Chikyu IODP Board meeting #8
13 - 14 July 2021

Virtual meeting

Final minutes

#8 Cikyu IODP Board Meeting@Virtual

List of attendees

Name		Position / affiliation
Members		
Ryo	Anma	Tokushima University, Japan
Donna	Blackman	University of California Santa Cruz, USA
Gilbert	Camoin	ECORD Managing Agency (EMA), CEREGE, France
David	Goldberg	Lamont-Doherty Earth Observatory of Columbia University, USA
Katsuyoshi	Kawaguchi	Institute for Marine-EarthExploration and Engineering (MarE3) JAMSTEC, Japan
Achim	Kopf	University of Bremen, Germany
Kyoko	Okino	The University of Tokyo, Japan
Nobukazu	Seama	Chair - Kobe University, Japan
Gen	Totani	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Liaisons		
Brad	Clements*	Former JR Science Operator (JRSO), USA
Tsuyoshi	Ishikawa	Kochi Core Center (KCC) - JAMSTEC, Japan
Dirk	Kroon	IODP Forum chair - University of Edinburgh, UK
Mitch	Malone	JR Science Operator (JRSO), USA
David	McInroy*	ECORD Science Operator (ESO), British Geological Survey, UK
Lisa	McNeill	SEP Co-chair - University of Southampton, UK
Charna	Meth	IODP Science Support Office - Scripps Institution of Oceanography, USA
Clive	Neal	JR Facility Board Chair - University of Notre Dame, USA
Ursula	Roehl	ESO Curation and Laboratory Manager - MARUM, Germany
Gabriele	Uenzelmann-Neben*	ECORD Facility Board Chair - Alfred Wegener Institute, Germany
Observers		
Naokazu	Ahagon	Kochi Core Center (KCC) - JAMSTEC, Japan
Jamie	Allan	National Science Foundation, USA
Carl	Brenner	USSSP, Lamont-Doherty Earth Observatory of Columbia University, Palisades, USA
Mike	Coffin	University of Tasmania, Australia
Takehiro	Hirose	Kochi Core Center (KCC) - JAMSTEC, Japan
Kevin	Johnson	National Science Foundation, USA
Yusuke	Kubo	Kochi Core Center (KCC) - JAMSTEC, Japan
Yangyang	Li	IODP-China Office, Tongji University, China
Harue	Masuda	Japan Drilling Earth Science Consortium (J-DESC) - Osaka City University, Japan
Shouting	Tuo	IODP-China Office, Tongji University, China
Michiko	Yamamoto	IODP Science Support Office - Scripps Institution of Oceanography, USA
JAMSTEC		
Yumi	Ebashi	MarE3 - Secretariat
Nobu	Eguchi	MarE3
Fumio	Ingaki	MarE3
Takanori	Kanai	MarE3
Itaru	Kawama	MarE3
Uiko	Kenmotsu	MarE3
Shinichi	Kuramoto	Director
Yasuhiro	Namba	MarE3
Natsumi	Okutsu	MarE3 - Secretariat
Sanny	Saito	MarE3
Tomo	Saruhashi	MarE3
Sean	Toczko	MarE3
Hiroyuki	Tojo	MarE3
Takehiko	Yano	MarE3

*absentee

Chikyu IODP Board meeting #8
13 - 14 June 2021

Virtual meeting

Executive Summary (List of Consensus Items)
FINAL version approved 10 Aug, 2021

CIB_Consensus_0721-01: Approve agenda.
The CIB approved the #8 meeting agenda with one modification (move the TAT report to the first item for Day-2).

CIB_Consensus_0721-02: Approve minutes.
The CIB approved the minutes of the last CIB meeting with minor grammatical modifications.

CIB_Consensus-0721-03: Japanese commitment to post-IODP program
The CIB confirms that deep-water operations, deep well penetration including sample recovery, and a riser capability are crucial for the successful implementation of the 2050 Science Framework. The CIB requests that MarE3, JAMSTEC, and MEXT explore new business schemes to enable and implement these operational capabilities for future scientific ocean drilling.

CIB Consensus_0721-04: JAMSTEC fleet contribution to Scientific Ocean Drilling (SOD)
The CIB recognizes the outstanding success of IODP Exp. 386 and its collaborative approach for scientific achievement. Similar use of other JAMSTEC vessels may help to implement expeditions as MSPs in the future 2050 Science Framework.

CIB Consensus_0721-05: Suspending Certificate of Conformance (COC)
The CIB acknowledges that suspending the COC retains the possibility of scientific riser operations (including CPPs), but also understands that industry contracts using *Chikyu* for riser operations may no longer be possible in certain areas.

CIB Consensus_0721-06: Potential riserless proposals
The CIB resolves that no new *Chikyu* riserless proposals will be accepted in the current phase of the program; only riserless proposals currently at SEP will be considered for possible implementation in the 2024/2025 operation window(s). The CIB requests MarE3 to add/review the cost category of the existing proposals. The CIB chair and the JRFB chair will discuss potential implementation of some proposals that currently reside at JRFB using *Chikyu*. The scheduling discussion at the next CIB meeting could consider those proposals and current *Chikyu* riserless proposals for implementation.

CIB Consensus_0721-07: Fate of unimplemented riser proposals
The CIB recognizes that the currently accepted but unimplemented/unscheduled deep-riser drilling projects using D/V *Chikyu* will not be completed during the current phase of IODP. Proponents of these proposals will be contacted and informed about this situation. Proponents will need to make revisions that address the 2050 Science Framework for those proposals to be considered in a future post-IODP program, after proposal guidelines for a new program have been established. These revised proposals will be subject to review. The CIB also recognizes the extensive efforts required for developing deep-riser projects and suggests that international workshops be organized to define scientific objectives, success criteria, project risks, and costs for future SOD proposals.

CIB Consensus_0721-08: JRFB WG-SFP report
The CIB receives the JRFB WG-SFP report and agrees with its findings, in principle. The CIB will respond to the findings and questions raised by the report, and share these with the JRFB. The CIB recognizes the importance of careful planning for Science Framework proposals to advance future SOD.

CIB Consensus_0721-09: TAT Report
The CIB receives the TAT and Merlin reports and thanks the team for their excellent and comprehensive review and recommendations concerning Expedition 358 operations, as well as their suggestions regarding future planning of a successful seismogenic zone drilling program at Site C0002. The CIB recommends to MarE3 that these reports be considered in the IODP Exp. 358 operational review (e.g., Operations Review Task Force), and used to plan the next operational steps for NanTroSEIZE deep-riser objectives.

CIB Consensus_0721-10: KCC new repository
The CIB thanks KCC for the comprehensive update on the core repository and applauds plans for expansion of the repository reefers. The CIB recognizes that the international core repositories are essential for the success of the current program and any future SOD program(s).

CIB Consensus_0721-11: CIB rotations
The CIB agrees that the science members will extend their memberships by 1 year, since there were no distinct activities in 2020 due to the COVID-19 pandemic. However, Dr. Ryo Anma will rotate off as planned. All CIB members accepted this rotation schedule.

CIB Consensus_0721-12: Farewell to Ryo Anma
The CIB expresses its sincere thanks to Prof. Ryo Anma for his service as a member of the CIB. His frank and thoughtful opinions and observations will be sorely missed.

CIB Consensus_0721-13: Next CIB meeting
The CIB will look into holding the next meeting in mid-2022, then hopefully in person. The timing will be after the next JRFB (currently scheduled in May), since some outcomes from the JRFB will need to be followed up by the CIB. The exact date will be agreed upon by email after confirming the dates of the JRFB, SEP, and other meetings as well as the progress of the Japanese gas hydrate project.

Chikyu IODP Board #8 meeting
13 – 14 July 2021

Full on-line meeting
0800- 1100 (JST)

Agenda ver.2

Day-1 Tuesday, 13 July 2021

0800-0815 1. Welcome Remarks, Logistics, and Introductions

Chair Nobi Seama welcomed everyone to the online meeting and began the online introductions. Mike Coffin stood in for Leanne Armand for ANZIC.

0815-0825 2. Approval of Previous Meeting Minutes & Agenda

Ryo Anma suggested that his report be given before Agenda Item#8, & move Item#10. Otherwise, Agenda approved "as is". CIB#7 Minutes reviewed and approved. Consensus items from CIB#7 discussed; 0619-05-Riser Proposals will be reviewed again on day 2, and 0619-06 International NanTroSEIZE WS planning by JAMSTEC, status update. CIB should also seek consensus about holding an ORTF for IODP Exp 358.

0825-0840 3. MarE3 Activities Update

Nobu Eguchi gave the MarE3 update; not much activity related to IODP, with the exception of IODP Exp 386, which will be discussed in detail in the ECORD report by Gilbert Camoin. Non-IODP activities for Chikyu include SCORE (similar to JR-100 program) and Japanese Government SIP projects. This includes a system designed to vacuum up seafloor sediments using a modified riser system to 3000 mbsl. From Oct to Nov 2021, we expect to hold the IODP Exp 386 shore sampling party aboard Chikyu, but this depends on the COVID-19 situation, and things have not been finalized yet; we will need to decide this in August. There will be some offshore operations during Dec-Jan and details will be presented during Agenda Item 7.

Achim Kopf confirmed if 386 shore sampling party staffing decision will be made in August. Will this be with fewer international members, or are you planning to postpone this operation? N. Eguchi said this is an ESO decision, but they will likely postpone due to the requirement for specific science specialties.

0840-0920 4. Agencies Updates

a. MEXT

Gen Totani gave the MEXT report. Although funding levels for basic costs remain more or less steady, operations costs need to be addressed. IODP Promotion as Part of the 3rd Basic plan on Ocean Policy (2018-2023). G. Totani read the objectives and targets of the basic plan, and then moved on to the description of the 4th Basic Plan, including Mid-to long-term objectives from April 2019 to March 2026. Totani-san discussed the path forward for the new plan, which includes a review of Chikyu's accomplishments, what needs to be done, the 2050 Science Framework, budgetary constraints, and the post-IODP framework.

b. ECORD

Gilbert Camoin gave the ECORD report. He reviewed the current membership, with all members committed to 2023, and discussions about extending post-2023. Past and potential future members are being contacted about joining, but these efforts were postponed by the pandemic. The UAE has expressed some interests in the consortium as well. G. Camoin reviewed the operations schedule; Exp 377 was moved, Exp 386 was postponed but eventually successfully implemented for the offshore phase by MarE3 and ESO. Future plans include implementing Arctic Ocean Paleoceanography in 2022, and one more in 2023 and 2024. G. Camoin showed the proposals currently at ECORD FB.

G. Camoin moved on to the implementation of Exp 386, reconstructing paleosiesmicity from giant piston core (GPC) samples offshore Tohoku, Japan. This was the first time two IODP platform

operators worked together on a joint expedition, and also the first time using the GPC for IODP. G. Camoin thanked Co-Chiefs Ken Ikehara (J-DESC) and Michi Strasser (ECORD), the offshore science party and EPMs for doing a wonderful job. Operation details, including time breakdown and GPC coring results were shared; all very satisfactory.

ECORD demonstrated the success of working with joint expeditions regardless of technology & drilling environment. These efforts should be only driven by science. We will need a multi-platform implementation in the next phase of scientific ocean drilling, with US, Japanese, & Chinese vessels.

2024 & beyond will be discussed at the next 2 meetings, hybrid meetings in Rome for the IODP Forum & PMO funding agencies, and ECORD/ESSAC meetings in Grenada, Spain.

c. ANZIC

Mike Coffin gave the ANZIC report. ANZIC has received funding through the end of 2022, and are working with the Australian government to gain long-term funding to the end of this program, and hopefully beyond. ANZIC hopes to use a new funding mechanism; the current system through the Australian Research Council is no longer viable, so are working instead on the National Collaborative Infrastructure Research Scheme in our plan to gain long-term funding for Australian/New Zealand participation in scientific ocean drilling.

d. **NSF**

Jamie Allan gave the NSF report. J. Allen started with the NSF presentation made at the JRFB a few weeks ago; talking about the NSF commitment to IODP through 2024, the Dear Colleague Letter, and then how the outcome of these led to NSF thoughts post-2024. NSF is committed to both IODP and the JR through 2024. The pandemic has affected operations, but JRSO has done a great job of adjusting operations. Unspent funds will be applied to future operations. 2024 expeditions will be supported under option year as per JR Consortium Memorandums. The memorandum at this point is not between China, MOST, and NSF, but includes everyone else. It's important to see that we will do as much as possible in 2024. However, this requires contributions from members to do this ─ to 4 operations/year.

Post 2024 scientific drilling targets. Widespread US Oceanographical support for new US drillship. 2050 science framework & NEXT report define science needs, but don't define Science Mission Requirements (SMR). USSSP is the appropriate body to oversee SMR, and USAC will advise USSSP. USSSP will be tasked with forming US committee to identify the highest priority SMR for a US-led science program. This committee will identify drilling capability, lab needs, oceanographic requirements, etc., to define vessel characteristics. Essentially a non-riser, rapid mob/demob, and cost structure roughly similar to the current JR.

After SMR report (Aug 2021) NSF to convene a panel in early 2022 to examine the report & decide on findings. If NSF accepts SMR, will serve as basis for conceptual design in NSF Major Facility Design process. Lease vs. ownership, fiscal guidance, etc., will be decided upon, and these will require external assistance. Vessel acquisition is not guaranteed. Lease vs. buy will be decided after the science requirements/needs are defined. In the NSF, the leasing model is becoming much more challenging to implement. Polar programs are looking for a new icebreaker, and the NSF could follow a similar acquisition model.

These will all lead to the outline for a new US-led drilling program. International interest could come after the program is better defined. USAC is now working on a business model & Engineering working groups.

0920-0940 5. IODP Forum Report

Dick Kroon gave the Forum report. The Forum had 2 meetings last year, with the first on the science framework is a huge success for everyone, and the science community really worked hard to create it. The Forum followed up on this at the last science meeting, led by Anthony Koppers, and the same science leaders who led the science framework. The Forum learned a lot about the aspirations, needs &

desires of the science community; they really want a continuation of the current program, which might not be possible, but we'll see.

The international core repositories are essential for the long-term legacy and the science support. The Forum applauds the extension of the KCC.

There is a lot of enthusiasm for the discussion group formed from the major funding agencies of all IODP partners to discuss potential routes for funding a post-2023 IODP program. This group will meet at the next Forum meeting in parallel with the PMO meeting.

The Forum applauds the JRFB WG for the science framework proposal requirements and assessments. An interim report was presented by Chair Ken Miller at the last meeting & will be described more in detail by Clive. It was very important that there was international input in the new JRFB-WG. There was a lot of important discussion and progress made on rules for future proposal submissions for the 2050 Science Framework. The Forum looks forward to receiving the final WG recommendations at the JRFB in June 2021.

The next Forum will be held in Rome in October. Henk Brinkhuis will rotate on as new forum chair at the next meeting. Everyone will be contacted soon to discuss the new agenda, etc.

0940-1030 6. JRFB Report

Clive Neal gave the JRFB and the JRFB Working Group (WG) reports. The JRFB WG was set up last year to look at the science framework proposal requirements. The SF is very different from the science plan, so a new structure is needed. Ken Miller led this, with members from the other FBs and others - big thanks to Charna Meth for organizing and shepherding this effort. CIB should have received the full report, so it's a good foundation for the next step towards getting these requirements laid out for the community.

C. Neal read out the JRFB-WG-SFP statement of task, recommendations, and findings. The WG considered a US, non-riser drillship only. WG findings & recommendations encourage a single, unified proposal & site review/characterization system. Proposals need to consider costs, success criteria, & risk mitigation; this will need early operator involvement. C. Neal added success criteria and risk analysis are needed to define minimum criteria for success, identify primary risks of failure, and risk mitigations. Doing this will require educating the community; we need examples to guide proponents, and requires earlier operator involvement. A SEP-type entity will nurture proposals and place limits on the number of revisions; instead of de-activation, proposals will be "de-scoped". A SEP-style system works well, and should continue. C. Neal also said cost categories are needed for different operational scenarios; maximum success may require more money, minimum success might be more feasible.

C. Neal discussed Flagship Initiatives (FI), which could be multi-decadal in scope. Workshop reports should become FI guiding documents, and these WS reports become living documents, clearly defining primary science objectives, goals, hypotheses, and scientific milestones. We need success criteria in the proposal, something we've been sorely missing. The current system does not define this well enough, and w need to show we're getting good success for the money invested. Proposals for FIs & Strategic Objectives have the same requirements; only exception is FI links to the objectives & strategies outlined by the FI workshop report. Success criteria to quantify success will be different as well.

C. Neal then gave the report on the June JRFB hybrid mtg; there were 24 consensus items, 11 action items, and the JRFB-WG SEP report. C. Neal updated the JRSO & SSO program plans. JR will stay in the Atlantic, and maybe reach the eastern Pacific by end of IODP in 2024. No new proposals for the JR and the current science plan will be accepted. There are 99 active proposals; and their breakdown was given by science plan theme, by proposal category, and review stage. There are 38 at the JRFB, and 48 at SEP. Since the program is ending in 2023-2024 these are not going to be drilled, so what happens to them when IODP ends? For the 74 active JR proposals as well; the JRFB consensus statements looked at the fate of unimplemented IODP drilling proposals and Orphan Sites, and stated that these can be submitted as revisions following the new 2050 Science Framework (once its' available). These revised proposals will all be subject to review.

Another new WG will follow to develop the draft guidelines for proposals, following up on the JRFB-WG-SFP report. Ken Miller, Charna Meth, and Lisa McNeill will be the nucleus of this effort.

What should be done with existing support structures? The consensus (Consensus Statement 12) on repositories, databases, & data in the post IODP world is that these need to be maintained & preserved. Developing policies and guidelines now.

JRFB is encouraging NSF and JRSO (Consensus Statement 16) to explore possibilities of extending JR operations post 2024 to try to minimize any gap in post JR retirement.

JRFB very grateful to the international science community for the large input to Request For Information (RFI) (Consensus Statement 15) from the international community. This information has already been used for the JRFB WG-SFP report and is being used for the engineering requirements for a new US vessel. More input could be requested as the transition from IODP to the next phase of scientific ocean drilling becomes clearer.

The next JRFB chair will be Larry Krissek from OSU from 1 Oct 2021.

C. Neal shared some details on the 79 RFI responses passed on to the chair, to which was added the category of riser drilling. A breakdown in tables by Strategic Objectives & Flagship Initiatives, Enabling elements, and a Time to Complete was shown. RFI response by researchers with previous proposal experience showed that a lot of early career scientists responded to the RFI, but most were researcher with low numbers of proposals in the system. The RFI responses for Critical Engineering and Technical Capabilities needed for success showed that the most requested item was better core recovery.

C. Neal ended with the JRFB Consensus 5: the JR FY2023 schedule, showing five expeditions are planned.

The CIB chair was happy to see that the RFI showed so much interest in Chikyu.

Donna Blackman started a conversation about how the Chikyu proposal requirements might align or differ from the JRFB WG findings, especially for operator-proponent collaboration on proposal development. Nobu Eguchi pointed out that for Chikyu, MarE3 (old CDEX) appoints a watchdog for proposals at SEP. David Goldberg pointed out that risk assessment for riser drilling with Chikyu is quite detailed and involved.

C. Neal pointed out that this is all very new; looking at your minimum success criteria, how to mitigate/minimize risk, cost, safety, and define minimum success. How can bits be “de-scoped” in order to get the operation implemented. How to define a successful expedition by stating the minimum success criteria. How to get to something that is implementable by the operator. D. Blackman agreed and the NanTroSEIZE Project Coordination Team (PCT) is a good example, but what is CIB lacking here?

Gilbert Camoin said that information exchange among the FBs is needed to develop a better system. Lisa McNeill said the PCT is different than this discussion, since here we want to have the operators and proponents working together from the very earliest stages during the proposal development and make the proponents more careful and aware of the risks & costs. Mitch Malone added that these points were all part of a broader discussion at the JRFB about scheduling operations. If there are clear metrics for the operations, this can affect outreach and the operational planning and execution, even with partial success.

N. Seama paused the discussion to resume the next day, and moved on to the next report.

1030-1100 7. Long Term Strategy for Future Chikyu Implementation (Part 1)

Takehiko Yano presented the Medium to long-term strategy for future Chikyu implementation (2019-2025, or 7 yrs). We are looking for a clear plan for funding Chikyu. Background for Chikyu and Sci Drilling. And then financial issues and funding efforts, especially with the strategy of public-private partnerships. T. Yano reviewed the past history of Chikyu operations (2005-2019), broken down to 50% Refit & Maintenance (R&M), 25% IODP, 25% other operations.

T. Yano summarized the Japanese Gov’t policy (begun in 1998) for Chikyu operations.

T. Yano showed the current Chikyu operation structure scheme - description of the connections, support, and commercial drilling options, both in international (SE Asia) and domestic markets. Domestic markets actually refers to Japanese govt supported natural resource exploration schemes (gas hydrates). Next T. Yano presented a breakdown of Chikyu Basic and Operation Costs. Basic cost is covered by the Japanese Governmental Management Expenses Grant (crew, maintenance, MarE3 admin). Operating, or variable, cost are above that and needed for any expeditions or operations. Commercial drilling allows funds carry over & can also save Basic Costs as a reserve for scientific drilling.

T. Yano moved on to a discussion of possible future operations funding sources. An Ernst & Young financial report (Feb 2021) review reported that "…Chikyu operation scheme must be fundamentally reviewed." Therefore, MarE3 proposes to save costs on R&M, the largest portion of Basic Cost. Regular inspection (every 5 yrs) is required by SOLAS; however a Certificate of Conformity (COC) is required for commercial riser & BOP operations (i.e. subsea equipment). Commercial work needing BOP requires funds for COC. This affects possible revenues when looking for work requiring Riser & BOP. MarE3 plans to minimize BOP & riser costs, rather than abandon them. By 2025, MarE3 plans to avoid funds deficits by minimizing BOP & Riser, and working on riserless operations. According to this, an estimated 30 M USD could be saved for scientific drilling in 5 years. Otherwise, scientific drilling will need to be dropped for that time.

T. Yano presented a tentative Chikyu schedule, without riser or BOP, up to 2025. MarE3 needs three gas hydrate operations to collects funds for 3 months scientific drilling; alternatively, a longer window could be set in 2025, rather than several in 2024.

T. Yano gave an update on the Chikyu task force which has been meeting since 2019, and with the advice of Ernst & Young, have looked at a Public-Private Partnership (PFI) scheme. T In this scheme, a Special-Purpose Company (SCP) gains operating rights, and JAMSTEC only pays operating costs; all else being secured by SPC. This Chikyu PFI model seems feasible & win-win since with the Basic Cost covered by JAMSTEC, the SPC can be competitive in the market. Long-term contracts are attractive but risky due to force majeure and Chikyu breakdown. For this, a substitute rig option can be attractive clause for SPC to use high-spec but idle rigs. T. Yano showed the Pros and Cons of partnership with JAMSTEC. Essentially, in the case of a PFI w/riser & BOP projected revenue stream, and minimized Basic Costs reduced to a minimum of 9M USD/year, with variable cost at +18M USD/year. The main difference comes from economics of scale and bargaining power.

T. Yano shared that in Feb 2021, JAMSTEC upper management decided: (1) that more justification to MEXT is needed to conduct this kind of science over the long-term, (2) they need better discussion of long term Chikyu operations, and explanation to Ministry of Finance, and (3) to dismiss the Chikyu Task Force & await a new management decision. These points above are beyond the purview of the Chikyu Task Force, so we will await the next decision from upper management.

Chair Seama thanked T. Yano and suggested that this report be used as the basis for the following day's discussion.

Jamie Allan thanked T. Yano, and was curious about the commercial drilling plans; he understood that double-blind rams are the new industry standard, while Chikyu only has a single blind ram. How would this affect the pursuit of commercial contracts? This started a discussion about these specs, which were concluded for the day by T. Yano stating that while J. Allan's' understanding is true, in the Asian commercial market, Chikyu's specs were still allowable.

Chair Seama noted these points for further discussion the next day: 1. Is Chikyu crucial for the Science Framework 2050? 2. Is COC suspension a good move for Chikyu operations? 3. Discuss the fate of the riserless proposals in the system for Chikyu – how many are there, do we need more, what options do we have, and how should we proceed? 4. CIB discussion items and the unimplemented Chikyu riser proposals, how to proceed?

Donna Blackman and Gilbert Camoin suggested adding Flagship Initiatives and the Japanese commitment to scientific ocean drilling, for Chikyu or any other JAMSTEC vessels.

Chair Seama agreed and moved to adjourn the meeting for the day.

0800-1000 10. TAT Report

Nobu Eguchi and Clive Neal gave the TAT report, since Keir Becker was having problems with the online meeting system. N. Eguchi started with an overview of the TAT vitual meeting in March and April 2021 and the meeting attendees. The focus of this meeting was the TAT assessment of the Merlin-ERD report on Hole C0002Q+ operations, led by John Thorogood and David Castillo, discuss an updated geomechanics review and drilling assessment, and future re-drilling at Site C0002. The TAT discussed lessons learned and the science concept. N. Eguchi made the Merlin-ERD and TAT reports available for the CIB members.

Clive Neal gave the TAT overview of the report of Hole C0002Q & future objectives. Use the lessons and experience gained at Hole C0002Q to plan and execute future drilling campaigns in the Nankai Trough Subduction Zone. A conceptual plan was presented to MarE3 proposing that TAT and MarE3 prepare a formal report describing the milestones, contingencies, peer-review, operational soundness verification, and staffing a new vertical hole in the Site C0002 area. Essentially, the TAT recommends a new vertical hole targeting the plate boundary be offset (ca. 100-200 m) from the cluster of existing holes at Site C0002 to avoid fractures and bedding plane failure encountered by previous expeditions.

C. Neal gave the engineering and scientific overview of this new hole concept targeting the plate boundary. Engineering would focus on minimizing cost and time with an “engineering hole” quickly drilled to 5100 mBRT through familiar rock. Hole stability would be monitored by LWD, with Real-Time Geomechanical monitoring essential. The remaining ca 2400 m of this new borehole would be the “science hole”, and would follow a similar LWD monitoring suite and coring originally planned for IODP Exp 358.

C. Neal summarized the comparisons between IODP Exp 348 and 358 drilling campaigns. Downhole casing program for different cases (A & B). Proposed 5-8 casing strings for a new attempt. These ideas are presented to kick-start this discussion, but TAT wanted to provide a basis for future development.

The TAT proposed a phase-driven (5 phases) well delivery proposal to be jointly written by TAT and MarE3. One key item missing from the original 358 planning was a better understanding of the damage to the existing borehole. These five phases get into detailed planning and preparation designed to reach the target depth with our new knowledge. In summary, the TAT concludes that the technology exists, and the expertise exists, to allow future successful drilling here at Nankai and on other similar geologies or locations. TAT recognizes that planning & execution will require significant paradigm shift. This formal report by TAT and MarE3 will need to outline the future plans, particularly in terms of milestones for objectives, targets, and science.

David Goldberg moved that the CIB receive and accept the TAT report, and more importantly, what should the CIB do with it? N. Eguchi noted that TAT and MarE3 have not yet fully agreed on the details for future action, but have consensus on the lessons learned. N. Eguchi suggested that is the CIB recommended an ORTF, that might be very useful.

Ryo Anma started a discussion on the proposed new vertical holes’ offset, and noted that there was no discussion of the Kuroshio Current. Were there any plans to mitigate the current? N. Eguchi agreed, but as a natural phenomenon, there isn’t much we can do. Tomo Saruhashi mentioned that Chikyu has successfully drilled in current up to 5 knots, but the external weather conditions (e.g. Typhoons and Cold Front passages) are also very important. C. Neal noted that the proposed offset needs to be backed up with a relook at the seismic data, but whatever the eventual offset, the megasplay fault needs to be within range.

Donna Black noted that the Merlin-ERD and TAT review look pretty comprehensive; would an ORTF just repeat this effort? N. Eguchi noted that the Merlin-ERD and TAT reviews are from an operations perspective, while and ORTF would be from a science perspective. C. Neal suggested that an ORTF could focus on phase milestones and science targets. Lisa McNeill was happy to see this combination of

engineering and science in one go; are there any time or cost estimates yet? N. Eguchi said that would be very tricky at this point, so nothing is prepared yet.

Chair Seama asked D. Blackman and D. Goldberg to put these into a consensus statement, and moved to the next Agenda Item.

1000-1015 8. Long Term Strategy for Future Chikyu Implementation (Part 2)

Discussion Item 1: Japanese commitment to post-IODP
Chair Seama kicked off this discussion with a list of the topic items from the previous day. First discussion point is the Japanese commitment to post-IODP, or Science Framework 2050 (SF2050), scientific ocean drilling (SOD).

Is Chikyu a crucial facility? Donna Blackman stated that "a deep water riser capability" is important for any post IODP program. The discussion turned on the proposed COC relaxation, would having a non-certified riser and BOP affect Chikyu's commitment to SOD? Clive Neal pointed out that the Mohole target requires a riser, and would Chikyu still have that? N. Eguchi and T. Yano both stated that the COC is only a factor for commercial work, and in no way affects SOD capability. David Goldberg asked to confirm this point; without the COC MarE3/JAMSTEC saves money but loses riser capability; there's a lot of objective science in the SF2050 requiring the riser. Chair Seama again confirmed Chikyu's ability to use riser for science. D. Blackman, concerned about who might be reading the CIB consensus items, suggested that the CIB state the need for "deep riser/deep penetration, such as with Chikyu…". There was agreement with this.

Chair Seama asked if the CIB should recommend this to the JAMSTEC President, as well as support for the new business funding scheme? There was general agreement.

Gilbert Camoin suggested that JAMSTEC think about providing other vessels in support of future SOD, to which C. Neal wanted to confirm that this wouldn't remove funding from Chikyu for SOD. Shinichi Kuramoto stated that operations costs for the JAMSTEC fleet are currently being covered. In the case of Kamei MSP model, additional funding came from outside and from in-kind contributions so this model can be maintained. G. Camoin seconded S. Kuramoto's statement, and added that the 386 model is a good future concept; when program members work together, it makes things less complicated. We are all facing the same kinds of financial pressures, and if JAMSTEC is willing to make their vessels available like this, it will be a big boon to the international community. Both D. Blackman and D. Goldberg agreed that this is the kind of "big picture" concept, but the CIB might not have standing to comment on non-Chikyu vessels.

Chair Seama asked if we should look at the new business scheme in detail? Jamie Allan was curious about the MEXT position. It's obvious what the science community wants; my understanding is that the MOF people need to be convinced, so how could this body make a statement that MOF would listen to? Gen Totani agreed, a proper business scheme is needed to convince MOF. We also have to think of the aging Chikyu, other options need to be looked into. S. Kuramoto added that he is working on bringing the need for Chikyu to the relevant Japanese Government agencies.

Chair Seama asked N. Eguchi for a draft consensus for these discussion point, and proposed moving on to the next discussion item. Before moving on, the discussion centered around the wording of "continuous operations" or "continued operations". Lisa McNeill and Achim Kopf both sought to clarify continued vs. continuous; the former was agreed upon.

Discussion Item 2: Suspending COC

Chair Seama opened the discussion on suspending the COC for Chikyu riser drilling. Both Donna Blackman and David Goldberg got confirmation that COC suspension has no effect on future SOD operations.

Discussion Item 3: Chikyu Riserless Proposals

Chair Seama asked if the CIB will want to keep open windows for Chikyu drilling riserless proposals. Katsuyoshi Kawaguchi noted that although the windows are open, there is currently no budget for drilling during them. Nobu Eguchi summarized the open proposals at CIB (Japan Trench), and several others held

at SEEP. There is also an APL (979) at CIB. Lisa McNeill asked if new proposals should be received, and if so, riserless only? N. Eguchi said we are currently open for riserless; only CPPs are accepted for riser proposals. D. Goldberg agreed, since the CIB#7 stated “no new riser proposals”.

This started a deeper discussion about accepting riserless proposals for the open Chikyu windows. Nobu Eguchi noted that the projected budget will only allow riserless operations for these windows. Michiko Yamamoto noted that the only riser proposal at SEP is 805 Umino Mohole, which is only an umbrella and cannot be forwarded from SEP. Chair Seama asked if riserless proposals should be received by the CIB from SEP. Lisa McNeill said that with only riserless on the table, we need to sort out the remaining proposals, and decide how to treat those that will remain at the end of the current program. Clive Neal asked if these would be limited to a particular geographical region, and if so, we should state that explicitly in the consensus. Nobu Eguchi said this means the western Pacific. David Goldberg proposed that the de-scoping process described by C. Neal in the JRFBWG report should start now for Chikyu proposals. Donna Blackman agreed, saying that we should accept no new proposals but review and scope what is in the system; we should not waste people’s time. C. Neal agreed that if we ask people to rewrite their proposals with no real chance of implementing them, this would be bad, and we should manage expectations. C. Neal noted that JR won’t reenter the western Pacific before the end of the current program; maybe some of these riserless proposals could be looked at by CIB? Chair Seama wanted to confirm that this was possible, which C. Neal did.

Chair Seama noted that C. Neal wrote letters to the proponents that not all of the proposals will be drilled by JR before the end of the program; could some of these be moved to CIB? A discussion about the inherent fairness of moving JR proposals to CIB, possibly before Chikyu proposals already at CIB began. D. Blackman noted that we already know that a lot of this will not be drilled by this current program; we need to be open and clear about this; even so, our priority is for the best science, and this should drive decisions more than about who might be in line first.

Takehiro Yano was encouraged by this discussion, and thought that maybe some more room can be made in the available riserless windows to permit more operations; he would work on extending this to possibly four months. Both C. Neal and N. Eguchi were appreciative of this. C. Neal noted that there exists a pool of top-notch science proposals at the JRFB; these are good examples of applying cost categories. We can use these to calculate the fidelity of the operations we could run in the available window. We could have a bigger pool of proposals to pull from, you might be able to do more, since some of these would cost less to conduct than others. And this would let the science under the available costs be done. David Goldberg agreed, these factors could be used to examine the proposals that can be done, based on the operational realities. This should be the job of the CIB & JRFB - this is not inherently unfair; we need these to schedule a ship.

Chair Seama had consensus for a draft on not accepting anymore riser proposals for Chikyu from SEP; if needed, CIB could look to the JRFB pool, if JR will not drill them.

Discussion Item 4: Fate of unimplemented Chikyu Riser Proposals

Chair Seama moved onto the next item, asking what should be done with the three Chikyu riser proposals: Costa Rica (573B-Full4), IBM (698-Full3), and Hikurangi (781B-Full)? Donna Blackman recommended clarity; these are unlikely to be drilled in the next five years. Clive Neal noted that a lot of time at the JRFB was spent discussing this topic of un-implemented proposals. If proponents are asked if they want these proposals considered for the next phase - revision will be needed with updates regarding science and the new science framework. We don’t know what the next guidelines are going to look like yet, so we will send out letters to proponents that won’t get drilled. We need to be honest with the proponents, with no pass-throughs. We don’t even know what the new review process is going to be like. David Goldberg noted that the last CIB had the 573 & 698 proposal proponents submit substantial revisions, but with the commitment to NanTroSEIZE, these were sidelined but kept alive. The other consensus said that deep riser objectives require an international WS. This will change, since none of these riser proposals are going to be drilled by 2025. Maybe the framing will change, but not a different problem.

The conversation centered on honesty and clarity with the riser proposal proponents; and given the uncertainty of the SF2050 process as well, we should communicate with the proponents as soon as we can. Chair Seama asked D. Blackman and D. Goldberg to draft a consensus message.

Discussion Item 5: CIB response to JRFB WG Report

Chair Seama asked if the CIB agreed that the WG findings should apply to the CIB as well? Gilbert Camoin said that this seems like a good idea, but at this stage it is too premature to really discuss. Clive Neal agreed, but said that the JRFB wants to be ready with some positive elements. We want to be ready to provide the community with the guidelines as soon as we can. Donna Blackman agreed that a single rigorous review process makes sense. C. Neal noted that this is the first step, and the JRFB is looking for input; if what's proposed here can be applied to other FBs, then maybe this could help. The funding agencies need to get together to discuss a way forward. The new SF2050 is not just "more of the same". The proposal guidelines being very different is important. This shows the funding agencies that we understand that these are expensive and also the issues that affect the science. This is not business as usual, and this is a start to evolve from.

Chair Seama noted that there seems to be consensus on the CIB receiving and agreeing with the JRFB WG report, and moved to the next Agenda Item.

1015-1030 9. KCC Report

Tsuyoshi Ishikawa gave the KCC report & updates. There are 143 km of cores at KCC, with more JR cores to be delivered to KCC this year along with the MSP cores. The core reefers are approaching max capacity, with the main reefer at 90+%. Old reefers are available, but have no tsunami protection.

T. Ishikawa reminded everyone that the KCC is jointly managed by JAMSTEC and Kochi University, and Kochi U. is preparing a grant proposal to develop a new reefer for the next 25 years of use. This is not easy, so we need support from the IODP community, and KCC appreciates the support from the IODP Forum in their consensus statement.

T. Ishikawa gave an update on sample requests and the impact on these from the COVID-19 pandemic; of course, the number of visitors dropped as well, with KCC being closed for a short time in early 2020.

IODP Exp 386 took over 800 m of GPC cores, and these are much larger than usual IODP cores; this requires modification of the standard core racks.

Chair Seama asked if KCC would appreciate a statement from the CIB in support of their effort to expand core storage; T. Ishikawa was very enthusiastic.

1030-1045 11. Review of Consensus Statements and Action Items

A short review of the consensus statements and wording were discussed, particularly in recognizing the success of IODP Exp 386, and adding the value of JAMSTEC vessels contributions to SOD in the future.

Agreement was reached on the treatment of riserless and riser proposals at CIB, JRFB, and SEP. Proponents should be made aware of the situation up to the end of the current program, and the likelihood of remaining proposals being drilled.

COC impact on SOD should also be made clear to the SOD community.

The consensus items are available elsewhere.

1045-1100 12. CIB Rotations, Any Other Business, and Next CIB meeting

Chair Seama noted that several members are due to rotate off – however, with the impact of COVID-19, he wondered if members due to rotate off would be willing to extend for one year. Ryo Anma was ready to rotate off, however. In general, members agreed to a one-year extension.

Discussion on the next window for CIB meeting hoped that it would be in-person. Dates are not yet clear, but Charna Meth mentioned that the JRFB might be in May, and Lisa McNeill mentioned that the SEP might be in June. The final date was left to be decided via email discussion.

Chair Seama thanked all the participants for their contributions and efforts during this meeting, and adjourned the meeting.