Taira	President, JAMSTEC, Japan
Mike	Lovell	University of Leicester, UK
JAMSTEC		
Chihiro	Baba	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Yumi	Ebashi	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Nobuhisa	Eguchi	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Lallan Prasad	Gupta	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Mizue	Iijima	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Fumio	Ingaki	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Kazuhiko	Kashiwase	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Itaru	Kawama	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Nori	Kyo	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Lena	Maeda	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Eigo	Miyazaki	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Tom	Nawate	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Natsumi	Okutsu	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Sunny	Saito	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Yoshinori	Sanada	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Tomokazu	Saruhashi	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Ikuo	Sawada	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Koji	Takase	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Sean	Toczko	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Satoshi	Tsukioka	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan
Takehiko	Yano	Institute for Marine-Earth Exploration and Engineering MarE3, JAMSTEC, Japan

non-attendance*

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Executive Summary (List of Consensus Items)

CIB_Consensus_0619-01: Approve agenda.
The CIB approved the #7 meeting agenda as is.

CIB_Consensus_0619-02: Approve minutes.
The CIB approved the last meeting's minutes with some modification

CIB_Consensus_0619-03: Linkage between IODP and ICDP.
The CIB strongly encourages closer programmatic linkages between IODP and ICDP in the future, including coordinated scientific planning for post-2023 scientific drilling, improved proposal review procedures (e.g., for amphibious projects), and continued cooperative use of shipboard and shore-based laboratories.

CIB_Consensus_0619-04: NanTroSEIZE.
The CIB reaffirms the importance of the scientific objectives and goals of IODP Proposal 603C and recognizes the exceptional efforts by CDEX and the Chikyu scientific and technical party to achieve them at Site C0002 during Expedition 358. The ongoing reviews of Expedition 358 operations will be critical to understanding the deep riser drilling operations at Site C0002 and the lessons learned for planning deep riser drilling at any future sites. The CIB will therefore ask the proponents of Proposal 603C and the PCT/MarE3 to update an operational plan for consideration of future deep riser drilling at NanTroSEIZE, based on Expedition 358 experiences and the pending reviews.

CIB_Consensus_0619-05: Three riser proposals.
CIB thanks the proponents of 537B-Full4 (CRISP), 698-Full3 (IBM), and 781B-Full (Hikurangi) for being so responsive to our 2018 request for updates to their riser drilling proposals. At our 2019 meeting, it became clear that the financial constraints in the new JAMSTEC 7-year plan and renewed commitment to NanTroSEIZE deep riser objectives mean it is unrealistic at this time to select another riser drilling program for the near-term future unless it is a CPP. Therefore, CIB will hold these proposal updates for potential consideration at future meetings if appropriate circumstances develop.
We also note that proposals 537B and 781B will likely involve similar technical challenges as completing NanTroSEIZE deep riser objectives. Therefore, the experience gained in analyzing and addressing those challenges in renewed NanTroSEIZE riser operations should be quite beneficial for potential future riser drilling at CRISP or Hikurangi.

CIB_Consensus_0619-06: Overall Seismogenic zone workshop.
The CIB suggests that JAMSTEC organizes an international workshop, including the NanTroSEIZE scientists as well as other seismogenic zone proponent groups, for future seismogenic zone deep riser drilling projects using D/V Chikyu.

CIB_Consensus_0619-07: Wording for the Next IODP Call for Proposals.
It became clear at this meeting that no new Chikyu riser projects can be scheduled for the current phase of IODP. Therefore, the CIB suggests that the next IODP call for proposals include the following wording: “As no new riser projects (other than CPPs) can be implemented until the post-2023 phase of scientific ocean drilling, the CIB recommends that proponents for completely new riser projects do not submit new proposals until the publication of a new science plan for the post-2023 program.”

CIB_Consensus_0619-08: IODP Policy and Guidelines.
The CIB accepts changes to ”IODP Sample, Data and Obligations Policy and Implementation” , “Standard IODP Confidentiality Policy”, and “Guidelines for Site Characterization Data” as explained by the JRFB chair at the meeting.

CIB_Consensus_0619-09: Farewell to Yoshiyuki Tatsumi.
Professor Yoshiyuki Tatsumi has been an outstanding Chairman for the Chikyu IODP Board for the past four years, a critical time in terms of scheduling Chikyu IODP operations under difficult financial constraints. His patience and sense of humor in drawing out relevant details and potential conflicts to guide CIB to productive over-arching decisions was especially important. We greatly appreciate his agreement to double his term of service, and we have thoroughly enjoyed coming to Kobe for CIB meetings once every four years. We don’t want to say sayonara now, but instead we really hope to see Tatsumi-san remain very active in IODP and the post-2023 program of scientific ocean drilling.

CIB_Consensus_0619-10: Farewell to Hiroshi Kitazato.
The Chikyu IODP board expresses its sincere thanks to Prof. Hiroshi Kitazato for his service as a member of the CIB. He has been an active member adding enthusiasm and perspectives to his scientific expertise as a eukaryotic microbiologist.
The CIB would like to send its best wishes for his future even-more successful career. We have no doubt that he will stay present in IODP community, guiding and helping us with his vast knowledge to his expertise and his gentle attitude.

CIB_Consensus_0619-11: Farewell to Benoit Ildefonse.
Benoit Ildefonse will be stepping down as the ECORD member on CIB and we wish to offer our fullest appreciation of his steady and thoughtful contributions to Chikyu programs over this time. Benoit has been an active scientist in IODP and continental drilling programs for many years and there is little doubt that he will remain close to deep crustal drilling as this research progresses over the next phases of the program. We will greatly miss his joyful participation at board meetings, but equally look forward to the new and fascinating science the he will surely propose in the future.

CIB_Consensus_0619-12: Farewell to Keir Becker.
The CIB wishes to express its deep gratitude to Keir Becker for his tireless service as a US-based board member for the past three years. Keir has been instrumental in advising on Chikyu activities and providing clear insights from the deck, from the lab, the conference table, and the beer pub. His vast experience with IODP and clear view of the most important goals in scientific ocean drilling will be sorely missed, but we look forward to hearing more from him as the TAT committee chair in the near future. Thank you Keir!

Chikyu IODP Board #7 meeting
11–12 June 2019
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Kobe University

Meeting Minutes

Day 1 **Tuesday, 11 June 2019**

Agenda Items

1. Welcome Remarks (Shin'ichi Kuramoto)
(09:16 h.)

Chair Yoshiyuki Tatsumi (CT) greeted and welcomed everyone to Kobe, confirmed the Wi-Fi connection instructions and then asked Director Shin'ichi Kuramoto for his welcome remarks.
S. Kuramoto welcomed the CIB members, liaisons, and observers, first introducing his new title as Director General of the new organization, the Institute for Marine-Earth Exploration and Engineering (MarE3), JAMSTEC. He explained the new seven years mid-term period begun this April. The new MarE3 will take up the mantle of the old CDEX, managing all the JAMSTEC research vessels. He expressed his hopes for the 7th CIB meeting–a lot of good discussions, updates on the recent IODP expedition 358 results, the economic situation, and he thanked everyone present for their attendance.

2. Introductions and Logistics (Nobuhisa Eguchi)
(09:25 h.)
C. Tatsumi moved to self-introductions. Nobu Eguchi described the logistics details & escape route. He also announced details of the evening's reception to be held on the top floor of the Hotel Okura KOBE.

3. Approval of Agenda (Chair – C. Tatsumi)
(09:27 h.)
C. Tatsumi began the agenda review and approval. After lunch, the JRFB and other reports will be heard. We may have time to discuss the future of riser drilling.
N. Eguchi added we are broadcasting this meeting by ZOOM. The attendees in the program with asterisks can connect by the ZOOM conference web application. Gilbert Camoin will join us by 1830, and Sean Gulick will cover the SEP meeting as scheduled.

C. Tatsumi said that tomorrow, we'll review the *Chikyu* proposals, and Ocean Drilling beyond 2023. We'll also have other items to discuss regarding *Chikyu*, outreach, policies, etc. C. Tatsumi said that we'll end with consensus items and future CIB work. Any items to add?

Clive Neal asked if C. Tatsumi or himself would present these items on policies?

C. Tatsumi asked C. Neal to do so.

Benoit Ildefonse noted that the Agenda has him presenting the ECORD update, but this should be done by Gilbert Camoin, correct?

C. Tatsumi and N. Eguchi both said B. Ildefonse was correct.

CIB_Consensus_0619-01: Approve agenda.

The CIB approves the #7 CIB meeting agenda as is.

4. Approval of Last Meeting Minutes (Chair – Yoshiyuki Tatsumi)

(09:32 h.)

C. Tatsumi asked for comments on the last CIB minutes, and Keir Becker noted that there are a few typos, etc. N. Eguchi asked that they be sent to Sean Toczko or himself.

C. Tatsumi confirmed that with this, there was consensus on the minutes, and they were approved.

CIB_Consensus_0619-02: Approve minutes. Minutes approved with some modification.

5. CIB Decisions since the Last Meeting (Chair - Tatsumi)

(09:33 h.)

C. Tatsumi began with the review of CIB decisions made since the last meeting. Proposal 871 addendum (Lord Howe Rise CPP) and 2 other proposed riser sites were approved. N. Eguchi said these followed the last CIB meeting, and they were referred to the last June 2018 SEP, particularly regarding the LHR CPP. Communication and approval were all conducted online.

C. Tatsumi asked if there were any comments or questions.

C. Tatsumi asked if there were any addendum for IODP 358. Any comments or questions?

C. Tatsumi asked if there were any other decisions?

N. Eguchi noted there were two consensus items.

6. CIB Action Item Status (Chair - Tatsumi)

(09:36 h.)

C. Tatsumi asked about the status of the CIB actions. Although Action Item_0318-01 was approved, apparently no action has been taken. MarE3 will review and resolve these issues. The last CIB had recommended that Keir Becker join the DWOP as CIB liaison (Consensus Item_0318-03), and his report is in the agenda book.

It was agreed that K. Becker would present his summary after the coffee break, & the group was asked to read through the report and comment at any time during the meeting.

Clive Neal asked K. Becker if the summary was covered during the TAT meeting, and K. Becker said it wasn't.

7. Other FB, IODP Forum, and Agency Activities

a. IODP Forum (Dirk Kroon)

(09:40 h.)

IODP Forum Chair Dick Kroon presented the Forum update. Some key items are developing stronger links with ICDP and NASA, and most vitally, the new Science Plan for IODP. D. Kroon presented the same talk to JRFB and the ICDP meetings. One main discussion point in Osaka will be the structure of the new marine drilling program. There will be two separate science plans, IODP and ICDP. David Goldberg asked if the report development timing among the groups are synchronized, and D. Kroon said that IODP is way ahead of ICDP.

D. Kroon said that ICDP would like to remain independent and separate. Each platform will retain their unique features. There will need to be closer links with ICDP thru amphibious proposals. This is endorsed both by JRFB and ICDP. C. Tatsumi asked if the CIB could endorse the ICDP amphibious proposals as well, through discussion at this meeting. D. Kroon agreed with this.

D. Kroon talked about the Chinese plan to have an IODP workshop in August. A new vessel is being considered as a JR replacement, which needs a vital and exciting science plan to justify NSF support. The new science plan needs to be ready by this time next year, what a challenge.

D. Kroon said we need stronger links with ICDP & NASA in the science plan. The international flavor of the program needs to be retained and expanded. Workshops need to be open and transparent. The results need to be integrated, and a pre-meeting has been scheduled in Lamont (23-24 July), including 3 delegates from each PMO, with one delegate from other countries. This meeting will produce a road-map document summarizing the structure of the new science plan, for discussion at the Osaka Forum meeting.

D. Kroon said that the Forum delegates will form a writing group to write the new science plan, with the first draft ready by mid-January 2020. This will be posted for community comments on the IODP website. There will be two iterations of review and writing.

C. Tatsumi asked if there were any questions or comments? The ICDP science plan will be discussed in 2021?

D. Kroon said they will have their meeting much later than us, but they will have a task force attend the Forum meeting to observe and see how the two programs could be linked.

Jamie Allen commented on how complex and complicated this effort is. Nations bringing platforms may have different institutional needs and limitations. Therefore, there may be a need for different science plans. We will need a flexible document, from the NSF side.

D. Goldberg asked if D. Kroon's plans "A" & "B" are similar to what J. Allen suggested.

D. Kroon said NO. We have not even discussed this. Therefore, the first day will need discussion with our Japanese colleagues to accommodate their, and everyone else's needs, to balance the science plans across the program.

Clive Neal said there should be one science plan, with different executive summaries, aimed at each PMO. Therefore, plans "A" and "B".

D. Kroon agreed, saying he is only talking about program structure, since the community is waiting for this.

Kiyoshi Suehiro said that the last science plans included an embedded implementation plan. Should this be included as well, or should this be left to each PMO?

D. Kroon said let's dream first, then look at if these dreams could be implemented. We should keep ourselves grounded in reality, however.

N. Eguchi asked if we are talking about the science plan or the program? We should talk about the science structure at the Forum.

D. Kroon said we should purely talk about science at the Forum.

Hiroshi Kitazato asked T. Yano if his presentation discusses the new science plan? Maybe this should be based on new ideas and sciences? Perhaps new science fields or disciplines should be included, to produce new ideas?

D. Kroon said yes, this is what these workshops, even in Japan, have been producing. This is why I think linking with ICDP and NASA are important to achieve this.

C. Tatsumi said that this is why J-DESC invited JAXA to the JDESC meeting.

C. Tatsumi called for a coffee break for 30 min at 10:10 hrs.

Coffee Break (10:10–10:40)

Developing Linkages between IODP-ICDP

(10:42)

C. Tatsumi said that after the break, the development of linkages between ICDP and IODP will be discussed. If we all agree, we can make consensus on the importance of this linkage, as the CIB.

Shin'ichi Kuramoto reminded everyone that for the last few years, the ICDP-Oman project has been using *Chikyu* as a floating lab.

Gaku Kimura said that J-DESC has 2 sections, one for IODP and one for ICDP. These often discuss various drilling proposals together, onshore and offshore Japan. We are discussing the opening of data and samples from the onshore drilling to the global science community. This can be applied to ICDP projects all over the world, and if accomplished will be good for science.

D. Kroon fully agreed, but there is still a desire to remain independent. There is resistance on both sides, related to the different policies of each. IODP needs to work fast on developing a new program, and trying to integrate will require greater thought and discussion. What we are working on now is an important first step.

Clive Neal stated that these are very different programs, although the goals are similar. The amphibious proposals are a good way to help bring the review process together for

both programs. Creating a simplified, single process for proposals, is an important first goal.

Benoit Ildefonse mentioned that this is needed since amphibious proposal workshops are going on.

D. Kroon said that there are a lot of really interesting science targets, and we need to solve this problem, since navigating through two systems has failed the scientists.

B. Ildefonse said that IODP funding of these workshops shows that the interest is there.

C. Tatsumi closely encourages the strengthening of links between IODP-ICDP, and asked if we are in consensus?

CIB_Consensus_0619-03: Linkage between IODP and ICDP.

The CIB strongly encourages closer programmatic linkages between IODP and ICDP in the future, including coordinated scientific planning for post-2023 scientific drilling, improved proposal review procedures (e.g., for amphibious projects), and continued cooperative use of shipboard and shore-based laboratories.

b. JR Facility Board (Clive Neal)
(10:53 h.)

Clive Neal presented the JRFB overview from last May. Policy revisions were held for a later discussion. The JRFB consensus items were reviewed and discussed. Proposal pressure remains excellent, and NSF has extended JR support until 2024. JRFB continues to encourage proposal pressure, such that the next FB meeting will be extended from 2 to 3 days. JRFB will send SEP reps to ICDP SAG meetings, and invite SAG reps to SEP meetings, all for amphibious proposals. JRFB will retain some undrilled sites on a case-by-case basis, for future drilling. Proposal 910 has been scheduled for Oct-Nov 2021; more are expected. C. Neal showed the JR track and expedition schedule, up to 2023. The schedule up to 2021 was shown, keeping in mind there could be changes, if fuel prices change drastically.

C. Neal discussed the proposed JR replacement vessel. There will be increases in costs, and new MOUs to reflect this will be needed. Efficiencies will allow greater science returns. The target is to have 11 months of science per year, budget permitting. Siem Offshore is offering a new ship option, possibly within 2.5 years of contract assignment.

Jamie Allen said that these are ideas, and this is very much a proposal in flux.

C. Neal. The design includes fuel efficiencies, a 40% increase in tripping speed, a 30% increase in lab space, better WOB and coring results. There will be a cost increase. The next JRFB meeting will be held in Scripps (dates, etc).

S. Kuramoto asked if the new vessel idea include deepening riserless drilling?

C. Neal said that the new vessel would be an improvement upon JR, but not anything like the ability of riser drilling.

J. Allan pointed out that the main concern here is not just to get deeper, but to more carefully manage the risk of drilling deeper. Ability and consistency of results are more valuable here. A dual-function rig will help minimize the risks.

C. Neal said that after the last deep drilling workshop, we have seen that there have been improvements in technology.

Brad Clement added that the day rate increases shown here are equivalent to 11%.

David Goldberg asked if the JRFB recommendation on swapping observers begins immediately?

C. Neal reminded everyone that this whole effort is to streamline and enhance joint proposal review.

e. MEXT (Tatsuya Watanabe)

(11:07 h.)

Tatsuya Watanabe gave the MEXT presentation. He stated that unlike last year, he will be able to attend the whole meeting. He discussed the JAMSTEC budget allocation. There was a slight increase in 2019 as opposed to 2018. In May 2018, the Japanese Cabinet approved the next 5-yr plan for “Ocean Policy of Japan”. IODP promotion was explicitly mentioned in this plan. The plan also retained Mantle drilling and international cooperation. The objectives and activities plan were extended for 7 years, and directly mention ultra-deep water drilling. The CIB recommendations have been key in receiving this governmental support.

C. Tatsumi said that “You mentioned drilling into the mantle, “in the future” - what future does this refer to?”

T. Watanabe said that in the Japanese text, this is not explicitly stated, it just says “in the future”.

C. Tatsumi wanted to confirm that T. Watanabe is in support of mantle drilling.

D. Kroon was interested and wanted to hear more about the Asian Countries with whom Japan would like to “establish a cooperative framework”.

T. Watanabe said that Japan is interested in getting other Asian nations together under one consortium, perhaps.

Leanne Armand said that this item is a good subject for a meeting next year with unaligned groups joining some part of the program.

K. Becker asked to confirm if any specific locations are mentioned for the ultra-deep drilling targets?

T. Watanabe said that there are some plans, but no specific drilling sites are mentioned. In general, this is a deep sea drilling plan, based on the *Chikyu*. It assumes a step co-working mainly with IODP, however, *Chikyu* must develop 4 km riser capacity.

S. Kuramoto said JAMSTEC had explained to the Gov’t about the need to develop the 4 km riser system, and other technologies, for basement drilling.

C. Tatsumi said that we will discuss this in more detail tomorrow.

f. NSF (Jamie Allan)
(11:25 h.)

Jamie Allan began with a greeting message from Tom Janacek and Rody Batiza conveying their greetings to all. J. Allan stated that there is a lot going on at NSF, and so the messages being shared with the different meetings are going to be the same. The only information that can be shared include what is available to the general public via the NSF website. NSF in in the process of extending renewal until 2024 (another 5 yrs). 2024 is actually an extra, optional, year. Memoranda are being circulated before final NSF clearance process begins.

The latest Presidential budget request reflects a 1B USD decrease. Actual 2019 budget is flat, 2020 is still unclear, but should be ca. 65M USD. One concern is reflected in fears of contributions amounts from international partners. MOST (China) might provide 3 to 6M USD, but nothing has been settled. If MOST monies don’t come through, this will have

a big impact on science by JR. There will be long-term issue deals with contributions from JR partners.

The new JR replacement concept is spurring actions within NSF. One clear need is a new science plan. NSF considering releasing a Dear Colleague Letter (DCL) to gauge community interest in post-JR IODP drilling community. NSF is clear that it will be very difficult to support a new "IODP-type" program; however, this must be a bottom-up effort.

C. Neal asked J. Allan to explain more about the "Dear Colleague Letter".

J. Allan answered that the Dear Colleague Letter is sent to the community. Basically, it has been cleared by the NSF leadership. It is a request by NSF for information to community and a declaration of interest by the community. For example, we put out the Dear Colleague Letter to determine community interest. But we didn't get a response, showing that clearly, there is no US institution that is interested in providing a far-ranging drillship. I think that we were sure we'd get at least one response. We need to make sure there are opportunity for multiple responses and for multiple different ideas.

S. Kuramoto asked if responses from other countries could help with the DCL?

J. Allan said the DCLs are aimed at US institutions, because only they could provide a facility that NSF would be able to support. The replacement concept might start from 2023, but could happen later. NSF would need current partners to continue contributing funds at similar percentage rates to acquire a new vessel. To reduce a gap in drilling activity, more money from the NSF partners will be needed. JR itself will not be able to extend past 2028, for environmental reasons.

C. Tatsumi asked if there were any further questions? With no questions, the meeting moved on to the ANZIC presentation.

g. ANZIC (Leanne Armand)
(11:43 h.)

Leanne Armand presented the ANZIC update, stating that Neville Exon has received the Order of Australia over the weekend - congratulations. The Chikyu 2019-2020 subscription hasn't been renewed, due to gov't uncertainty, and available funds have been focused on legacy work. There is a proposal within the ANZIC renewal bid which includes funds for *Chikyu* support. The renewal bid is for 2 x 5 yr terms starting from 2021, and includes 10 M AusD/yr. It includes USIO, *Chikyu*, ECORD, and possibly China membership, as the situation develops. The China IODP support relies on their program getting off the ground.

ANZIC is looking for greater participation in US/ECORD/MarE3 workshops & events.

ANZIC have increased to 5 staff. The renewal strategy & schedule were presented reviewed. The current gov't has not yet clarified their position on science. May 2020 is when the next Federal budget is going to be announced, but there may be some updates before then regarding the position of the program.

Recent activities and expedition participation were shared, covering 4 expeditions. Advertising new expeditions, for the moment, is on hold, due to the uncertain budget situation.

The Lord Howe Rise (LHR) CPP has been addended and updated. However, it is unlikely at this point that 2020 funding will be received. The priority is to get ANZIC renewed.

J. Allan. You mentioned that other groups have been supported up through 2019, even though funds haven't been received yet. So, is your hold is based on available support?

L. Armand. Our support runs up to the end of Dec 2020, so that is our cutoff. We need to state clearly that if people apply, we have no funds for support. All preparation and drilling outlines have been worked out, and we are just waiting on a funding resolution. The challenge is that this is a very expensive project, and numbers need to be updated. The renewal of ANZIC seems to support LHR, but the reverse won't work. Ron Hackney is currently the POC, but may be reassigned soon.

There is a new proposal for using *Chikyu* to examine Permo-Jurassic Oceans, and we are looking at interest in *Chikyu* from the Australian oil & gas sectors. This is in very early stages.

The ANZIC-IODP ICP13 in 2-6 Sept 2019 in Sydney being planned, and we are looking forward to seeing MarE3 there as well.

H. Kitazato was very interested in the Permo-Jurassic Oceans proposal, and the links to climate perturbations. L. Armand will forward the POC for this project to anyone who is interested.

B. Ildefonse asked if there is a CPP being developed to help make this come to life.

N. Eguchi said he has met the proponents, and stressed the need for industry support to get *Chikyu* to move and become part of this project.

h. PMOs

J-DESC (Sanny Saito)
(12 :09 h.)

Sanny Saito presented the JDESC activities update on behalf of Harue Masuda. He described the structure and personnel layout of JDESC. Expedition participation and support for JR and Chikyu expeditions was shared, showing that 33 science party members and 53 scientists received travel and training support.

S. Saito related how J-DESC/JAMSTEC have funded about 6.6 M JPY for 13 post-cruse researches in total in JFY2018.

As for participation in international panels and boards, S. Saito showed how 9 persons in total from Japan are assigned: 7 members to SEP, 1 member to EPSP, and 1 member to ECORD FB. S. Saito said that currently there is no Japanese member assigned to the JRFB.

Symposiums and workshops supported with JDESC funding were also listed, especially regarding “future scientific drilling workshops”. Details of the JDESC workshop from 2-3 April will be published and also presented in the Lamont meeting described earlier.

These workshops are:

- Basic/Advance Logging Course
- Micropaleontology Course
- Paleomagnetism Course
- Basic Analysis Course (including foreign participants, 3 from Korea and 1 from Taiwan)
- Isotope Analysis Course
- Petrologic Description Course

S. Saito introduced symposiums and workshops that J-DESC supported:

- **J-DESC Future Scientific Drilling Workshop**
- JpGU Session: Drilling Earth Science
- SAKIGAKE-JpGU Hard Rock Drilling Focus Group Kick-off Workshop
- Students and Early Career Scientists Meeting on Earth and Planetary Science
- 15th Anniversary Symposium of Center for Advanced Marine Core Research, Kochi Univ.
- **J-DESC Workshop “Scientific Ocean Drilling beyond 2023”**
- JpGU Session: Drilling Earth Science

S. Saito emphasized the two workshops in bold. One is the J-DESC Future Scientific Drilling Workshop, which was held on 29–30 March 2018 in Yokohama. It was a domestic

workshop to review the progress of IODP science plan and discuss what are the research focuses for further progress. There were nearly 150 participants including 43 students. Saito told that the success of this workshop enhanced the other workshop titled J-DESC Workshop “Scientific Ocean Drilling beyond 2023”, which was held in 2–4 April this year. This workshops’ results were presented and discussed during JpGU in May, and the steering committee of this workshop is now working on workshop report, which will be published soon. After it was passed by steering committee, a new writing committee of 20 people was organized led by Drs. Kuroda and Morono. They will write a white paper to be presented at NY and Osaka. There will be a small workshop in Kochi this week.

C. Neal stated that there is a call for non-US JRFB applicants open now, and that Sanny can apply (everyone laughs).

USSSP (Carl Brenner)
(12 :18 h.)

Carl Brenner presented the USSSP report to CIB. Lamont has supported USSSP for just over 4 years, and this is the first CIB C. Brenner has attended. C. Brenner presented the tasks and duties of USSSP, and described the USSSP staff, although not all are full time workers, so that 10 people are supported on a 7-person full time support level. C. Brenner described the five main tasks for which USSSP are responsible.

- **Expedition support** including staffing nominations for all three IODP platforms including *Chikyu*, funding salary & travel support for all US participants for all three platforms, and funding post-expedition awards for science party members.
- **Workshop funding** including core schools or training such as Petrophysics Summer School in Leicester, U.K. or the Core-Log Seismic Investigation at Sea (CLSI@Sea) initiative by JAMSTEC concurrent with IODP Exp. 380.
- **Pre-Drilling Activities** that are funding to enhance either proposals, or even better, for scheduled drilling expeditions that need some pre-drilling work to get the scientific payoffs to a level higher than they otherwise might be.
- **Supporting panel members** nomination and providing salary support for US based Chairs. USSSP supports JRFB Chair for several months a year of salary as well as the USSSAC Chair, and when they are US-based, SEP co-chair or IODP Forum Chair, which has been a case until this year’s program when Dick took over.
- **Education & Outreach** program, despite a fairly limited budget, but I will talk about that.

C. Brenner showed the demographic breakdown of scientists who have sailed on *Chikyu*, roughly 1/3 are senior level scientists. The target is to get roughly equal ratios of career-levels sailing.

Workshops are a large part of this effort to support the US science community. These include major planning workshops (like the NEXT workshop) and the planning assessment meetings (like the JRAW)); these produce useful documents for NSF in reviewing the science and performance of the US drilling platform. There is also a structure to support US-based scientists to attend non-US sponsored workshops abroad, as needed.

C. Brenner talked about education and outreach; there are five main goals for that, and the most important of which is to raise awareness of earth science in general globally. There is an emphasis on attending conferences in conjunction with our international partners, and promoting and supporting the science of IODP and assure a steady influx of future IODP leaders. USSSP is extremely happy with the support of JAMSTEC, for example at such events as the AGU town hall meetings, etc.

Support of new career scientists, a traveling lecture circuit and other exhibits all help get the word out on scientific ocean drilling.

The Chair called for lunchtime at 12:40 hrs, with a break until 1345.

LUNCH

8. *JR* Advisory Panels Report/Proposal Overview

8a. Science Evaluation Panel (Sean Gulick)*

(13:40 h.)

*Original agenda #8b was conducted before #8a for the presentation with ZOOM app considering time difference, and item number was changed to #8a.

Sean Gulick presented the SEP report to the CIB by online Zoom connection. S. Gulick introduced his new SEP Co-Chair, Lisa McNeill. Since Jan 2014, SEP has operated as a combined science and site survey panel. SEP meets in Scripps every Jan, and in June, elsewhere. S. Gulick described the assignment of the 5 watchdogs at SEP for each proposal, and also described the review process for the SEP in terms of site survey data; mainly can the objectives of the proposal be achieved with the data set presented. Data are ranked from 5 (no data) to 1 (data sufficient to support science objectives of the drilling and no further concerns), all numbered/colored before forwarding to the relevant facility board (FB).

- 1-Red: no data have been reviewed by SEP
- 2-Orange: data reviewed by SEP are insufficient to support the drilling effort
- 3-Yellow: data reviewed by SEP are insufficient to support but there are still some things not yet sufficient
- 4-Green: data sufficient to support, but minor concern
- 5-Blue: data sufficient to support with no further concern

The 2018-2019 meeting outcomes (Potsdam and Scripps) were shown, with only one APL (939) for *Chikyu*. Proposal 941Full was reviewed in Jan 2019, and was sent back for revision. There was an additional comment on Proposal 866Full2, asking to keep it at EFB. S. Gulick listed the relevant *Chikyu* proposals. None of the proposals at CIB were reviewed by the current SEP. S. Gulick described each of these in turn: CRISP (537B), IBM (698), and Hikurangi (781B).

S. Gulick concluded his presentation by telling the next SEP meeting will be held at Edinburgh in 25–27 June 2019. This SEP meeting will review 32 new proposals, 34 to be evaluated; a new record since 2008. There are 2 *Chikyu* proposals (939APL2 & 951Pre).

C. Tatsumi asked if there were any questions?

C. Tatsumi. OK, thanks and we'll move on to the SSO report from Michiko Yamamoto.

8b. Science Support Office (Michiko Yamamoto)
(14:00 h.)

Michiko Yamamoto presented the SSO report. The SSO is in year 5 of a 10-yr support contract, and SSO services are programmatic services, such as JRFB support, managing the proposal process, curating policy documents, and developing the program and site survey databases, maintaining the IODP home page, and security and maintenance R&D. Proposals submitted since the beginning of this phase of the IODP program in 2013. There were 118 new proposals: 47% of them were de-activated, 33% are under active review, and 20% of them have been forwarded to the Facility boards. There were 36 additional proposals carried over from the old IODP that are still active in the system. All the others have been deactivated, are scheduled, or have been drilled.

M. Yamamoto showed an effort to visualize the proposal success rates, roughly 50%. There is a question on why there are so many proposal submissions this year, and the reasons are not clear. Since the last CIB meeting there were 2 SEP meetings and 34 proposals. 10 were deactivated, 2 forwarded to facility boards, 5 for sent to external review. And now we have 104 in active proposal pool. There were also a large number of

data files submitted to the site survey data base. More than 1400 files have been submitted.

M. Yamamoto showed the breakdown by theme of proposals, by sea region, by PMO affiliation, and by drilling platform. M. Yamamoto also showed the call for proposals for next month's SEP. M. Yamamoto showed the graph of active proposal status by target ocean. The Pacific Ocean (37) is more popular than the Atlantic. If the Mediterranean is added to the Atlantic, then it becomes the most popular region.

M. Yamamoto showed the graph of country distribution. The biggest group is ECORD, the US, then Japan, in that order.

M. Yamamoto also showed the graph of all proponents' distribution by PMO. Again, ECORD is the biggest group, then the US, and Japan, with 134 proponents.
The Call for Proposals was posted in EOS this April before the submission deadline, and it needs to be done again at the next October deadline. This message is encouraging people to submit full proposals for *Chikyu*, riser or non-riser operations.

M. Yamamoto also shared the sad news that Dr. Walter H. Munk had passed away. The left picture was taken at *Chikyu* when he visited on 2014. The right one was from the New York Times.

M. Yamamoto said that *JR* is coming to San Diego in September and November this year before and after Expedition 385. Holly Given is working to host outreach activities and a science symposium. There are videos for Japanese participants of this expedition.

M. Yamamoto then said that the data team is now developing a tool for web site to collect community opinions about the new science plans. The other developments that have been done is almost for EPSP and PDB. Now the EPSP chair can create the meeting minutes through the online system and also proponents can submit reports to the system.

C. Neal ask about the advertisements, and said we are asking SSO to work with us to update the central proposal fees. We know there is a little community interest, and we've been getting a lot of attention. We do need to revise and update this.

C. Tatsumi asked Ishikawa-san to present the KCC report.

9. KCC Report (Tsuyoshi Ishikawa)

(14:11 h.)

T. Ishikawa presented on the core curation at KCC, for cores classed as IODP and non-IODP. T. Ishikawa reviewed the regional core repositories, and the capacity of KCC at

the present. T. Ishikawa said that KCC has about 142 km of cores in total length, which is comparable to the BCR and GCR. Legacy core disposition was described. T. Ishikawa discussed the cores received from KCC last year, from JR and Chikyu. Sample requests for KCC cores was shown. T. Ishikawa explained that in the last 4 years, over 150 sample requests were received. Requests included about 60 to 80 legacy core requests, and about 60 requests for IODP cores. The rest are requests for *Chikyu* cores. T. Ishikawa also explained that KCC is regularly shipping about 15000 samples every year.

T. Ishikawa said the KCC facility is open to the IODP community. Equipment includes XCT scanner, MSCL, XRF core scanner, and core image scanner. Unfortunately, T. Ishikawa said a fee is charged for these instruments. T. Ishikawa said that 11 requests for the use of these machines have been received during the last 3 years. The most popular one is XRF core scanner for itracks, which is very useful for paleography and oceanography studies.

Education and training opportunities at KCC include the J-DESC core schools, pre-cruise training, and exhibition booth at JpGU and AGU.

Finally, T. Ishikawa discussed staff changes. The new IODP curator, is former CDEX EPM Yusuke Kubo, who replaces Lallan Gupta. L Gupta was the first IODP curator at KCC. Nan Xiao was the biological curator and is moving to the Mantle Promotion Office in MarE3. T. Ishikawa thanked them for their pioneering work.

C. Tatsumi said that the Chikyu operations update will be next.

10. Chikyu Operation/Status Update (Takehiko Yano)
(14:22 h.)

Takehiko Yano gave the update on *Chikyu*, starting the MarE3 session of the meeting. T. Yano noted that this will be difficult for people joining CIB for the first time, as this will look at the operations from a financial and admin point of view. T. Yano showed the 2005 to 2013 operation schedule. From 2009, the situation changed, and JAMSTEC looked at ways to promote *Chikyu* commercially (in orange).

T. Yano described the new Chikyu business model, including the financial background. Luckily, Watanabe-san at MEXT was able to gain CDEX a 2-3% increase this year. However, government funding has still been pretty sluggish. From 2014, CDEX was able to establish an independent Chikyu account, that separated the JAMSTEC and CDEX budgets. T. Yano showed a cartoon breakdown of funds needed by *Chikyu* to perform science drilling. The govt support covered the “fixed costs” or the maintenance and ship crew and CDEX management. Commercial operations allowed for savings to do scientific drilling.

The last 5 yrs were shown, with the process of carrying funds forward, ending with IODP Exp 358. By the end of JPFY 2018, CDEX spent ca. 62 M USD on C0002 riser drilling. The carry forward into the new FY is zero.

Chikyu is now the 10th oldest ship in the industrial fleet, so this affects chances to get jobs in the commercial zone. One solution is to look into governmental sponsored exploration drilling. T. Yano proposed to talk more in detail tomorrow morning.

As of 1 April 2019, CDEX and MARITEC have merged into MarE3. The policies of the new organizations were described, with safety being the primary policy. T. Yano presented a mission and organization chart, showing the departmental breakdown. The total head count of the new organization is 170 people.

T. Yano gave an overview of the JAMSTEC fleet, including HOV and AUV platforms now managed by MarE3, describing the roles of each vessel. *Hakuho* and *Shinsei* are multipurpose oceanographic research vessels.

T. Yano said that the recently completed IODP Exp 358 would be discussed in more detail next, and there will be some more discussion of proposals, and the long-term science plan for *Chikyu* tomorrow.

K. Becker asked if the new 7-yr plan will also have carry-over?

T. Yano said, no, we will need to spend it all by the end of the 7-yr period.

With no further questions, C. Tatsumi called for The Safety Committee presentation by Tom Nawate.

b. *Chikyu* Safety Committee Results (Tom Nawate)
(14:40 h.)

T. Nawate discussed the safety review committee for *Chikyu* drilling within CDEX. He showed the flowchart of the internal review, and then the external review process. Tom showed the 2018 review scheme, and the committee breakdown by drilling safety and geohazard sub-committees.

T. Nawate showed last year's committee review activities. With only one expedition planned, only one committee review was held, after the sub-committee meeting. Instead, the DWOP and RTG-DWOP were attended by the sub-committee members. Tom shared the summary of the drilling safety and geohazard subcommittee meeting from 14 Aug

2018. They positively reviewed the CDEX Operations group's preparations for the upcoming riser-drilling program.

The main safety review committee meeting on 22 Aug 2018 summary was then shared by T. Nawate. The committee concluded that the preparations for the expedition were well in hand.

b-2: IODP Exp. 358 Results (Sean Toczko)
(14:50 h.)

S. Toczko presented a quick review on the Exp. 358 science efforts, science plan, and deep riser drilling. S. Toczko left the slides unread, since everyone has seen them many times already. The goal was to drill, log, and sample the plate boundary interface. S. Toczko described the very detailed operation plan and then what actually happened. Contingency plans included logging and coring at Sites C0024 and C0006; the C0006 cores were an attempt to collect frontal thrust samples that couldn't be collected from Site C0002. Site C0024 was a new site, originally a SCORE proposal, that hoped to find the date of the formation of the Kumano basin.

S. Toczko described the expedition's large science party, including 9 science leaders; only 8 sailed, as Demian Saffer provided support from land. There were 3 EPMs, Nobu Eguchi, Lena Meada, and himself, who all took in turns aboard. S. Toczko introduced science team, which had a good balance of people new to NanTroSEIZE and *Chikyu*, and veterans from other *Chikyu* expeditions. There was also good career balance, from masters' students to people who have retired from active academia. There were also two paleontologists, both new to *Chikyu*.

S. Toczko also described the new Real-Time Geomechanics (RTG) team. The RTG Team was a new concept CDEX had developed with the TAT to advise the operations group with real time data and analysis from the science party, real time data from the logging tools, all combined with a real-time geo-mechanics prospective.

S. Toczko presented a breakdown of the science party demographics, showing many scientists from ESSAC and USSP, almost equal to the number of Japanese scientists. The breakdown showed the national rankings as: Japan, US, Germany, and France.

S. Toczko also showed the incredibly complicated original staffing plan. This was modelled after industry staffing, where staff are mobilized and brought aboard as needed. To do this, the SLs and CDEX created a model to bring people onboard directly in line with key elements of actual drilling. The concept was that scientists would be onboard for science operations only, when logging and coring were being done. Cuttings would be collected continuously, but only examined when scientists were onboard. When other

things, like casing, cementing, and during other operations and engineering portions, the scientists would not be onboard.

S. Toczko showed the original operations timeline compared to the actual timeline, and then the moved to the contingency sites. The outline showed the different boarding groups standing by while one group was onboard. This outline was kept to until the end of the riser drilling period, and then modified for the final contingency riserless sites. This staffing was logistically difficult, but worked pretty well. Scientists were given at least 10 to 14 days notification before being mobilized to come to the ship.

S. Toczko showed the overall NanTroSEIZE transect, with all drill sites. S. Toczko showed the positions of Site C0002 and the contingency sites: Site C0024, which was near Sites C0006 and C0007, and the brand-new contingency Site C0025.

S. Toczko said that on the positive side, new holes were kicked off from the riser site, 4 in total: C0002Q, -R, -S, -T. A lot of cuttings were recovered, but only less than 2.5 m of new core was collected. A new LWD depth record was reached in the accretionary prism, 3,252 mbsf. At Site C00024, 7 holes were drilled with LWD and coring, and the plate boundary seems to have been crossed at this point with LWD. Coring reached 621 mbsf at Site C0024, and almost 200 m of new core was collected from Site C0025. The cores will be measured and analyzed onboard *Chikyu* this summer at a core description party in Shimizu in July; this means the expedition is not officially ended. S. Toczko admitted that none of the main goals at the riser site were achieved, and even the depth record is only a few hundred meters deeper than the previous record from IODP Exp. 348.

S. Toczko showed the breakdown of actual drilling days vs. total expedition days (87), which total was quite close to the original plan. T. Saruhashi will share more details about C0002, while here are shown the total days for Sites C0024 and C0025.

S. Toczko explained the detailed differences between the about actual depth, areas of deep LWD coring, and the original plan. This plan was to kick off here, but this is where we ended up.

S. Toczko showed the figure for Site C0024, and where Sites C0006 and C0007 were drilled. S. Toczko discussed where the LWD sections were, and where it was decided to take a spot core section after it was concluded that the expedition would be unable to drill any deeper.

S. Toczko continued with the figure for Site C0025A, where the goal was to drill to the target and core it. Once completed, the expedition returned to Shimizu.

S. Toczko presented the cruise evaluation assessment. Not all the scientists have submitted their evaluations, but in general, ratings for expedition support and facilities are

very good. S. Toczko reported that on the other hand, communication with shore-based scientists was poor, with not doing a good enough job of keeping the science party members onshore informed. IT access for scientists was also poor. S. Toczko explained that there were two internet networks onboard *Chikyu* during the expedition; Inmarsat fleet express and the regular VSAT network running. The VSAT network was as poor as usual, but the Inmarsat fleet express was very robust. S. Toczko discussed the Schlumberger internet logging service that provided real time logging data to the onshore team via a server in Houston, Texas. This allowed the shore-based team, including scientists, to access and monitor near real-time logging data; and it worked very well. The Inmarsat system worked really well, except in rainy conditions.

S. Toczko gave more details from the cruise evaluation, this shows the breakdown between the average of previous expedition and Exp. 358. “Overall”, it’s low, because we never reached our main target. “Pre-expedition” support was not bad, “Lab support” was also not bad. “IT services” was low. “Curation” was good. “Operation” was again poor because the ultimate target wasn’t reached. “Shipboard life” was pretty high.

S. Toczko said that pre-expedition evaluations were similar to other expeditions, preparations worked very well. The main negative comments regarded the huge uncertainty in travel. There were different teams moving over different time periods to get to the ship from different locations, for some scientists this was a problem. S. Toczko also talked about the ZOOM meetings, supported by the Inmarsat connection. This allowed offshore team members to get updates.

S. Toczko continued with the “Lab services” ratings, which were ranked very high, as usual. Marine Works Japan did a very good job and with support, and they are really appreciated as lab technicians and for the facilities we have. This is why we were going to have ICDP Oman support and this is also why we are going to have support for MSP expedition.

“IT services” was generally ranked lower than the average, as discussed earlier. There were problems with PCs. Only old OS systems could connect to the onboard IMS system & J-CORES only worked with old versions of Java.

“Curation” is again about how Marine Works Japan was pleasure to work with. The Lab Staff are always helpful, organized, and efficient.

For “Operation”, the Site C0024 cores were great; the C0002T cores were not.

“Shipboard life” was always very well in general. More large space for gym was requested from scientists. But it is already pretty big, with 2 running machines in the gym. But it is not big enough for everybody. That’s it. Any questions?

L. Armand asked if the RTG team concept worked well.

S. Toczko answered that the plan was that as we set the casing, to break out of the cement plug and perform a leak-off test. This would give us updated information about the formation to put back into the RTG teams model and everything else we needed to drill forward. However, we only performed two formation integrity tests, and never got to use the full LWD BHA for riser drilling. We never got the full suite of information that we needed. The RTG did help look into cuttings, trying to evaluate notes what was happening in the down hole.

L. Armand again asked if this is something that JAMSTEC is considering repeating?

S. Toczko answered that he thinks this concept definitely should continue, but it depends on what kind of drilling is targeted. This concept is a really great idea.

D. Goldberg asked about the comment on travel for science team. What would be the alternative, since it's difficult to have a flexible window for the operation like this, right?

S. Toczko said that this was particularly difficult for those who have trouble getting to a normal port call. For the science team as a whole, it worked in getting the people out when we needed them. There was a lot of uncertainty, but in the end, it worked better than anticipated.

C. Brenner asked if there was anything that could have been done differently to reduce the impact on the science team travel?

S. Toczko said that there really wasn't anything else to be done.

There were no other questions.

d. **IODP 358 Operations Results** (Tomo Saruhashi)
(15:08 h.)

T. Saruhashi presented the operations details of Exp. 358 to the CIB; he stated that even after 4 attempts, CDEX thought they understood about drilling in the accretionary prism, but this was not enough to accomplish the science target. He presented the original casing and drilling plan, and showed how the whole configuration was affected by all the drilling problems. T. Saruhashi presented the time depth drilling diagram, and then detailed the list of events that affected the plan to drill to the plate boundary. Problems included the window milling in Hole Q, collapse and drilling multiple holes in Q, low ROP compared to Exp 348 at the same depth range, and making a new window in casing with

no cement. Holes S and T didn't have spontaneous sidetracks, but the RSS parted and was lost, and coring had to be abandoned.

J. Allen Asked if this was related to the hole being opened for a long time?

T. Saruhashi said these factors were considered, but all parameters, formation were the same, but ROP was 1/10th of the 348 experience. MarE3 is considering the effects of MW and fracseal on the drilling and low ROP. Fracseal could be an influence, but it did have other effects, such as being screened out at the shakers. This was the first time Fracseal had been used in ocean drilling, where mud temperatures were much lower than in land-based drilling sites.

T. Saruhashi explained that expandable casing was used here in Japan for the first time. Running and expansion worked as planned, but when the casing was drilled out, the BHA became stuck and needed to be severed. This required a new sidetrack to continue.

B. Clement asked to confirm if the hole was 2 m in diameter?

T. Saruhashi confirmed this, and even with hole cleaning, the washout was huge in this section. There were also issues with the BOP, the iron roughneck, and other equipment on board. T. Saruhashi summarized the drilling for each window and each hole in the riser hole. One main issue related to the inability to pass the full LWD BHA through the initial Hole Q window. T. Saruhashi described how each attempt to drill deeper resulted in a new sidetrack hole.

T. Saruhashi then discussed the operations in Hole R, Hole S and Hole T. Hole S is where the C-Link parted and was lost with the RSS. Fishing was unsuccessful, and a new hole (T) was begun, coring with the SD-RCB, and was abandoned due to poor hole conditions.

T. Saruhashi summarized the failure points, and discussed the issues with hole enlargement, poor cement quality, and the constant creation of new unintentional sidetracks. In contrast, during IODP Exp. 348, sidetracking and drilling worked well. T. Saruhashi finished with a list of lessons learned from the Exp. 358 drilling experience at Site C0002.

T. Saruhashi described how these lessons would be applied to a possible future attempt to drill to the plate boundary target with a new hole. These lessons include casing planning, and proper window placement and cutting.

The low ROP in comparison to Exp 348 was discussed, and T. Saruhashi shared some possible causes, including “plastic shale”, drilling mud additives, mud weight, and possible formation differences. Some solutions might include selecting different bit types. T. Saruhashi stressed that the investigation here is only just beginning.

T. Saruhashi covered the various mechanicals issues, including the BOP pressure switches and accumulator, dolly cylinder bursting, and iron roughneck problems.

J. Allen acknowledged the extremely impressive analysis so far. Documentation to this degree of detail is a great effort and extremely needed.

C. Neal stressed that the level of internal review is excellent; he also stressed that this is not a failure and that the lessons learned were invaluable. S. Toczko presented some of the successes, and these should not be forgotten.

C. Tatsumi. Let’s return at 1610.

Break

C. Tatsumi asked Keir Becker for the TAT presentation.

11. TAT Report (Keir Becker)

(16:11 h.)

Kier Becker presented on the TAT meeting, which was held 6–7 June 2019. Exp. 358 did not come very close to the depth objective but it was an incredible learning opportunity for future riser operation. MarE3 engineering and operation staffs brought lots of information. K. Becker said they also had science leaders and David Castillo who was behind the real-time geomechanics (RTG) concept.

K. Becker emphasized that TAT is not a CIB or IODP committee, but advises MarE3 directly. He introduced four external members in the last TAT meeting. K. Becker said they were himself, C. Neal, John Thorogood (who is incredibly experienced drilling engineering), and Yoshi Uemura currently from JAPEX, who used to work for CDEX and OSI for Exp. 348.

K. Becker mentioned that in principle they focused on 95% of their time in two days meeting on reviewing Exp. 358 operations and five main recommendations for implementing riser operation as follow.

1. Re implementing an even more rigorous risk assessment and contingency planning for future *Chikyu* scientific riser operations
2. Re TAT overall assessment of Exp. 358 operational events
3. Re further MarE3 documentation of Exp. 358 operation reports
4. Re managing expectations for future *Chikyu* riser projects
   (Becker said this one is very important to all platforms.)
5. Re independent outside review of Exp. 358 operations
   (Becker mentioned that it would take at least one year process to review what happened to the operation of Exp. 358.)

K. Becker said an additional action item is to revise TAT ToR and membership as needed to provide advice to the new MarE3 which has been expanded scope of expert as well.

Next K. Becker introduced one important point that David Castillo made in his input to TAT showing the diagram of the hole. It was that there was very little untouched formation in the actual operation of Exp. 358, since everything happened probably within 3 m from the original hole. Nearly all this was going on in the formation damaged by Exp. 348 and further damage by jarring, reaming, or everything else that has done by Exp. 358.

Then K. Becker read that preamble of TAT#5 recommendations regarding Exp. 358 as it was beset by unanticipated operational issues and failed to achieve its ultimate scientific objectives.

Based on the preamble, K. Becker stated the recommendation in details listed on the slide.

The first recommendation (0619-03) was risk evaluation and contingency planning. It says that the single most important lesson learned from the Expedition 358 experience is that a rigorous process of risk evaluation and contingency planning is essential for all future *Chikyu* riser programs. It includes development of thorough risk registers and pre-expedition adoption by all stakeholders, which is not only the people on board but people on the beach, or people in upper management, for a clear decision-making process and contingency options that provide for complete suspension of riser drilling if unanticipated issue arise that are not included in the risk register. What arose in the Exp. 358 was not in the register of the list that planned before the expedition. TAT thinks the DWOP and RTG procedures remain viable mechanisms to achieve this kind of preparation.

K. Becker read the next recommendation regarding initial assessment of Exp. 358 operations (0619-04). He stressed that if a clear decision-making process and more extensive contingency options had been established before the expedition as specified in

TAT recommendation 0619-03, that might have triggered suspension of Exp. 358 riser drilling at C0002 early in the expedition. K. Becker also mentioned that they have learned that they've got to establish a decision-making tree before the expedition, since apparently, we would have a lot more time to spend on reaming, jarring, WOW, and people both on the ship and shore, and upper level people of management should try to come to assessment, and let them study pre-plan for doing a major riser operation.

Regarding further MarE3 documentation of Exp. 358 operations (0619-05), K. Becker added that it was quite specific on what should be done in with the post operations analysis. Each major topic should be presented on as part of a detail technical written report. He also mentioned that David Castillo is normally a TAT member behind the RTG concept, and Kjell Ovrevik should be allowed an opportunity to review and comment on the technical report within their specialties, on the potential impact of the drill string on the formation, the low rate of penetration, and the BHA design and a comparative analysis of similar sections drilled during 348 and 358.

K. Becker first mentioned that expectation management (0619-06) was one of the recommendations authored by C. Neal. It was particularly important for Exp. 358, and it was also applied the facility board to even form a level for planning all future complicated drilling operations. Then Becker started to read the recommendation 0619-06. Similar to the comment C. Neal made before the break, but as an official model for Exp. 358 megathrust or thrust is not appropriate.

C. Neal said that it was the thrust.

K. Becker agreed and still said that it does not define as a total failure because there were lots of important lessons to learn to make success future riser operation.

K. Becker said that Exp. 358 outside review (0619-07) is not a new suggestion from TAT, but it was already in the plan and TAT suggested how it should be run. K. Becker shared John Thorogood's advice on dealing with outside review contractors:

- Do not send outside contractors any early interpretation from MarE3,
- Do send contractors the drilling plans, daily drilling instructions, daily drilling reports, RTG daily reports, and all other relevant reports and data (including raw data),
- Ask them to review and report independently.

K. Becker lastly mentioned that the TAT action items, which are to revise the TAT terms of reference with MarE3 to reflect an expanded scope in advising on all MarE3 operations. The revised terms will define two tiers of members of core group of permanent members

and additional potential participants on as-needed basis depending on agendas of specific TAT meetings.

External core members are introduced, K. Becker as chair, Toshi Uemura, C. Neal, J. Thorogood, and David Castillo.

TAT acknowledged that the external constraints for 358 were extreme, and the scenario lay beyond pre-drill risk assessment and mitigation measures. TAT recommends that each major topic addressed be tackled with their own specific written report. D. Castillo and Kjell Ovrevik should be allowed to review and comment on their specialties. Expectation management should be applied to establish a minimum level of success, and avoid "all or nothing" approaches.

TAT recommends that a truly external and independent review of the operations, and suggests that an experienced outside contractor recommended during the TAT review.

K. Becker ended with discussing the revision plans for the TAT, to expand and refine their review and coverage of MarE3 vessels. Finished, K. Becker asked for questions.

J. Allen asked if the TAT considered if some decision-making tree was a result of the budget situation?

K. Becker said that TAT understood that this was a factor, but more was based on "megathrust or bust" approach, when a clearer and cooler evaluation may have suggested different action.

Kiyoshi Suyehiro asked if the TAT only met for 2 days, since the outcomes are so well written.

K. Becker said the meeting started and ended with an executive session, which really helped clear the air.

C. Tatsumi acknowledged the end of the discussion and asked Gilbert Camoin to please go ahead with his presentations.

(continued) 7. Other FB, IODP Forum, and Agency Activities	
7d. **ECORD**	(Gilbert Camoin)*(16:29 h)

*The order of these 3 agenda items (d. ECORD and e. ECORD Facility Board, and PROCEED) changed from the original agenda due to the availability of the various presenters. These 3 sessions had been carried out via ZOOM.

Gilbert Camoin connected by ZOOM to present the ECORD & PROCEED reports. He summarized the current ECORD membership and MoU process for the EU nations &

Canada. There are discussions with Greece, Belgium, Israel, and Poland. Gilbert updated the membership of the various ECORD chairs and committee memberships.

ECORD support for JR remains at 7 M USD, but there will be 7 ECORD scientists, not 8 aboard each JR leg. Education officers, CCs, and outreach counted against berths.

For *Chikyu*, funding remains the same (1 M USD), and in contrast to JR, the CC, outreach and Ed officers do NOT count against berths.

G. Camoin listed the national contributions by the ECORD members, and the budget breakdown, w/95% covering IODP expeditions. He also looked at future budgets and planning until 2023. The plan is to commit to one expedition per year until the end of the current IODP phase.

G. Camoin listed all upcoming ECORD & IODP meetings to 2020. He added that publications from ECORD, especially the annual report, were discussed. Everything is available online. ECORD has cofunded a special volume of Oceanography.

7c. **ECORD Facility Board** (Gilbert Camoin)*
(16:42 h.)

Gilbert Camoin continued with the EFB report, presenting an outline of possible 2023 ship schedule. Only 2022 would have no expedition.

The Hawaiian drowned reefs expedition was rescheduled, and G. Camoin discussed the details of the discussion to work around the issue and get the expedition reinstated.

G. Camoin discussed the joint ECORD/MarE3 expedition to use *Kaimei* and *Chikyu* for paleoseismicity off the Japan trench.

G. Camoin discussed ERB consensus items in some details. Arctic paleooceanography is a key project, and ECORD is discussing how to revive this project if possible. The current schedule has options for expeditions up to the end of the current IODP phase.

C. Neal asked about the costs of the Arctic expedition, and that they seem to be very high; are costs or in-kind contributions being sought out to counter this?

G. Camoin was happy C. Neal asked, and said that they are looking to see if the current onboard supporters are ready to assist. At the moment, none of these have been secured, and we are negotiating with these entities to prepare this.

C. Neal asked if the Hawaiian reefs has been canceled or postponed.

G. Camoin said at the moment, it's best to have this as postponed, with the earliest possible time window in 2020.

C. Tatsumi. Wanted to confirm that Kaimei would be for GPC and Chikyu for the labs.

G. Camoin just confirmed that ESO/MarE3 discussion are working well, and everyone is looking forward to this expedition taking place.

N. Eguchi asked Gilbert Camoin to present on the PROCEED meeting now.

13b. **PROCEED** (Gilbert Camoin)*
(16:57 h.)

Gilbert Camoin presented the results of the PROCEED meeting in Vienna Austria, just before EGU. He presented the organizing committee and the science committee. There was great balance in career level and gender balance. The key outcome would be to define the new post 2023 science plan. There was an online survey sent out before the meeting.

There were about 140 people present, almost half in early-to-mid career. Gender balance was not as good.

Breakout sessions were held and the results reported back to the general meeting.

There were some technologies used to help the meeting, pigeonhole helped focus questions and interest in topics for the discussion. Gilbert presented the agenda and structure of the meeting. Some of the outcomes were mentioned, particularly the need for new big ideas for the science plans.

The structure of the science plan needs changes, especially to allow more integration and thinking outside the box. There was a feeling that exciting ideas are needed. Greater collaboration with ICDP on ADPs was seen as required. The MSP platform model was seen as required for the future of IODP. ECORD at the same time should find ways to level greater funding.

Attendees confirmed that ECORD is healthy and must continue to participate as a full partner with own facility.

The PROCEED report will be written over summer 2019 and presented to IODP Forum. This will feed into the new science plan writing, by 2021, for an ECORD white paper,

G. Camoin reviewed the process for past science plans, and talked about the various meetings that were held in support of those efforts. Thank you.

C. Tatsumi thanks for the report, and tomorrow we'll hear from JDESC and ANZIC.

N. Eguchi. The reception starts in one hour.

C. Tatsumi. We'll start with a discussion tomorrow morning on NanTroSEIZE.

The meeting was adjourned for the day.

Day-2 **Wednesday, 12 June 2019**

The Chair began the meeting and asked everyone to discuss NanTroSEIZE future plan before the first agenda item #12 for Day 2.

New Item: NanTroSEIZE Future Plan (Chair - Tatsumi)

(09:15 h.)

This part was not clearly included in the original agenda, but discussed first.

C. Tatsumi discussed the letter sent to the CIB regarding the end of the NanTroSEIZE project. He asked Taira-san to discuss his views on the entire project and final disposition. Taira-san read the letter and began a discussion on the subject. As part of a large-scale disaster mitigation project, including on-land facilities and observatories. As a core part of this effort to define the seismogenic zone and mega-earthquake nucleation. As part of the societal effort to mitigate the effects of large earthquake, we feel that this should be attempted to completion. Discussion with local and national governments, as well as funding agencies, encourage us to keep this project.

K. Becker noted that as TAT chair, the external review would have 2 stages, the external review would have an outside group to design a proper casing plan to completion, and start a new hole. This will be expensive, what are the prospects for funding?

C. Tatsumi. The financial issue remains, and we need to confirm with JAMSTEC.

Ryo Anma felt that this sounds like a national project, not so much like IODP; should this be done within the IODP framework?

Asahiko Taira felt that whether this is done by IODP or the government, this is a large NASA-type project, but we need the cooperation of IODP.

C. Neal saw that there are several IODP proposals at CIB. What will happen to them if we go to finish NanTroSEIZE? What is the prospect for them to be drilled? Would they be deactivated?

C. Tatsumi. We will discuss this in detail this afternoon. But that is an extremely important point.

J. Allen said the scientific foundation for NanTroSEIZE is entwined within the IODP Science Plan.

D. Goldberg commented that the CIB key question here is if this is a relevant program or one that should be within IODP.

A. Taira said there have been new technological developments, but the base scientific question remains.

H. Kitazato said that NanTroSEIZE is a very important national program, and as Taira-san noted, the Japanese public understand the importance of this project. On the other hand, working with Mie Pref. citizens, I've found that they don't have a great amount of interest in this program. We need better outreach. Space missions have a great deal of interest, and we need to be able to capture this. What is the outreach plan?

A. Taira noted that publicity is important, but the main purpose is to save lives of those living in the Nankai region. We have been working with schools, providing the data to the local government, and there are also efforts to educate the people by the national government. And this takes time.

D. Kroon. Added that this isn't just for local people, this is for everyone. JAMSTEC are the only ones who can do this and the eyes of the global science community are on us.

B. Ildefonse made several points. Comparing this to the space program is good, 62 M USD is not much money, and we need to communicate this to the public. In this perspective, this is cheap, and it needs to be clearly conveyed. As for NanTroSEIZE, we've seen that some projects are being held for later completion by the JR. We don't need to revisit the science, we need to revisit the completion and strategy. Maybe a workshop is the best way to work on this for the future.

C. Tatsumi. Reminded all that Keir also pointed to the costs involved. He wanted to hear from Kuramoto-san about funding this into the future.

S. Kuramoto. said that a mix of MEXT and commercial work, about 55 M USD for operation, plus another 55 M USD for supporting fixed costs. For future mantle drilling, we need money from the government. This FY, we have no carry-over funds. Any money we get will need to be saved, combined with commercial work, maybe in 2 years we can drill this. As a national project, as Taira-san said, we should look to other agencies of industries to support this.

C. Tatsumi. Understood that these general comments underline that JAMSTEC will work to secure these funds.

B. Ildefonse wondered how far can industry people get interested to the point that they will financially support IODP, not merely NanTroSEIZE? We are ahead of industry in terms of hard rock drilling, etc. Is there room for greater industry involvement?

S. Kuramoto answered that this is not a hydrocarbon reservoir zone, but we have developed technology, like borehole observatories, that had greater interest.

C. Tatsumi. Understood, but wondered if we can keep this as a CIB proposal?

B. Ildefonse suggested that the reverse is true, why wouldn't this be kept?

David. saw no reason to not keep it at CIB, but there should be some rationale, and CIB consensus. There might be something related to the TAT outcomes.

C. Neal noted that this was a very complex project, and didn't reach its' target, but this has greater applications to other projects, like mantle drilling. Therefore, these don't move forward in isolation.

C. Tatsumi said this is good and should be discussed later. He moved on to discuss the proposals at CIB. Since he had a COI, he asked Keir to chair this discussion.

K. Becker agreed, but wanted to have guidance on expected outcomes. The previous note said that Chikyu will NOT drill any riser proposals. Do we keep any of these? I suggest we look at this.

C. Tatsumi. If we keep NanTroSEIZE, it will be difficult to drill any other riser operations, and asked Taira-san for clarifications. Taira agreed, that within the next 7 years, this would be difficult.

K. Becker noted that we also heard from Watanabe-san that the Japanese government is marching on to mantle drilling. Taira said that any funds we get should be used for mantle drilling. CPPs of course are always welcome.

C. Tatsumi noted that with the current funds, drilling 2 riser projects in the next 7 yrs is very difficult. He said he can't see any way to conduct 3 riser projects. At the last CIB, he reminded us that all the PIs were asked to revise their proposals, including himself, and they did. He felt that a message needs to be shared with the PIs.

A. Taira said that the situation at the last meeting was focused on successfully completely achieving the scientific targets. We haven't done that.

B. Ildefonse reminded everyone that the situation now is different from last year. If there is mantle drilling in included, he will be in COI.

R. Anma. It would be nice if we could see a clear exit, to know where we stop. We should list some limits and conditions.

C. Tatsumi. said that riser drilling is very difficult.

Clive. If you hold these projects, you're sending a message that no new riser proposals are being accepted. We should say so directly.

N. Eguchi . we should let the proponents know what's coming, drafted by the CIB.

C. Tatsumi. moved to the next discussion, and how to handle these riser projects. We need to define our vision for the next stage.

K. Becker. just had one other questions, asking about ranking or identification. How should we do so. When the PRL were solicited, should we rank the projects, and see which gets priority as the next possible riser project.

David. G thought that we need to be clear and fair to the proponents, and that ranking is good, but we don't need to go to deactivation.

K. Becker asked if a fair option would be to keep all of these?

The Chair concluded to prepare consensus.

CIB_Consensus_0619-04: NanTroSEIZE.

The CIB reaffirms the importance of the scientific objectives and goals of IODP Proposal 603C and recognizes the exceptional efforts by CDEX and the *Chikyu* scientific and technical party to achieve them at Site C0002 during Expedition 358. The ongoing reviews of Expedition 358 operations will be critical to understanding the deep riser drilling operations at Site C0002 and the lessons learned for planning deep riser drilling at any future sites. The CIB will therefore ask the proponents of Proposal 603C and the PCT/MarE3 to update an

CIB_Consensus_0619-05: Three riser proposals.

CIB thanks the proponents of 537B-Full4 (CRISP), 698-Full3 (IBM), and 781B-Full (Hikurangi) for being so responsive to our 2018 request for updates to their riser drilling proposals. At our 2019 meeting, it became clear that the financial constraints in the new JAMSTEC 7-year plan and renewed commitment to NanTroSEIZE deep riser objectives mean it is unrealistic at this time to select another riser drilling program for the near-term future unless it is a CPP. Therefore, CIB will hold these proposal updates for potential consideration at future meetings if appropriate circumstances develop.

We also note that proposals 537B and 781B will likely involve similar technical challenges as completing NanTroSEIZE deep riser objectives. Therefore, the

12. *Chikyu* Proposals (update)

a. **Potential *Chikyu* Proposals at CIB and SEP** (Chair-Tatsumi)

(09:46 h.)

The Chair moved on to the next item, *Chikyu* proposal update. However, The Chair has COI for this discussion, so K. Becker was asked to handle this discussion. Becker said he previously agreed on this but he would like to get some clarification of expecting outcome. In the letter there are 2 paragraphs which said "*Chikyu* cannot do any more riser programs". So, his question is "what is the context to and to what degree are we to meet these PRLs?" They are not going to happen. It's a better discussion what's the message we need to send the community, among all adviser of proposals. That is kind of getting into the purpose of agenda 14.

C. Tatsumi said if we keep NanTroSEIZE project in this CIB, and if we decide to go ahead on this project that means, considering the financial situation at the present stage of JAMSTEC, it is very difficult to conduct another riser proposal.
A Taira commented that in next 7 year's mid-term plan started from this April; if we do NanTroSEIZE as a major riser operation, the budgetary situation will not allow us to second proposal.

K. Becker confirmed that Watanabe-san indicated that Japanese government is marching on mantle drilling. So that if that is going to be in front in next 7 years, no other riser program can be considered? The Chair said he understands so.

A Taira added that laying aside the mantle, NanTroSEIZE may be different. NanTroSEIZE is really society relevant important issue for Japanese people. If any kind of commercial fund raising is successful, JAMSTEC might use this additional money for mantle drilling preparation. If we do drill in the seismogenic zone, it has to be dedicated to NanTroSEIZE, since this is funded by government. Mantle CPP would be fine.

C. Tatsumi agreed that in the present situation it is very hard for JAMSTEC to conduct 2 riser projects within the next 7 years. We do need to think about the next phase and what we have to recommend to JAMSTEC. It is almost impossible to do the 3 riser proposals, CRISP, IBM and Hikurangi, in addition to the NanTroSEIZE project. At the last CIB meeting the situation was different, and we asked the 3 riser proponents for addendum or some updates. If we decide not to conduct these 3 riser proposals as IODP projects, we have to notify the proponents.

C. Neal said if the proponents of these 3 proposals at CIB are told that they cannot drill, you are telling the community to not submit any riser proposals for *Chikyu*. C. Tatsumi agreed and said we should be clear about this, but also say we can accept CPP. B.

Ildefonse said that this was the consensus a couple years ago. N. Eguchi commented that we did but we changed the wording a couple years ago. K. Becker pointed out that this was only for new proposals. C. Tatsumi said we should not accept new riser projects.

Dave Goldberg commented he is fine with the discussion of keeping NanTroSEIZE in the CIB, along with these 3 other proposals. D. Goldberg added that we don't know the outcome of TAT review, if it is going to be feasible to achieve the riser target. D. Goldberg's view is that we need to be fair and clear to proponents. He doesn't see the ranking or deactivation as being fair for proponents; these should be held to see how things develop.

K. Becker asked if we needed to go through each PRL one by one; or should we instead work on the consensus wording?

B. Ildefonse said we should keep them in case magic happens with money, that it has been a long time with these proposals, we need to communicate with the PIs. Let them know that it's unlikely that any of these get drilled.

Jamie Allen noted that there was a proposal to examine human origins in Gulf of Aden, but because of safety issues, it was deactivated. J. Allen we should be clear with the proponents. Brad Clement noted that the Gulf of Aden is still at JRFB.

K. Becker said that we can make consensus that the financial and other realities preclude any attempt at these projects for the next 7 years. We will not formally deactivate them, but we are just going to say we will not accept any more riser proposals; except CPPs.

David Goldberg agreed and worried about the proponent impact. What if the TAT recommendations are difficult to achieve, or beyond JAMSTEC's abilities. If no NanTroSEIZE happens, would we drill another riser program? Should we have these in the wings?

A Taira said that NanTroSEIZE will be implemented, so there is no need to imagine needing other standby riser proposals, or to imagine nothing will be drilled.

Leanne Armand said this won't help with her attempts to write up her renewal.

K. Becker agreed, but there is no other way to look at it.

Dirk Kroon began to worry about the lack of riser drilling in the new science plan.

Ryo Anma said that CRISP after 7 years would be 20 yrs old; implementing a 20 yr old project might not be the best idea. R. Anma suggested in this case, offering the proponents a workshop for them to update and revise their proposals?

N. Eguchi had Lisa McNeill add her opinion via online connection. As a Hikurangi co-proponent she has some COI, but had some ideas. L. McNeill felt that deactivation would

send a negative message to the greater community; therefore, she agreed on keeping them. L. McNeill also agreed with D. Kroon on the worrisome lack of riser drilling during the new science plan.

Brad Clement looked to find a positive side to this. Both Hikurangi and CRISP probably share some technical engineering issues similar to Nankai in terms of drilling. A good message might be that the engineering needs to be solved here, and the lessons then will be applied to those projects.

Tatsuya Watanabe asked if we need to clarify that we will not accept any new riser proposals, if so, when will we open the door again?

K. Becker agreed, and said we should separate this from the PRL review, since it's a general question the CIB could participate in. With no further comments, K. Becker moved to have himself assigned to write the consensus.

Coffee Break (10:25-10:45)

13. Scientific Ocean Drilling beyond 2023

13a. J-DESC Workshop (Harue Masuda)*

(10:47 h.)

*The presenter was changed from Saito to Masuda due to travel schedules.

C. Tatsumi restarted the discussion with Harue Masuda's J-DESC report. H. Masuda presented the April 2-3 Beyond 2023 scientific drilling workshop results. There were 150 scientists, mostly young and early career scientists, in attendance. H. Masuda shared the key questions discussed, mainly the relevance of IODP post 2023, the achievements of the science plan, and what can be achieved by IODP in the new program. Discussion was divided into themes, and subdivided into focused talks. Climate and Ocean changes discussion brought up the challenge of climate change and variability, and the factors governing those changes. Biosphere Frontiers looked at big science, but also the need of bringing non-IODP people into the program. Microbio is a large part of this. Earth Connections focused on the mantle, and promoting links with ICDP. LIPs, serpentinization, subduction initiation, etc., were also challenges identified. Earth in Motion looked at submarine landslides, slow-slip earthquakes, and monitoring with borehole observatories were seen as areas needing focus. H. Masuda said after discussion, the themes of Earth in Motion and Earth Connections were combined into one, "Solid Earth". Discussion also looked at commonalities and influences & interactions among and between these themes. H. Masuda discussed the crosslinks between these themes, and the new focus these collaborations would have on developing a new science plan.

The combination of "Solid Earth" and "Climate/Ocean": "deep carbon sequestration", and the carbon cycle are the keys to study interactions between solid earth and climate/ocean.

For “Solid Earth” and “Biosphere Frontiers” the important constraints for life are energy, fluid, and temperature. When we search the life in the deep earth, the key constraints these kinds of physical factors.

H. Masuda said that people were invited to attend the workshop who were not directly connected with IODP. One purpose was to learn about the technology, sample and data treatment, and sampling methods from non-IODP programs. H. Masuda added that the Japanese science community expects *Chikyu* to lead these efforts and also start working on drilling the MOHO.

H. Masuda shared the schedule of the white paper being prepared for the IODP Forum in September.

Leanne Armand asked if a white paper would be prepared – H. Masuda replied there was no immediate plan, but probably would.

Dirk Kroon commented on the Mohole drilling in the J-DESC workshop thinking, and was happy to see it. He was also interested in the statement that “pressure is not important, compared with temperature” for life. Where is this hypothesis from? H. Masuda said that this was asked in the workshop, and it seems to be consensus among biologists.

Hiroshi Kitazato mentioned that the IODP-ICDP collaboration discussed may be looking at different times. there may be a gap in between these 2 areas of investigation. He brought up the ANZIC proposal discussed yesterday as an example of looking at the intermediate time frame, and asked if there was any such discussion at the workshop.

H. Masuda said the ICDP Oman project collaboration is an example of this, and expects the collaboration to deepen in the future with other proposals, such as IBM.

H. Kitazato said the focus for these proposals & projects was on hard rock, but H. Masuda said there was a strong life component, looking at young sediments as well.

H. Masuda was happy to see that the organizers of the workshop, and the task group scientists were young, mid 30s to 40s, and that they will be the ones to run these projects in the future.

C. Tatsumi thanked H. Masuda and moved to the next presentation.

13c. ANZIC Ocean Planet Workshop (Leanne Armand)

(11:13 h.)

Leanne Armand gave a quick update on ANZIC and also presented the ANZIC workshop report. ANZIC includes 16 universities and four publicly funded research agencies in both Australia and New Zealand. They are funded by Australian government and external fund through the Australian research council up until 2020.

The Ocean Planet Workshop was a 3-day event focusing on the existing four science objectives in the current Science Plan and set up one more theme called “Ocean Health through Time”. There were 75 participants from Australia, NZ, Japan, and the US. There were 5 research themes, examining the links between and among the themes. Attendees included 45 early-career researcher (ECR) and mid-career researcher (MCR), who brought fresh ideas to the table during the activity titled “early-mid career researcher day” on Day 1. The attendees are now summarizing the discussions for a final report. Some of these were of particular interest to ANZIC. One focus is on “geohealth” which is something that is becoming more relevant to ANZIC. Technology, including DNA research, protocols, sea bed surveys, and ROV/AUV use, was a major focus of the meeting, like the J-DESC meeting. L. Armand presented the meeting timeline for the white paper and follow-up meetings. Getting early & mid-career scientists involved is a primary goal. Societal relevance is important for all the science themes.

C. Tatsumi asked if there were any questions, then moved on to the NEXT report from Clive Neal.

13d. NEXT (Clive Neal)

(11:26 h.)

Clive Neal gave a brief summary of a very intense 2-day workshop called the “NEXT meeting: Scientific Ocean Drilling Beyond 2023”, which was held on 6–7 May 2019 in Denver, Colorado. The main target is to get a program in place for the next 20 years, maintaining a modernized international program and riserless platform. A survey and reading assignment before the meeting prepared the participants for the discussion. Clive Neal described the meeting structure, which emphasized early & mid-career scientist input. Senior level scientists w/PhD earned before 2000 comprised 61% of attendees. NASA and ICDP members were also present, and used the Pigeonhole meeting comment and voting system. There were 5 breakout sessions with one day used by the steering committee to digest the WS results.

Polling results showed extreme interest (93.8%) in a riserless *JR*-type vessel, following a global research track at least once a decade (91.3%). A new Science Plan, highlighting connections between key themes, is needed (96.8%), with a preference for 3 themes (72.9%).

A single structure came out, with connections, threads, and pathways, but no themes. Proposed a new science plan title & mission statement. C. Neal presented the final product in his slide showing the proposed new science plan structure, and finished showing the proposed 8 strategic objectives.

C. Tatsumi asked for questions.

Benoit Ildefonse mentioned how similar the PROCEED and NEXT discussions and outcomes were to each other. They both saw the need to merge themes into a

geodynamics zone, and he's reassured that the community seems to be thinking the same things.

C. Neal also said there was a need for a "fourth platform": data management for big data synthesis. This was discussed and is in the early stages. there seems to be a need for bringing the disparate databases together in some fashion. There could be a need to include ICDP data as well.

C. Tatsumi. Break until 1300 for lunch, and the group took a photo of the attendees.

LUNCH

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

(13:00 h.)

C. Tatsumi restarted the meeting by discussing the morning's talk about NanTroSEIZE and the 3 PRLs at CIB; he then asked Shin'ichi Kuramoto to explain the *Chikyu* Long-Term schedule.

S. Kuramoto started with the draft schedule of Chikyu. In mid-July, the 358 core description party will be held aboard in Shimizu. There is hope to implement a SCORE proposal this summer. Early next year will have a 15-yr maintenance inspection in shipyard, lasting until September. From then in 2020, a window for either IODP CPP or riserless drilling, or commercial work will run from then until the end of 2021; supplementary MEXT budget covers the maintenance, but only CPP or riserless operations can be considered. There is hope that GA will have approval to move ahead with LHR from early 2022 into September of that year. 2022 will also have a 5-yr mandatory inspection. S. Kuramoto expressed his hope that a new attempt for Nankai will begin from January – June 2023, although there are no concrete plans. An IODP/Commercial window runs until the end of 2024. Hopefully, a commercial contract will help save money for IODP work. 2025 will have more mandated maintenance, until Sept 2025. This is also the end of the JAMSTEC mid-term plan, so any money in the *Chikyu* account will need to be spent or returned to the Japanese government.

If there is a problem getting enough money saved, the Nankai 2 window could run the following year, in 2024. A scientific ocean drilling promotion office has been established in JAMSTEC to support Chikyu scientific drilling. S. Kuramoto showed an outline of this organization and showed other JAMSTEC research groups and their research focii.

Keir Becker first asked about the possibility of any SIP projects for support; and then asked what riserless proposal might make the second green window on the long-term schedule, would begin to request riserless proposals starting from when exactly.

S. Kuramoto mentioned that the JTRACK program might make the best fit in the green window.

Clive Neal noted that the South China Sea riserless proposal and the Okinawa APL could be transferred to *Chikyu*.

S. Kuramoto wasn't very familiar with these proposals, but believed they could be looked into.

Kiyoshi Suyehiro said that while watching S. Kuramoto's presentation, he decided to speak up and talk about the new Mantle Drilling promotion office. When A. Taira delivered the news that *Chikyu* would be built, there was a stunned silence. This showed that the Mohole dream was not dead. We need to try and go for riser-targeted objectives, but we need the team.

C. Tatsumi agreed, but reminded everyone that a lot of money is needed for the riser mantle drilling program, so what are the prospects of doing this? K. Suyehiro noted that according to the Sloan Foundation estimate, this is a 500M USD effort, and the new group is determined to search out new sources of income/revenue.

Dirk Kroon said this needs to be considered within the new science plan; we've had a good15 yr run with the current model. We need to know if there is a chance that this gets into the plan, since it will be needed to get the new program launched.

Clive Neal reminded everyone that the NEXT meeting talked about projects lasting longer than 15 years.

Kiyoshi Suyehiro said the NSF had asked IODP-MI if mantle drilling was implementable, which is why the Sloan Foundation made their project estimate.

D. Kroon said the Sloan estimate is good to show that this is a feasible project; and there is a platform available – the main issue is money.

David Goldberg asked if there were any implementation challenges. If there was a chance of getting a good commercial contract in 2021, how could this affect the overall schedule?

S. Kuramoto replied that the exact amount of a commercial contract is unclear at this time; JAMSTEC's feeling is to use these funds towards a NanTroSEIZE expedition, so other riser proposals might not make the selection. There may be a better chance for riserless proposals, however.

Michiko Yamamoto asked about the riser proposals at SEP, would the CIB want to send a message to SEP? She added that the Umino M2M proposal could be forwarded to the CIB if desired.

Clive Neal said that mantle drilling is part of the current plan.

C. Tatsumi said that the riser proposals now in the system should be maintained, and there should be no change.

Jamie Allen suggested that the proponents be told that there is no funding now to implement these other riser proposals; we should be honest with the proponents, and let them know about the realities of funding a riser expedition.

Benoit Ildefonse left as he is a lead PI on M2M.

C. Tatsumi felt that the proposals in the system should not be killed; it's hard to accept more, but they are there now, and we should keep them. K. Becker agreed.

C. Neal said that the message might go to the SEP cochairs, and let them set the policy themselves. If after 5 years and no drilling, deactivate. They could share this update with the proponents.

D. Kroon agreed with being honest with the proponents. Let them know.

Lisa McNeil agreed that there should be clear and open communication with the proponents.

C. Tatsumi concluded that the CIB should send a message to SEP, explaining the situation, and let them contact the PIs. He asked about the option for accepting new proposals, or closing the call for riser proposals; given the unlikelihood of funding a riser proposal in the next 7 years.

K. Becker recalled that CIB stated the need for 5 years to develop a riser proposal. We should make a statement of not submitting riser proposals until there is a new science plan.

Asahiko Taira said that we should prepare in advance, if we want to drill. Maybe some kind of mantle proposal. We could propose setting up a workshop sometime in 2023-2024 to develop this.

CIB_Consensus_0619-06: Overall Seismogenic zone workshop.

The CIB suggests that JAMSTEC organizes an international workshop, including the NanTroSEIZE scientists as well as other seismogenic zone proponent groups, for future seismogenic zone deep riser drilling projects using D/V *Chikyu*.

C. Tatsumi asked if we should encourage the community to develop an attractive proposal for mantle drilling?

A.Taira said the efforts of proponents in developing riser proposals are needed; it would be helpful to have something available as preparation for the new science plan.

C. Tatsumi said we will soon have a new science plan. However, if we encourage people to submit new riser proposals, the timing might not be the best. We should have a workshop, but there is only one mantle riser proposal in the system.

Kiyoshi Suyehiro mentioned that the proposal work flow is well defined for JR, but not for *Chikyu*; proponents need to contact JAMSTEC for details. Otherwise, JAMSTEC could refine their needs and relay those to the CIB.

Shigemi Naganawa said he had proposed 2 proposals in 2 different categories during the *Chikyu*+10 WS. Flagship projects (long term) and Discovery projects (short term). S. Naganawa recommended having another Flagship project in the new science plan.

David Goldberg thought we were looking at wording for the proponents. Another separate issue of requesting new initiatives from the new science plan.

C. Tatsumi asked if there were any other comments.

L. McNeill asked about sending a message saying “no new riser proposals for X years”, what impact would that have on proposal pressure? L. McNeill also understood the idea behind not encouraging proposals that won’t be drilled.

Jamie Allen felt that one important lesson learned was that we can’t allow anyone to propose any kind of proposal at all. They will need to work very closely with JAMSTEC on developing any new riser proposals. The PIs should work hard to understand the whole riser planning pathway and development.

L. McNeill agreed.

Clive Neal reminded everyone that it’s not the new proposals, it’s the ones already there that are in the system, that need to be addressed. C. Neal felt that not many riser proposals will be coming in, so maybe there is no need to state “CIB won’t accept any new riser proposals”?

K. Suyehiro said CIB needs to clearly explain this situation to the community.

C. Tatsumi said this means CIB won’t accept new riser proposals?

C. Neal said we need to send a message to the SEP co-chairs about the drilling realities, and say nothing else. Let the SEP CCs inform the proponents.

Keir said this doesn’t match his consensus language. He read the memo:

> It became clear at this meeting that no new *Chikyu* riser programs can be scheduled for the current phase of IODP. Therefore, the CIB suggests that the

next IODP call for proposals include the following wording: “As no new riser programs can be implemented until the post-2023 phase of scientific ocean drilling, the CIB recommends that proponents for new riser programs do not submit new proposals until the new science plan for the post-2023 program.”

Everyone agreed and felt that the language is clear and honest; C. Tatsumi concluded that with no more comments, the CIB will send a consensus note to the SEP-co-Chair.

David Goldberg said that the SEP message should include the fact that there is CPP and riserless activity space available.

Lisa McNeill was concerned that the 2023 science plan might not be the best wait point. The start of the new science plan might have an impact on the proposal development.

Jamie Allen said that the science plan view point for NSF is that the scheduling of the science plan will take time to work out, especially regarding the structure and the needs of each program.

C. Tatsumi thinks that one option might be to state “after the new science plan is active”.

Dirk Kroon thought that this means the new program.

Keir Becker revised the statement to read: “…until the publication of the post 2023 science plan”.

CIB_Consensus_0619-07: Wording for the Next IODP Call for Proposals.

It became clear at this meeting that no new *Chikyu* riser projects can be scheduled for the current phase of IODP. Therefore, the CIB suggests that the next IODP call for proposals include the following wording: “As no new riser projects (other than CPPs) can be implemented until the post-2023 phase of scientific ocean drilling, the CIB recommends that proponents for completely new riser projects do not submit new proposals until the publication of a new science plan for the post-2023 program.”

C. Tatsumi moved to cover the Chikyu outreach activities.

15. *Chikyu* Outreach Activities (Nobu Eguchi)

(14:10 h.)

N. Eguchi presented the outreach presentation. N. Eguchi described the media outreach for IODP Exp 358 before and during the expedition. There was a lot of anticipation for

success, and JAMSTEC made great efforts to maintain openness and transparency. He described the publications and media events aboard ship and in public venues and social media.

N. Eguchi explained the media activity to fulfill JAMSTEC's responsibility to inform the public, local governments, to promote favorable relations with related local governments, and to international stake holders, raising international awareness of the expedition. N. Eguchi said the campaign started from July 18, meeting with journalists and media. On 27 September, JAMSTEC held a press conference in Osaka, and had a press release on the start of IODP Exp. 358. N. Eguchi related that several media briefings and press releases were held during the operation. In early February, JAMSTEC held a media briefing and announced that IODP Exp. 358 would not reach the intended plate boundary fault target. On 1 March, a report was released on the end of operations at the Site C0002 deep riser hole and move to riserless operations in the Nankai region and held a press conference. In April, we had a media briefing onboard *Chikyu* to present the results of Exp. 358.

As with other expeditions, JAMSTEC used an official expedition website and used social media like twitter, Facebook, and Instagram. There were also seminars and a livestream event at the National Museum of Nature and Science.

N. Eguchi described the renewal of the *Chikyu*/CDEX website last year, although it needs to be renewed again because of the merger of MARITEC and CDEX. A book about the "Deep Ocean" was also recently published, highlighting JAMSTEC.

N. Eguchi described the visitors to *Chikyu* in the port of Shimizu, including politicians and students. Exhibition booths were put up at JpGU, AGU, EGU, the Geological Society of Japan, and others scientific conferences showcasing our activities. JAMSTEC worked with USSSP to hold a town hall meeting at AGU.

C. Tatsumi asked Clive to talk about IODP policies and guidelines.

16. IODP Policies and Guidelines (Clive Neal)

(14:22 h.)

Clive Neal described the recently updated policies and talked about specific issues with each. For sample and data policy, the end of expedition is different for each platform. Educators and outreach now need to document their activities for the expedition bibliography and materials. Post moratorium sample requestors have 3 yrs to perform or return the samples. They also need to document what have been done with the samples and sample materials. Direct scientist-to-scientist sample transfer is prohibited unless detailed written permission from the curator is received.

The maximum moratorium period is also tightly described. COI for CAB members is also described.

C. Neal talked about the site survey data, and issues with confidentiality policy, and the term “publicly available”. C. Neal noted that the meaning of this phrase was revised to match the original intent. There is still an issue with restricted data sets or files. A minimum data package needs to be published. If restricted data are use, a minimum data package will be made available as normal. The site characterization data policy language was updated as well. The key is to maximize the science returns from these expeditions.

Dirk Kroon asked about “restricted” about industry seismic lines - what if the company doesn’t want another subset made available?

C. Neal said those data won’t be used.

Jamie said NSF will require any data for their own protection. If these are data for an expedition that are restricted, then they cannot be used for the expedition, and it will not be scheduled.

Clive said that this policy will remind proponents of the limitations of these kinds of data and prevent their use in the SSDB.

CIB_Consensus_0619-08: IODP Policy and Guidelines.

The CIB accepts changes to ”IODP Sample, Data and Obligations Policy and Implementation” , “Standard IODP Confidentiality Policy”, and “Guidelines for Site Characterization Data” as explained by the JRFB chair at the meeting.

The Chair called for a coffee break for 30 min at 14:40 hrs.

Coffee Break (14:40-15:10)

17. Review of Consensus Statements and Action Items (All)

(15:25 h.)

After the break, the consensus items were reviewed, and were accepted after some revisions.

CIB_Consensus_0619-09: Farewell to Yoshiyuki Tatsumi.

Professor Yoshiyuki Tatsumi has been an outstanding Chairman for the *Chikyu* IODP Board for the past four years, a critical time in terms of scheduling *Chikyu* IODP operations under difficult financial constraints. His patience and sense of humor in drawing out relevant details and potential conflicts to guide CIB to productive over-arching decisions was especially important. We greatly appreciate his agreement to double his term of service, and we have thoroughly enjoyed coming to Kobe for CIB meetings once every four years. We don't want to say sayonara now, but instead we really hope to see Tatsumi-san remain very active in IODP and the post-2023 program of scientific ocean drilling.

CIB_Consensus_0619-10: Farewell to Hiroshi Kitazato.

The *Chikyu* IODP board expresses its sincere thanks to Prof. Hiroshi Kitazato for his service as a member of the CIB. He has been an active member adding enthusiasm and perspectives to his scientific expertise as a eukaryotic microbiologist.

The CIB would like to send its best wishes for his future even-more successful career. We have no doubt that he will stay present in IODP community, guiding and helping us with his vast knowledge to his expertise and his gentle attitude.

CIB_Consensus_0619-11: Farewell to Benoit Ildefonse.

Benoit Ildefonse will be stepping down as the ECORD member on CIB and we wish to offer our fullest appreciation of his steady and thoughtful contributions to *Chikyu* programs over this time. Benoit has been an active scientist in IODP and continental drilling programs for many years and there is little doubt that he will remain close to deep crustal drilling as this research progresses over the next phases of the program. We will greatly miss his joyful participation at board meetings, but equally look forward to the new and fascinating science the he will surely propose in the future.

CIB_Consensus_0619-12: Farewell to Keir Becker.

The CIB wishes to express its deep gratitude to Keir Becker for his tireless service as a US-based board member for the past three years. Keir has been instrumental in advising on *Chikyu* activities and providing clear insights from the deck, from the lab, the conference table, and the beer pub. His vast experience with IODP and clear view of the most important goals in scientific ocean drilling will be sorely missed, but we look forward to hearing more from him as the TAT committee chair in the near future. Thank you, Keir!

18. Next CIB meeting (Chair-Tatsumi)
(15:25 h.)

C. Tatsumi after discussion, announced that the next CIB meeting be set for early March of 2020. The detailed dates and place will be shared soon; this also depends on the availability of the next chair.

19. Any Other Business (Chair-Tatsumi)
(15:52 h.)

The Chair checked for final comments. Nothing was raised, and the Chair thanked all the attendees, and closed the meeting at 15:53 h.

Meeting adjourned