



***JOIDES Resolution* Facility Board Meeting June 23-25, 2021 – San Diego and Zoom**

Roster

Members

James Allan (In Person), National Science Foundation, USA
Steve Bohaty (Remote), University of Southampton, UK
Gilbert Camoin (Remote) ECORD Managing Agency, France
Brad Clement (In Person), *JOIDES Resolution* Science Operator, USA
Mike Coffin* (Remote), University of Tasmania, Australia
Marguerite Godard (Remote), University of Montpellier, France
Gil Young Kim (Remote), KIGAM, Republic of Korea
Larry Krissek (In Person), Ohio State University, USA
Ken Miller (In Person), Rutgers University, USA
Clive Neal, Chair (In Person), University of Notre Dame, USA
Dhananjai Pandey (Remote), Ministry of Earth Science, India
Yan Sun (Remote), Ministry of Science and Technology, China
Ryuji Tada (Remote). Chiba Institute of Technology, Japan

* *Alternate for Leanne Armand*

Liaisons

Gail Christeson (In Person), SEP Co-Chair, USA
Sarah Davies (Remote), ECORD Science Operator, UK
Barry Katz (In Person), EPSP Chair, USA
Dick Kroon (Remote), IODP Forum Chair, UK
Shin'ichi Kuramoto (Remote), *Chikyu* Science Operator, MarE3, Japan
Lisa McNeill (Remote), SEP Co-Chair, UK
Charna Meth (In Person), IODP Science Support Office, USA
Nobukazu Seama (Remote), *Chikyu* IODP Board, Japan
Gabriele Uenzelmann-Neben (Remote), ECORD Facility Board, Germany

Observers

Gary Acton (In Person), *JOIDES Resolution* Science Operator, USA
Carl Brenner (In Person), U.S. Science Support Program, USA
Nobu Eguchi (Remote), *Chikyu* Science Operator, MarE3, Japan
Helen Evans (In Person), IODP Science Support Office, USA
David Goldberg (Remote), U.S. Science Support Program, USA

Bob Houtman (Remote), National Science Foundation, USA
Steve Hovan (Remote), National Science Foundation, USA
Xiaomeng Jie (Remote), Ministry of Science and Technology, China
Kevin Johnson (Remote), National Science Foundation, USA
Yangyang Li (Remote), IODP-China PMO, China
Mitch Malone (In Person), *JOIDES Resolution* Science Operator, USA
Harue Masuda (Remote), Japan Drilling Earth Science Consortium, Japan
Antony Morris (Remote), ECORD Science Support & Advisor Committee, UK
Lorri Peters (Remote), *JOIDES Resolution* Science Operator, USA
Katerina Petronotis (Remote), *JOIDES Resolution* Science Operator, USA
Hao Ran (Remote), China Geological Survey, China
Sanny Saito (Remote), J-DESC Support Office, Japan
Angela Slagle (In Person), U.S. Science Support Program, USA
Karen Stocks (In Person), IODP Science Support Office, USA
Marta Torres (Remote), U.S. Advisory Committee for Scientific Ocean Drilling, USA
Shouting Tuo (Remote), IODP-China PMO, China
Wentao Wang (Remote), Ministry of Science and Technology, China
Tingyu Wen (Remote), IODP-China PMO, China
Michiko Yamamoto (In Person), IODP Science Support Office, USA
Zhaocy Zhang (Remote), IODP-China PMO, China

Consensus Statements

Consensus 1: Next JRFB Chair. The *JOIDES Resolution* Facility Board has selected Larry Krissek as the next JRFB Chair to begin October 1, 2021, in compliance with the JRFB Terms of Reference.

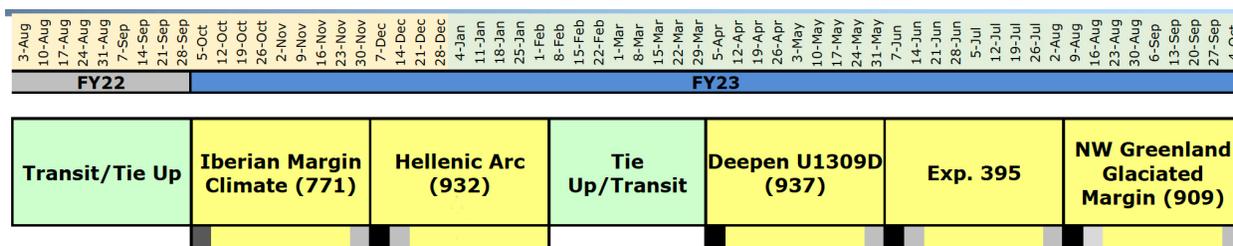
Consensus 2: JRFB Working Group on Science Framework Proposals (JRFB WG-SFP) report. The JRFB receives and accepts the JRFB WG-SFP report presented by Ken Miller, the WG-SFP Chair. The JRFB extends a huge thank you to Ken, Charna Meth from the Science Support Office, and all the WG-SFP members for their hard work and diligence in formulating this initial step in developing guidelines for proposal submissions that address the 2050 Science Framework.

Consensus 2a: Proposal Plain Language Summary. As part of the recommendations in the JRFB WG-SFP was the addition of a Science Communications Plain Language Summary to all proposals to improve science communication. The JRFB recommends the addition of a Science Communications Plain Language Summary to the current proposal requirements for new and revised submissions.

Consensus 3: Approval of SSO FY22-23 Program Plan. The JRFB recommends approval of the FY22-23 Program Plan as presented by the Science Support Office at the June 2021 JRFB meeting.

Consensus 4: Approval of JRFB FY22 Program Plan. The JRFB recommends approval of the FY22 Program Plan as presented by the *JOIDES Resolution* Science Operator at the June 2021 JRFB meeting.

Consensus 5: JOIDES Resolution FY23 Schedule. The JRFB recommends approval of the FY23 schedule for the *JOIDES Resolution*, which will drill Proposals 771, 932, 937, 892 (postponed Expedition 395), and 909.



Consensus 6: Future Calls for Drilling Proposals. As stated in JRFB Consensus Statement 3 from the November 2020 virtual meeting, the number of proposals with the JRFB and at the SEP that would use the *JOIDES Resolution* is more than sufficient to schedule through the end of FY 2024 and the end of the International Ocean Discovery Program. The JRFB will no longer accept any new proposals that address the current Science Plan and want to use the *JOIDES Resolution*. Revisions to proposals already in the system to use the *JOIDES Resolution* and requested by the SEP can be submitted.

Consensus 7: IODP Publications. The JRFB applauds the continued efforts of Lorri Peters and her IODP Publications Services team in promoting and making readily accessible the science results from scientific ocean drilling. We also thank everyone involved for their continued professionalism, innovation, and dedication to publishing IODP science.

Consensus 8: JOIDES Resolution Ship Track. Given that no expeditions have been implemented by the *JOIDES Resolution* for over a year because of the COVID-19 pandemic, the proposal pressure remains in the Atlantic Ocean. Therefore, the JRFB recommends the *JOIDES Resolution* stays in the Atlantic Ocean with the possibility of eastern Pacific Ocean drilling through the end of the International Ocean Discovery Program.

Consensus 9: Fate of Unimplemented IODP Drilling Proposals. It is evident that many proposals currently residing at the JRFB will not be drilled in the International Ocean Discovery Program. The JRFB has concluded that proponents of proposals outside the Atlantic Ocean (including the Mediterranean Sea) and eastern Pacific Ocean (see Consensus 8) will be asked if they want these to be considered for implementation in any subsequent scientific ocean drilling program, realizing that the details of such a program remain to be formulated. Once scheduling options are exhausted within the current program, proponents of proposals at the JRFB in the Atlantic/Mediterranean and eastern Pacific will also be asked if they want these to be considered for implementation in any subsequent scientific ocean drilling program. Proponents wishing to have proposals considered for future implementation will need to submit revisions that follow the guidelines for proposals addressing the 2050 Science Framework, once they are available (see Consensus 13). These revised proposals will be subject to review.

Consensus 10: Orphan Sites. It is evident that the orphan sites that remain at the JRFB will not be drilled in the International Ocean Discovery Program. The JRFB has concluded that the proponents of these proposals should be informed of this situation with options to propose drilling these sites in any future program, once the details of a future program are available. For example, APL-like proposals could be submitted or these sites could be included in a new proposal to a future program.

Consensus 11: Undrillable Proposals. Four proposals at the JRFB have been deemed “undrillable” due to political instability and safety issues. These proposals are 549, 595, 724, and 778. The proponents will be informed that these proposals will not be drilled during the International Ocean Discovery Program.

Consensus 12: Data Repository. The IODP currently maintains critical legacy databases of seismic reflection and refraction data, bathymetry, other geophysical datasets, downhole borehole data, and core data that must be maintained and made available to the scientific community beyond the current IODP. The Science Support Office (SSO) maintains the IODP website, proposal submissions, and proposal review

history, as well as site characterization data including all sites that have been approved by EPSP. The JRFB considers the preservation of these data to be of paramount importance for transitioning into any future new phase of scientific ocean drilling. The JRFB considers it critical that firm plans for the maintenance of these data and further provision of access (including site characterization data currently on “Hold”) to these data be developed.

Consensus 13: 2050 Science Framework Proposal Guidelines. The JRFB supports the formulation of a working group to develop draft guidelines for proposals that will address the 2050 Science Framework, building on the JRFB WG-SFP report (see Consensus 2). The JRFB thanks Charna Meth, Lisa McNeill, and Ken Miller for agreeing to serve on this working group.

Consensus 14: Carbon Sequestration. The JRFB extends sincere thanks to David Goldberg for his presentation on carbon sequestration opportunities for scientific ocean drilling. The JRFB recognizes that these opportunities could facilitate new partnerships and have implications for engineering requirements for any new U.S. non-riser scientific ocean drilling vessel.

Consensus 15: Community Input. The JRFB is very grateful to the international scientific ocean drilling community for the large number of responses to the Request for Information that was sent out after the November 2020 JRFB meeting. The information has already been used to inform the JRFB WG-SFP report (see Consensus 2) and is being used to inform engineering requirements for any new U.S. drilling vessel. It is anticipated that future community input will be needed as the details of transitioning from the International Ocean Discovery Program to a next phase of scientific ocean drilling become clearer.

Consensus 16: JOIDES Resolution Operations beyond 2024. The JRFB encourages NSF and the JRFB to explore possibilities for extending the *JOIDES Resolution* beyond 2024 so as to minimize any gap in operations as a new U.S. drill ship is developed. This is important to keep scientific ocean drilling community interest high and in developing new approaches to and partnerships in addressing our science.

Consensus 17: JRFB Meeting Organization. The JRFB congratulates and thanks the Science Support Office at Scripps for organizing the hybrid June 2021 JRFB meeting. The meeting was run incredibly well and allowed for very good discussion of the issues that had to be resolved. The JRFB could not have discharged its duties without such an efficient and well-run meeting.

Consensus 18: Leanne Armand. The JRFB has missed ANZIC Program Scientist Leanne Armand at this meeting and looks forward to her resuming her participation. We send our very best wishes to her for an expedient return to full health.

Consensus 19: Steve Bohaty. The JRFB is extremely grateful to Steve Bohaty for his excellent service to the *JOIDES Resolution* Facility Board and the International Ocean

Discovery Program over the last three years. Steve's experience with ocean drilling and his attention to the details of operational, scientific, and administrative issues addressed by the JRFB have had a strong positive impact on the program. On behalf of an appreciative international scientific ocean drilling community, we acknowledge the contributions you have made and thank you for your service.

Consensus 20: Dirk Kroon. The JRFB extends heart-felt thanks to Dirk (Dick) Kroon for his vision and leadership as IODP Forum Chair as his term ends on 30 September 2021. His dedication to and passion for scientific ocean drilling has been evident through his invaluable contributions to planning a post-IODP future of our science. His ability to ask the difficult questions and reach consensus involving many different stakeholders has been inspiring and his contributions will be felt for many years to come. Thank you, Dick!

Consensus 21: Bradford Clement. Brad Clement has been Director of Science Services at the JRSO for 12 years and has successfully navigated some turbulent waters during that time. He has done this with indisputable integrity and the international scientific ocean drilling community has been incredibly fortunate to have him at the helm! As he steps down as director in August 2021, the JRFB applauds and thanks him for his service to our science and our community. We wish him all the very best for the next chapter of his life. Congratulations and thank you, Brad!

Consensus 22: Mitch Malone. The JRFB is delighted that Mitch Malone will become the new Director of Science Services at the JRSO in August 2021. We are lucky to have such a gifted individual to fill some big shoes at the JRSO. The JRFB congratulates Mitch on his new position and looks forward to a continuing productive working relationship with the JRSO. Congratulations, Mitch!

Consensus 23: Clive Neal. The JRFB and the entire scientific ocean drilling community are extremely grateful to Clive Neal for his stellar service to the *JOIDES Resolution* Facility Board and the International Ocean Discovery Program, both as a JRFB member and, more recently, as JRFB Chair. Clive's enthusiasm for, and insights into, supporting scientific ocean drilling have contributed significantly both to the recent successes of the present program and to building the strong foundation that has been laid for scientific ocean drilling's future. Clive's ability to lead the JRFB through rapidly changing conditions while remaining positive and focused on long-term goals has been essential to maintaining progress during the challenges of the COVID-19 pandemic. On behalf of an international scientific ocean drilling community that has benefited tremendously from your service, we thank you for your efforts and wish you all success in your future innovative endeavors.

Action Items

Action Item 1: JRFB Working Group on Science Framework Proposal (JRFB WG-SFP) Report. This report should be placed on the IODP website and sent to the EFB, CIB, and all PMOs.
Action by: SSO

Action Item 2: JOIDES Resolution Second Post-Expedition Meeting Proposals. The JRFB Chair will formulate a working group to review second post-expedition meeting proposals that will be forwarded by the JRSO.
Action by: Incoming JRFB Chair

Action Item 3: Fate of Unimplemented IODP Drilling Proposals. The JRFB Chair will write to the proponents of proposals at the JRFB of the mechanism for transitioning unimplemented science to any future program.
Action by: Incumbent JRFB Chair

Action Item 4: Orphan Sites. The JRFB Chair will write to the proponents of expeditions with orphan sites at the JRFB to inform them that these sites will not be drilled in the International Ocean Discovery Program.
Action by: Incumbent JRFB Chair

Action Item 5: Undrillable Proposals. The JRFB Chair will write to the proponents of Proposals 549, 595, 724, and 778 to inform them that these sites will not be drilled in the International Ocean Discovery Program.
Action by: Incumbent JRFB Chair

Action Item 6: Virtual Expedition Working Group. The JRFB Chair will formulate a working group to explore the scope and requirements for developing Virtual Expeditions that could occur in any new phase of scientific ocean drilling. This working group will coordinate with the USAC Legacy Data Working Group and J-DESC.
Action by: Incoming JRFB Chair

Action Item 7: Proposals at JRFB. The JRFB Chair will write to proponents of proposals outside the Atlantic/Mediterranean and eastern Pacific at the JRFB informing them that these proposals will not be drilled during IODP and informing them of the process for transitioning their proposals to a new phase of scientific ocean drilling.
Action by: Incumbent JRFB Chair

Action Item 8: Proposals at SEP. The JRFB Chair will write to the proponents of proposals currently at SEP to inform them of the process of transitioning to the next phase of scientific ocean drilling (see Consensus 8).
Action by: Incumbent JRFB Chair

Action Item 9: Community RFI Initiative. After the success of the Request for Information release after the November 2020 meeting, the JRFB will encourage continued submissions of RFI responses, including encouraging RFI responses for proposals in the current IODP system, requesting PMOs to encourage additional submissions, encouraging RFI responses that focus on long-range vision, and additional ideas related to the new aspects of the 2050 Science Framework (e.g., Diagnosing Ocean Health, Big Data Analytics, multi-expedition projects). It will be important to state that these RFI responses do not have a SEP review and are not required to submit a proposal to any new program.

Action by: Incumbent JRFB Chair and the JRFB

Action Item 10: 2050 Science Framework Proposal Guidelines. The JRFB will create a working group to develop draft 2050 Science Framework Proposal guidelines. Ken Miller, Charna Meth, and Lisa McNeill will form the core of this working group.

Action by: Incoming JRFB Chair

Action Item 11: Science Communication Plain Language Summary. Proposals submitted or resubmitted to SEP should have a Science Communications Plain Language Summary added to them to improve science communication.

Action by: SSO and SEP Co-chairs

Meeting Notes

1. Welcome and Logistics

The *JOIDES Resolution* Facility Board (JRFB) chair, Clive Neal, called the meeting to order with a welcome and asked attendees to give self-introductions. Clive reviewed the hybrid meeting format, the consensus statements and action items from 2020 JRFB meetings, and the current agenda.

2. Next JRFB Chair

With Clive's term ending in September, the JRFB members selected Larry Krissek as the next JRFB Chair. Larry's three-year term will begin October 1, 2021. Clive will begin working with Larry on transition items.

3. National Science Foundation Report

Jamie Allan stated that the National Science Foundation (NSF) is committed to IODP and the *JOIDES Resolution* through the end of FY24. FY24 expeditions can be supported under the option year in the *JOIDES Resolution* Consortium memorandums, but NSF does need contributions from members for a full year of operations. NSF sent a letter to the *JOIDES Resolution* Consortium partners about new billing procedures; contributions should now be paid directly to the U.S. Treasury instead of to the NSF Trust Fund account.

NSF is grateful for the efforts of the *JOIDES Resolution* Science Operator (JRSO) to operate during the COVID-19 pandemic and agrees with the plan for a reduced science party in the near future. NSF provided the JRSO with guidance of \$65M for FY22 but expects to be able to support the \$67.2M program plan with unspent funds from previous fiscal years.

NSF issued a Dear Colleague Letter (DCL) last year to request expressions of interest in a globally ranging drillship. Based on the responses, NSF decided that the provision of a state-of-the-art, globally ranging, scientific drillship for possible future international scientific ocean drilling programs will ensure that the United States is able to continue providing support for fundamental geoscience research while welcoming and capitalizing on the globalization of science and engineering, which is one of the leadership elements identified in the National Science Board's Vision 2030 report. However, the lack of financial expressions of interest from IODP partners prevents the continuation of a unified IODP-style program. NSF is considering a U.S.-led program with international contributions.

The next steps in planning for a new drillship are to define the Science Mission Requirements (SMR). NSF will task USSSP with forming a U.S. committee to recommend SMRs to NSF using the NEXT Report, the 2050 Science Framework, and the submitted responses to the JRFB's Request for Information. The SMRs will serve as

the basis for a conceptual design for a new drilling vessel. Leasing a ship may be difficult, per new guidance from the Office of Management and Budget; NSF is analyzing the guidance to determine a path forward.

The JRSO expressed extreme disappointment that leasing may not be a viable option, as leasing was listed as an acceptable model in the DCL. Siem Offshore was willing to fully front the cost of a new vessel with only a 12% increase in operating costs relative to the current vessel.

JRFB members asked about the number of possible expeditions for FY24. Jamie explained that there will be a five-year drydock of the *JOIDES Resolution* at the beginning of FY24 to enable the ship to be used in the future, including FY24. The drydock time will put a limit on the possible number of expeditions. Partner contributions will be key to the rest of the schedule. Gilbert Camion confirmed that ECORD will contribute to FY24.

Continuation of the *JOIDES Resolution* beyond FY24 will depend on budget limits, NSF policies, current awards and contracts, partner contributions, and outcomes from the drydock inspections. JRSO commented that Siem Offshore will likely feel disincentivized to extend their current contract or invest in continued operations of the *JOIDES Resolution* if leasing a future ship is not an option for a future program.

JRFB members asked when NSF expects a new program to begin. Jamie responded that a new program cannot be defined until a potential new ship enters a conceptual design stage and until the financial partners are better understood. Jamie expects a gap between programs, with FY28 or FY29 as the earliest possible operational date. NSF is hoping to move into the conceptual design stage for a potential new vessel within the next year. NSF would like to have a day-long meeting after the next IODP Forum with just government funding agency representatives to discuss a path forward.

4. JOIDES Resolution Science Operator Report

Brad Clement presented the JRSO's response to the COVID-19 pandemic, which included the development of a their COVID Mitigation Protocols Established for Safe *JOIDES Resolution* Operations (COPE) and expedition adjustments due to travel and port restrictions. Five expeditions were postponed, but the JRSO was able to make operational progress with Expedition 384 (Engineering Testing), Expedition 390C and 390E (South Atlantic Transit Re-entry Systems), and Expedition 395C (Reykjanes Ridge). Brad expects that Expedition 396 (Mid-Norwegian Continental Margin Magmatism) will sail with a reduced science complement and that Expedition 391 (Walvis Ridge Hotspot) will have a full science party. Two sample parties were implemented at the Gulf Coast Repository without scientists, and two post-cruise editorial meetings were held remotely. Extensions to the moratorium periods will be necessary.

The JRFB asked about the JRFSO's ability to keep technical support staff during the COVID-19 pandemic. Some people have left, but the turnover rate has not significantly changed. Travel issues for visa holders have been burdensome. Clive thanked the JRFSO for their phenomenal effort over the past 16 months. Yan Sun expressed support for completing five to six expeditions in FY24; Brad stated that operational and technical issues normally make more than five expeditions in a year difficult.

5. ECORD Facility Board Report

Gabi Uenzelmann-Neben provided the ECORD Facility Board (EFB) report and update. Michele Rebesco is a new member of the ECORD Facility Board, replacing Gilles Lericolais, and Alexandra Turchyn will become the EFB vice-chair in January 2022. The terms of Yasuhiro Yamada and FengPing Wang have been extended for one year. Gabi provided an overview of the mission-specific platform (MSP) proposals at the Science Evaluation Panel (SEP) and EFB. Expedition 386 (Japan Trench Paleoseismology) recently finished drilling and used the JAMSTEC *Kaimei*. Despite difficult weather conditions, the expedition cored 15 sites in water depths ranging from 7,445 to 8,023 mbsl, including the deepest site ever cored at 8,023 mbsl. EFB, ECORD, and MarE3 all praised the successful collaboration. Planning for Expedition 377 (Central Arctic Paleooceanography; ArcOp), which will take place in 2022, is well underway with the call for scientists complete. Gilbert Camoin added that there will be a team onboard ArcOp to make a TV documentary. Upcoming Magellan Plus workshops will be dedicated to generating MSP proposals. The next EFB meeting will be held in September 29-30, 2021, in a hybrid format with the in-person participants meeting in Trieste, Italy. The EFB will discuss, among other items, the process for accepting proposals to address the 2050 Science Framework.

The JRFB asked how proponents are responding to providing different implementation plans for MSP proposals, per the new IODP Proposal Submission Guidelines. Gabi replied that only one proposal was written under these guidelines, and that more education is needed.

6. Science Support Office Report

Charna Meth outlined the major tasks of the IODP Science Support Office (SSO), reviewed accomplishments from the past year, and presented the SSO's program plan for FY22 and FY23. Charna summarized there are currently 99 active proposals in the IODP proposal system, and that the proposals are split about evenly between SEP and the facility boards. The majority of the proponents are from ECORD countries, and the majority of proposals request to use the *JOIDES Resolution*. Over the past year, the SSO launched a new seismic association tool, streamlined requirements for metadata, and revised the data submission workflow process. In addition to the SSO's standard work, the office also supported the JRFB Working Group on Science Framework Proposal Requirements and Assessments, collected and analyzed responses to the JRFB's Request for Information, and hosted informational webinars for proponents submitting to the SSDB. The majority of the SSO budget is for staff salaries, and the

overall budget has decreased from the previous year due to a change in the staffing approach.

When the community and funding agencies are ready, the SSO can revamp the Proposal Database (PDB) to support collection of proposals that support the 2050 Science Framework. The SSO will first need clear directions on proposal requirements and timeline. The SSO sees this revamp as an opportunity to update the underlying architecture of the PDB to be more flexible, allowing for more efficient support of evolving programmatic needs.

NSF also sees the SSO's PDB, SSDB, and website as an important repository of data information and sees value in ensuring access to these in the future. NSF will have to re-compete the SSO for long-term work, but NSF may consider extending the current award for one year. It is unclear if services provided by the SSO will be available to other platform providers in the future. It may be feasible during a transition period for the SSO to ask proponents who have put a hold on data if it can be released.

The JRFB recognizes that other critical legacy material (e.g., core repositories, publications) exist outside of the SSO. The JRFB will discuss the continued accessibility of these items at a future meeting.

8. USAC Report

Marta Torres is the current chair of the U.S. Advisory Committee for Scientific Ocean Drilling (USAC), and Rebecca Robinson will become the new chair on October 1. USAC summarized the activities of four new USAC working groups: Facility Business Plan Working Group, Legacy Data Working Group, E&O Workshop Steering Committee, and the Science Framework Communications Working Group. The Facility Business Plan Working Group was tasked with exploring new and innovative models for potentially operating a globally ranging U.S. scientific ocean drilling vessel; their report will be made public. The Legacy Data Working Group will generate strategies for using available legacy cores and data to advance scientific research questions, through a range of data-focused research projects. The E&O Workshop Steering Committee was asked to plan and organize workshops that emphasize increasing interest in ocean drilling science, especially among diverse groups. The resulting three IMPACT Workshops are being held online this summer and will provide a foundation for a large in-person workshop. The Science Framework Communications Working Group is compiling informational materials focused on the vision of scientific ocean drilling as described in the 2050 Science Framework. The USSSP Ocean Discovery Lecture Series for 2020-2021 was disrupted by COVID-19 and some of the speakers will give their presentations during the 2021-2022 series.

Marta discussed U.S. involvement in the UN Ocean Decade, including submission of an Ocean Shot to the U.S. National Committee. Following application by NSF, the UN Ocean Decade has also endorsed IODP as a Decade Action.

To increase visibility of the program, USSSP is hosting a series of townhalls to address the current state of IODP's future. Throughout the meeting, the JRFB was supportive of USSSP holding a community townhall to present what is currently known about the next phase of scientific ocean drilling. Jamie could update the community about the SMR timeline and steps thereafter. Ken could present the report from the JRFB WG-SFP, and he could discuss the next steps in drafting proposals guidelines for a non-riser vessel.

9. IODP Publications

Lorri Peters provided an overview of the JRFB Publication Services. Over the past year, Lorri's team has provided publishing services to all IODP platform operators and the IODP Oman Drilling Project. Two post-cruise editorial meetings were held virtually, which lasted for several months. There have been 2,584 peer-reviewed publications, with 67,432 citations, related to IODP expeditions. Three publications from Expeditions 364 have particularly high Altmetric scores. Lorri discussed Publication Services's work to increase discoverability of IODP publications, including efforts and/or collaborations with the NSF Public Access Repository, ScienceOpen, Scopus, Google Scholar, Semantic Scholar, Microsoft Academic, 1findr (Elsevier), and the AGI Citation Database. The IODP publications website expanded its metadata, improved html versions of IODP publications, added a browse-by-topic page, and created a new data report submission and review page. The JRFB was impressed with the incredible amount of resources Lorri provided and thanked her and her team for their endeavors.

10. EPSP Report

Barry Katz presented a summary of the February 2020 Environmental Protection and Safety Panel (EPSP) meeting. He began by thanking the SSO for facilitating the EPSP's online meeting and for introducing tools that helped the EPSP effectively communicate in the virtual space.

At the February meeting, EPSP conducted three reviews (Proposals 937, 921, and 895) and one preview (Proposal 985). Barry discussed EPSP's review approach, the goals of a preview, and that the EPSP sometimes approves areas (e.g., boxes, ribbons, polygons) for approval instead of specific sites. EPSP will begin requiring proponents submit their safety review report about two months before an EPSP meeting. EPSP will check the packages for completeness and ask for revisions as necessary. The next EPSP meeting is scheduled for late February 2022.

11. SEP Report

Co-chairs Lisa McNeill and Gail Christeson outlined the Science Evaluation Panel (SEP) report, noting SEP procedures and terms of reference, and reviewing outcomes from the past year. They also thanked the SSO and Angela Slagle for helping their virtual meetings run effectively. Lisa and Gail then briefly presented overviews of the proposals available to the JRFB for scheduling. At the next SEP meeting, the panel will

consider six proposals that were externally reviewed, four revised proposals, the first Land-2-Sea proposal, and five new proposals (three pre-proposals, one full proposal, and one APL).

12. Expedition Scheduling

Clive summarized the JRFB's past scheduling decisions due to the COVID-19 pandemic and recent discussions concerning potential expeditions in Brazilian waters. Jamie stated that proposals in Brazilian waters could only be considered if the Government of Brazil explicitly states to NSF that the expeditions will be given clearance for operations, that all samples taken during the expeditions are the sole property of the U.S. Government, and that all samples taken during these expeditions will be allowed to be immediately shipped to the United States with no holding period in Brazil.

Mitch Malone presented options for scheduling FY23 expeditions by taking into consideration weather windows, logistical issues, amount of transit, and likelihood of clearance approval. The overall scheduling approach was designed to maximize science while minimizing risks given the uncertainties with FY24 operations.

The JRFB discussed the options multiple times over the course of the meeting, with consensus forming on Proposals 771, 932, 937, 892 (postponed Expedition 395), and 909. Given the geographic location of the remaining proposals, the *JOIDES Resolution* is expected to remain in the Atlantic Ocean and eastern Pacific Ocean in FY24.

13. Chikyu IODP Report

Nobi Seama summarized Japan's support for the next phase of scientific ocean drilling, the 2050 Science Framework, and the JRFB WG-SFP. He stated that Japan supports the continuation of scientific ocean drilling with an international and multi-platform approach, and they recognize *Chikyu* as a crucial facility. Over the past year, MarE3 supported Expedition 386 (Japan Trench Paleoseismology) with *Kaimei* in collaboration with ECORD. The onshore science party will be held on *Chikyu* from early October to mid-November. Implementation of additional proposals during IODP could be difficult due to budget constraints, but future collaborations for drilling, site surveys, or other work may be possible with *Kaimei* or other ships.

The Kochi Core Center (KCC) is 90% full, but they are preparing a funding proposal to expand the facility. Jamie expressed NSF's gratitude to JAMSTEC for stewardship of DSDP, ODP, and IODP cores stored at KCC. NSF intends to visit KCC to begin discussions about how to ensure continued archiving of these cores and associated data for the future.

The next *Chikyu* IODP Board Meeting will be held July 13-14 online.

14. IODP Forum Report

Dick Kroon presented the consensus statements from the IODP Forum meeting held April/May 2021, which focused on implementing the next phase of scientific ocean drilling, applauding the KCC, endorsing funding agencies to meet, and receiving the draft JRFB WG-SFP report. The next IODP Forum meeting will be held in Rome, October 11-12, 2021, with the PMOs and funding agencies meetings on October 13. Dick's term will end in September, and the next IODP Forum chair should be determined soon. The JRFB sees the in-person meeting of the funding agencies as critical to moving discussions forward about the next phase of scientific ocean drilling.

15. RFI Responses

Clive presented a summary of the 79 responses submitted to the JRFB's Request for Information (RFI). The RFI was designed to inform planning for the next phase of scientific ocean drilling, including proposal requirements and capabilities for the next U.S. drillship. The responses are representative of the broadness of the 2050 Science Framework, showing interest across the strategic objectives, flagship initiatives, and enabling elements. Most of the responses were to use a non-riser platform (62%), and about half included the Pacific Ocean. Twenty-two of the RFI's were submitted by early career researchers. Improved core recovery was the most frequently mentioned needed critical capability.

Ken noted that a recommendation from the WG-SFP is to encourage proponents with proposals in the IODP system to submit RFIs. The JRFB participants agreed that collecting additional information could be beneficial if the questions or prompts focus more on long-term planning and gaps in the current responses (e.g., addition critical needs, societal relevance of potential drilling expeditions, potential new partners and communities). Others were concerned about community fatigue; a second RFI or an update to the current RFI would need to be very specific explicit in its objective.

16. JRFB Working Group on Science Framework Proposals Report

Ken Miller provided a summary of the final report of the JRFB Working Group on Science Framework Proposal Requirements and Assessments (WG-SFP). Ken reviewed the working group's statement of task and key conclusions. The WG-SFP concluded that the current proposal submission and evaluation system contributed significantly to the scientific strength and international success of IODP, and they encourage the next phase of scientific ocean drilling to continue to implement a single, unified proposal and site characterization review system. The WG-SFP recommended additions and modifications to address new aspects of the 2050 Science Framework, as well as a potentially new funding environment and management structure. These additions are outlined in the report provided to the JRFB participants.

The JRFB supported implementing the Science Communications Plain Language Summary in the current program for incoming and resubmitted proposals. Some of the

JRFB participants were not supportive of the community beginning to hold Flagship Initiative workshops now because so little is known about the next phase of scientific ocean drilling; others thought these workshops could be useful for planning science and engaging the community during a hiatus in scientific ocean drilling operations.

The JRFB agreed with the recommendation in the WG-SFP report that the next step is to write draft proposal guidelines, but with the understanding that the guidelines could change based on the structure of the next phase of scientific ocean drilling. The guidelines will currently only take a non-riser vessel into consideration, although aspects of the guidelines might be useful for other platforms as all platforms will be focused on the 2050 Science Framework. The draft guidelines should be shared with the broad scientific community for comment and input. Ken, Lisa McNeill, and Charina will initiate the process and complete the initial draft by January 2022.

17. Fate of Unimplemented Science Plan Science

The JRFB held a lengthy discussion about the fate of proposals for the *JOIDES Resolution* that will not be implemented during IODP. Recognizing that little is known about the next phase of scientific ocean drilling, the JRFB focused on how to provide proponents with clear messages about the current path forward while acknowledging that the situation will continue to evolve. Ultimately, NSF will determine how and if proposals will move between programs, but the JRFB will provide NSF with recommendations.

During the discussion, the JRFB considered whether all undrilled proposal at the JRFB should be declined or forwarded to a future program, or whether a third option could be developed. The JRFB acknowledged that declining all proposals could disenfranchise proponents whose proposals are at the JRFB. While a straight transfer of proposals seems unfeasible, having proponents revise their proposals would provide the opportunity to account for new science, the 2050 Science Framework, and potential new ship capabilities. These revisions would be reviewed by a future program and could set the proponents on a shorter path than starting with a fresh proposal.

Regarding proposals at SEP, the JRFB believes that these proponents should start fresh in a new program. Some JRFB meeting participants supported continuing to review SEP proposals as long as there is a chance of being drilled in IODP. Keeping the proposals active provides valuable feedback to proponents that could help them in the next program and having an active IODP proposal under review helps proponents who are seeking to raise funds for site survey cruises.

It is currently clear that some proposals that are at the JRFB (e.g., those with orphan sites, those with security concerns, those far from the current ship track) are not going to be drilled during IODP. This information should be communicated to the proponents, along with appropriate next steps, as presently known.

18. Call for Proposals

Given the abundance of proposal in the system, the JRFB will not accept any new proposals or APLs for the October 1, 2021, submission deadline. Revisions to proposals in the system may be submitted, including proposals moving from the pre-proposal stage to the full proposal stage.

The JRFB will consider the April 1, 2022, deadline after both the October 1, 2021, submission deadline and October funding agency meeting. This timeline will allow the JRFB to provide appropriate review guidance to SEP for their January 2022 meeting.

19. JRSO Draft FY22 Annual Program Plan

Bard Clement presented the JRSO Annual Program Plan for FY22. Due to the COVID-19 pandemic, the FY22 program plan is very similar to the FY21 program plan. All of the planned expeditions are Category 1 in cost and some of the hardware is already in place. The largest portion of the JRSO budget is the ODL subcontract. The budget is higher in FY22 than FY21 due to an increase in fuel costs, increase in day rates (which are tied to inflation), COVID-19 safety protocols, and changes in the way some staff salaries are categorized (indirect vs direct costs). The JRSO had to adjust some of the transits due to pandemic-related travel requirements, and the JRSO is appreciative of Siem Offshore for their support with Norwegian regulations, which allowed the *JOIDES Resolution* to make port calls in Norway. The higher costs will be covered by savings from previous years.

Effective September 1 with Brad's retirement, Mitch Malone will become the new JRSO Director, Gary Acton will become the new JRSO Assistant Director, Katerina Petronotis will become the Manager of Science Operations, and Leah LeVay will become the Supervisor of Science Services. The JRSO will update the draft FY22 program plan based on the FY23 approved schedule if there are any long-lead items that need to be purchased in FY22.

Jamie commented that before approving funding for FY22, NSF requires a demonstration of adequate funding for the first three months of the fiscal year. Jamie has sent bills to the *JOIDES Resolution* Consortium Partners and encourages them to contribute in a timely manner so that he can meet this 90-day requirement. Jamie cannot demonstrate adequate pre-funding without those contributions.

20. JOIDES Resolution Second Post-Expedition Meeting Requirements

Clive reviewed the second post-expedition meeting (SPEM) requirements, which were previously approved by email. The requirements state that requests for a SPEM will be reviewed by a JRFB working group that will be set-up by the JRFB Chair.

Katerina Petronotis then presented an overview of the timing and purpose of the second post-expedition meetings, which have been extremely useful in promoting the success

of expeditions. SPEM meeting requests for *JOIDES Resolution* expeditions transferred to the JRSO after the closure of IODP-MI. The JRSO generally uses IODP-MI guidelines (e.g., cost and location considerations) in evaluating these requests. In the past couple of years, however, concerns have been voiced to make even better use of available funds for these meetings, and hence the need for JRFB input. Jamie added that NSF sees these meetings as outside of IODP and that JRFB endorsement is important for PMO funding participants.

Larry suggested that the JRFB constitute a small working group (e.g., one person to represent the science, one to represent the PMOs, and one to represent the funding agencies) for reviewing these requests. There would be an inherent review from the JRSO before the request is sent to the JRFB. Larry will organize the SPEM working group.

21. Post-2024

There will be a programmatic gap between IODP and the next phase of scientific ocean drilling operations. The JRFB discussed ways to minimize this period and explore new partnerships and research pathways that could be used to continue ocean drilling research during any operational hiatus. The JRFB also reiterated to NSF that they are available to help NSF with any other activities as needed.

- a) Extending the *JOIDES Resolution*: The JRFB explored possibilities for extending the current *JOIDES Resolution* contract with ODL, which terminates at the end of FY24. NSF cannot extend the JRSO award by more than a year or two without permission from the National Science Board. A new contract with ODL on a time scale of less than five years would likely increase the day rate (up to about as much as the rate for operating a new ship). ODL may be willing to negotiate a new contract; they may not. A decision about extension is needed soon because the intended operational lifespan of the *JOIDES Resolution* will affect work for the upcoming drydock.
- b) Funding – *JOIDES Resolution* Consortium Partners: If operating the *JOIDES Resolution* beyond FY24 is possible, funding issues will remain. The MOUs that form the basis of IODP's international partnership will end. New partnerships and a new funding structure would need to be explored and formed. ECORD is open to having these conversations.
- c) Funding – Potential New Partnership with NASA: Clive is exploring partnerships with NASA and the European Space Agency. NASA is interested in holding a joint workshop.
- d) Funding – Potential New Partnerships in Carbon Sequestration: Dave Goldberg discussed opportunities for scientific ocean drilling in carbon capture and storage (CCS) research and the ship capabilities that would be required for these opportunities. He did not discuss specific funding partnerships, but stated that

CCS is a major global business, making it ripe with opportunity. Barry added that industry is actively working in CCS research and looking to make quick gains. If a project could get to a pilot stage quickly, funding from a company like Chevron might be possible.

- e) Activities – USAC Legacy Data Working Group: USAC's Legacy Data Working Group is exploring (1) holding a workshop in 2022 that will summarize current databases that serve scientific ocean drilling data with the goal of facilitating access beyond IODP, and (2) assessing the potential for developing research projects that involve the synthesis and integration of existing samples and data. The working group will provide recommendations to USAC that could be used to develop during a gap period.
- f) Activities – Virtual Expeditions: Virtual expeditions that use existing data and cores to focus on critical science questions could keep the community engaged during a period of non-drilling while stimulating new drilling proposals. A working group could explore this concept further (e.g., formation, review, funding) and could collaborate with the USAC Legacy Data Working Group and other communities working on similar concepts (e.g., National Center for Ecological Analysis and Synthesis). The first step is to write a statement of task for such a working group.

22. Meeting Close and Other Business

The JRFB reviewed the draft consensus statements and action items. Clive stated that he will circulate the drafts for additional comments from JRFB members and will ask for approval by email (the approved versions appear in these minutes). Charna will poll JRFB members to determine dates for the May 2022 JRFB meeting.

Mike Coffin reported that the AGU Tiara International Scientific Ocean Drilling Research Prize received a strong slate of nominations, and that all the nominees were female. The Taira Prize Committee has recommended a recipient to AGU. He thanked everyone for encouraging nominations.

Larry closed the meeting by thanking everyone for participating in person and from around the globe. The active involvement from different time zones is a strong indication of the strength of IODP's international community.