

**JOIDES Resolution Facility Board (JRFB) Meeting:
16-17 May 2017 - Arlington, VA USA**

Summary of Consensus Statements and Action Items

Consensus Statements

Consensus 1

The JRFB approves the Agenda for its 16-17 May 2017 meeting.

Consensus 2

The JRFB approves the May 2016 JRFB Meeting Minutes with no changes.

Consensus 3

The JRFB approves the following updated policies and guidelines:

- IODP Proposal Submission Guidelines (17 May 2017)
- IODP Guidelines for Site Characterization Data (17 May 2017)
- *JOIDES Resolution* Conflict of Interest Policy and Implementation Guidelines (17 May 2017)
- JRFB Terms of Reference (17 May 2017)
- *JOIDES Resolution* Standard Measurements (17 May 2017)
- *JOIDES Resolution* Staffing Procedures (17 May 2017)

Consensus 4

The JRFB provisionally approves the new **Standard IODP Confidentiality Policy** (17 May 2017), which supplants both the previous IODP Proposal Confidentiality Policy (February 2015) and the previous IODP Site Survey Data Confidentiality Policy (February 2015). The new policy will be considered for final approval (via email) at a later date, following the recommendations of an **Ad-hoc Workgroup**, which is charged with providing a definition for the “minimum data” requirement principle in the Standard IODP Confidentiality Policy. This working group consists of Anthony Koppers (JRFB Chair), Sean Gulick (SEP Co-chair for site characterization), Mitch Malone (JRFSO Representative), Barry Katz (EPSP Chair), Jamie Allan (NSF), Karen Stocks (SSO IT Specialist), and Holly Given (SSO Director).

Consensus 5

The JRFB approves the new **Use of Limited Non-Disclosure Agreements in IODP Policy** (17 May 2017), which governs the limited application of these agreements between data owners, the proponents, and the IODP Science Support Office and/or IODP Science Operator.

Consensus 6

The JRFB recommends Proposal 902 (Iceberg Alley Paleoceanography) including APL 846 (Falkland Water Depth Record) for scheduling in the second half of FY19, following Expedition 379 (Proposal 839: Amundsen Sea West Antarctic Ice Sheet History). This

will be followed by Proposal 912 (Drake Passage Paleoceanography) and a transit from the Southern Ocean to the Gulf of California, during which engineering tests and APL 769 (Costa Rica Crustal Architecture) are carried out. Furthermore, the JRFB recommends the scheduling of Proposal 833 (Guaymas Basin Activity) in the beginning of FY20, followed by a transit to the Gulf of Mexico and a one-month tie-up period for *JOIDES Resolution* maintenance and repairs. Following a two-week preparation time window, the JRFB recommends the scheduling of Proposal 887 (Gulf of Mexico Methane Hydrate). Finally, the JRFB recommends the scheduling of at least one expedition in the western tropical Atlantic in FY20. The expectation of the JRFB is that there will be in total 10 months of operations in FY20.

Consensus 7

The JRFB recommends the immediate formation of a “Deep Crustal Drilling Engineering” workgroup at the *JOIDES Resolution* Science Operator (JRSO) with representatives of the JRFB and JRSO, Siem Offshore drilling engineers, and the principal proponents, in order to review the results of Expedition 360 “SW Indian Ridge Lower Crust and Moho, Leg 1” and Expedition 355 “Superfast Spreading Rate Crust, Leg 4” and make recommendations on how to successfully achieve drilling, coring, and logging deeper than 1.5 km into ocean crust hard rock environments. The JRFB will be represented by Clive Neal (workgroup chair), Mike Coffin, and Wolfgang Bach. The JRSO will be represented by Mitch Malone and Jay Miller. Other interested parties within IODP, such as engineers from JAMSTEC, will be invited.

Consensus 8

The JRFB reaffirms that the *JOIDES Resolution* will fulfill at least a single global circumnavigation of the oceans by 2023.

Consensus 9

The JRFB affirms that, based on current and anticipated proposal pressure, the *JOIDES Resolution* will follow a path from the Gulf of Mexico in FY20 to the South Atlantic for starting drilling in this region. The JRFB expects that the *JOIDES Resolution* will start to operate in the general area of the Equatorial and North Atlantic, Gulf of Mexico, Mediterranean, Caribbean and the Arctic in FY21 and through FY22. Furthermore, the JRFB expects that the *JOIDES Resolution* will complete its global circumnavigation in the Indo-Pacific region in FY23.

Consensus 10

The JRFB is very pleased with the results and recommendations presented in the FY16 Co-chief Scientists Report and the FY16 JRSO NSF Site Review Report (February 2017). Both reports point out the outstanding operation, very capable management, and highly significant and operationally critical engineering improvements of the *JOIDES Resolution* facility by the JRSO. In addition, the JRFB fully supports the conclusions and recommendations by the NSF in their response to the FY16 reports, in particular to have the JRSO develop a long-term plan for the continued accommodation of cores in the Gulf Coast Repository.

Consensus 11

The JRFB affirms its long-term goal to maintain the *JOIDES Resolution* facility and the Gulf Coast Repository as a state-of-the-art “floating Earth science laboratory” that is up-to-date with current analytical equipment, software, and databases, while adding new standard shipboard and onshore analytical capabilities, if required by a demonstrable need of the larger IODP science community.

Consensus 12

The JRFB finds that a closer coordination between expedition science objectives and both the education and outreach programs is warranted, including the participation of seagoing educators, videographers, and other education and/or outreach officers. The JRFB supports the plan to discuss the role of education officers and/or outreach officers during the 2017 IODP Forum and Program Member Office (PMO) meetings in Shanghai, China.

Consensus 13

The JRFB supports the JRSO scheduling engineering testing during transits on an as needed basis. Mechanisms for assessing the readiness of tools and other engineering innovations are required and, when proven ready, scheduling their testing at-sea with minimal impact on science is necessary. Such testing is needed to enhance the productivity of scientific ocean drilling and such engineering advances should be widely advertised to the community in order to inform future drilling proposals. Regular updates from the JRSO to the JRFB on engineering developments and testing are requested.

Consensus 14

The JRFB is very pleased with the numerous achievements of the IODP Science Support Office (SSO), in particular the outstanding management of the proposal process, the state-of-the-art operation of the proposal and site characterization databases, the development of new software tools to help proponents and panel members to work more efficiently with proposals and the large number of related data files, and the smooth organization of the meetings of the JRFB and its Advisory Panels. The JRFB is looking forward to the implementation of further improvements to the proposal and site characterization databases as laid out in the SSO FY18 Annual Program Plan (APP).

Consensus 15

The JRFB approves to remove the Co-chief Scientist Publication Requirement to publish at least one synthesis paper per expedition. However, the JRSO is asked to keep encouraging Co-chief Scientists to always consider these kind of publications, if deemed worthwhile and scientifically justified.

Consensus 16

The JRFB reaffirms its primary goal of implementing all proposals that are thoroughly reviewed, scientifically evaluated, and forwarded by SEP, and that have been recommended for approval by EPSP. Decisions on scheduling are principally dependent on the planned regional track of the *JOIDES Resolution*, maximizing the fit

and balance of proposals to the IODP 2013-2023 Science Plan, funding and ship time availability, and safety, permitting and other logistical constraints.

Consensus 17

The *JOIDES Resolution* Science Operator (JRSO) Annual Program Plan FY18 is recommended for approval in principle. The final plan will be considered for approval by the JRFB at a later date, but before the end of July 2017.

(Postscript: The JRSO APP FY18 was approved (via email) on 20 June 2017.)

Consensus 18

The Science Support Office (SSO) Annual Program Plan FY18 is recommended for approval in principle. The final plan will be considered for approval by the JRFB at a later date, but before the end of July 2017.

Consensus 19

The JRFB extends the term of the current JRFB Chair, Anthony Koppers, by one year and agrees to change the term of the JRFB Chair to nominally three years.

Consensus 20

The JRFB appoints Clive Neal as the new JRFB Chair, starting 1 October 2018 and with a three-year term, following one year as Chair-Elect.

Consensus 21

The JRFB sincerely thanks Christina Ravelo for her excellent service on the JRFB as science member. Over the past three years the JRFB has gained tremendously from Christina's vast knowledge on paleoclimatology and IODP science in general.

Action Items

Action Item 1

The JRFB Subcommittee on Policies and Guidelines will continue to update and reformat all remaining policies and guidelines for the general IODP program, for the *JOIDES Resolution*, and for the JRFB Advisory Panels.

Action Item 2

The JRFB Workgroup on “minimum data” will provide to the JRFB their recommendations before the September 2017 IODP Forum meeting.

Action Item 3

The JRFB Subcommittee on Policies and Guidelines will write a separate ADP Implementation Policy in support of the Joint JR-ICDP (International Continental Drilling Program) Projects.

Action Item 4

The “Deep Crustal Drilling Engineering” workgroup will provide a written report to the JRFB two months before the May 2018 JRFB meeting.

Action Item 5

The JRFB will provide a written report to the JRFB two months before the May 2018 JRFB meeting delineating options, cost estimates, and/or solutions for the expansion plans of the Gulf Coast Repository.

Action Item 6

The JRFB is asked to provide reports to the JRFB during its annual meetings, delineating options, cost estimates and/or solutions for the addition of new analytical capabilities on the *JOIDES Resolution* or for onshore capabilities supported through the Gulf Coast Repository.

Action Item 7

The JRFB Chair will request that the U.S. Science Support Program (USSSP) solicit applications for the JRFB U.S. science member replacement of Christina Ravelo. Recommendations from this process will be circulated to the JRFB (by e-mail) for approval.

Action Item 8

The JRFB Chair, in collaboration with the SEP Co-chairs, will continue monitoring and deactivating inactive (>5 years) SEP proposals as necessary.

Action Item 9

The JRFB Chair will continue monitoring proposals at the JRFB that have been inactive for 5 years or more and request proponent teams to provide the JRFB with an update via an Addendum and/or Proponent Response Letter (PRL).

Action Item 10

An Eos article by JRFB Chair, Anthony Koppers, and JRFB Chair-Elect, Clive Neal, will be written and submitted by July 2017 to update the IODP community on the status of the IODP program and the focus of the *JOIDES Resolution* scheduling, the JRFB model, and plans for drilling expeditions in the future up to the end of IODP 2013-2023.

JOIDES Resolution (JR) Facility Board Meeting 2017 - Roster

Members

James Allan	National Science Foundation, USA
Brijesh Bansal*	Ministry of Earth Science, India
Gilbert Camoin	ECORD Management Agency, CEREGE, France
Brad Clement	JR Science Operator (JRSO), Texas A&M University, USA
Mike Coffin	University of Tasmania, Australia
Gil Young Kim	Korea Inst. of Geoscience and Mineral Res. (KIGAM), Republic of Korea
Geraldo Nunes Sobrinho	Coordenação de Aperfeiçoamento de Pessoal de Nivel (CAPES), Brazil
Yan Sun*	Ministry of Science and Technology (MOST), China
Anthony Koppers, Chair	Oregon State University, USA
Wolfgang Bach	University of Bremen, Germany
Clive Neal	University of Notre Dame, USA
Christina Ravelo	University of California Santa Cruz, USA
Paul Wilson*	University of Southampton, UK
Yasuhiro Yamada ¹	R&D Center for Ocean Drilling Science, JAMSTEC, Japan

Liaisons

Jamie Austin	IODP Forum Chair, University of Texas at Austin, USA
Sarah Davies	ECORD Science Operator (ESO), University of Leicester, UK
Holly Given	IODP Science Support Office, Scripps Institution of Oceanography, USA
Sean Gulick	SEP Co-Chair, University of Texas at Austin, USA
Barry Katz	EPSP Chair, Chevron Corporation, Houston, TX, USA
Shin'ichi Kuramoto	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Gilles Lericolais*	ECORD Facility Board Chair, IFREMER, France
Ken Miller	SEP Co-Chair, Rutgers, The State University of New Jersey, USA
Yoshiyuki Tatsumi	CIB Chair, Kobe University, Japan

Observers

Takamasa Ambiru	CDEX, JAMSTEC, Japan
Larry Atkinson	Old Dominion University, Norfolk, VA, USA
Rita Bauer	IODP Science Support Office, Scripps Institution of Oceanography, USA
Carl Brenner	USSSP, Lamont-Doherty Earth Observatory, Columbia University, USA
Beth Christensen	US Advisory Committee (USAC) Chair, Adelphi University, USA
Lisa Clough	National Science Foundation, USA
Rose Dufour	National Science Foundation, USA
Helen Feng	IODP Science Support Office, Scripps Institution of Oceanography, USA
David Goldberg	Lamont-Doherty Earth Observatory, Columbia University, USA
Nadine Hallman	ECORD Management Agency, CERGE, France
Bob Houtman	National Science Foundation, USA
Thomas Janecek	National Science Foundation, USA
Alice Maior	Coordenação de Aperfeiçoamento de Pessoal de Nivel (CAPES), Brazil
Candace Major	National Science Foundation, USA
Mitch Malone	JRSO, Texas A&M University, USA
Sidney Mello	Coordenação de Aperfeiçoamento de Pessoal de Nivel (CAPES), Brazil
Brian Midson	National Science Foundation, USA
Rick Murray	National Science Foundation, USA
Hiroshi Nishi	IODP Section Chair, J-DESC, Tohoku University, Japan
Rachel Shackelford	National Science Foundation, USA
Angela Slagle	USSSP, Lamont-Doherty Earth Observatory, Columbia University, USA
Debbie Smith	National Science Foundation, USA
Holly Smith	National Science Foundation, USA
Tatsuya Watanabe	Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan
Michiko Yamamoto	IODP Science Support Office, Scripps Institution of Oceanography, USA

*Not in Attendance

¹ Alternate for Liping Zhou

**JOIDES Resolution Facility Board Meeting Notes:
16-17 May 2017 Arlington, VA USA**

Tuesday	16 May 2017	08:30-18:00
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1. Welcome and Introductions

National Science Foundation (NSF) Program Director, Dr. Tom Janecek, welcomed the group and provided basic safety and comfort information.

JOIDES Resolution Facility Board (JRFB) Chair, Dr. Anthony Koppers, gave an overview of the most significant meeting topics, including:

- Scheduling of the *JOIDES Resolution* expeditions
- JR Renewal Online Survey – Response of 876 takers from 37 countries
- JRSO Mid-Term Review
- Overview of the JRFB, its Advisory Panels and Partners
- Scheduling Impact of the Two Stage Approach of Pre- and Full Proposals
- Ship Track after April 2017 Proposal Submission and May 2017 EPSP

Dr. Koppers then:

- Introduced the new JRFB members (Wolfgang Bach, Liping Zhou (absent), and Geraldo Nunes)
- Noted which members were absent (Paul Wilson, Yan Sun, and Brijesh Bansal)
- Moderated self-introductions for all present
- Reviewed the rules of engagement, confidentiality policy, and conflict of interest management for this meeting
- Noted that all JRFB decisions are made by consensus.

JRSO Director of Science Services, Dr. Brad Clement, presented a remembrance of Mike Storms, JR Operations Superintendent, summarizing his accomplishments and his very important role in mentoring scientists in the Integrated Ocean Drilling Program and the current IODP.

2. Approval of Agenda

Dr. Koppers requested and received consensus to approve the agenda.

Consensus 1

The JRFB approves the Agenda for its 16-17 May 2017 meeting.

3. Approval of May 2016 JRFB Meeting Minutes

JRFB Member, Dr. Clive Neal, requested minor spelling / word usage corrections to the 2016 Meeting Minutes. Dr. Koppers requested and received consensus to approve the 2016 Meeting Minutes with these changes.

Consensus 2

The JRFB approves the May 2016 JRFB Meeting Minutes with no changes.

4. National Science Foundation (NSF) Report

4A. Update by the OCE Division Director

NSF Ocean Sciences (OCE) Division Director, Dr. Richard (Rick) Murray, summarized the findings of the National Research Council as presented in the report *Sea Change: 2015-2025 Decadal Survey of Ocean Sciences*. In regard to the OCE facilities, the report recommended to decrease the Ocean Observatories Initiative (OOI) operating budget by 20%, IODP by 10%, and UNOLS (University-National Oceanographic Laboratory System) by 5%. NSF made these cuts and transferred those funds to core science.

Dr. Murray noted that the IODP cuts were made ahead of schedule through TAMU's reductions in operating costs and management efficiencies gained by the new program structure. These efficiencies from IODP were part of NSF's transfers into the core science and technology programs. IODP was able to increase the number of expeditions per year, while decreasing overall costs: a great achievement with positive implications as the program moves toward renewal.

The National Science Board (NSB) also asked IODP to modify relationships with their international partners to increase contributions and align U.S. investments with Congressional expectations. Dr. Murray said that NSF continues to look 2-5 years down-stream to assure they remain on good science footing, as well as sound financial footing. Congress approved the remainder of the FY17 budget 2 weeks ago, and while the budget details haven't trickled down to the departments yet, the NSF knows that 1) its budget is flat, and 2) three regional-class vessels were approved. Based on this information, the IODP is moving ahead with planning.

Dr. Murray informed the Board that during any Presidential transition, the budget process is delayed from its normal schedule, and the President's FY18 budget request will be delivered to Congress next week. Congress then determines what the budget will actually be, and approves the expenditures. Dr. Murray noted that NSF is likely to go forward with a 10% decrease, similar to the budgets of NOAA, NASA, etc. Because NSF employees are not permitted to lobby Congress, Dr. Murray thanked IODP participants in the US and Internationally for their efforts to communicate both personal and community / institutional opinions to legislators regarding the budget request.

4B. NSF Budget and Forecast

Dr. Jamie Allan, NSF Program Director, emphasized the importance of the IODP cost savings, and reiterated that the JRFB was responsible for the majority of this savings. Dr. Allan then gave a brief presentation highlighting IODP financial, operational, and administrative progress, including:

- FY2018 Budget
 - Uncertain FY2017 and 2018 NSF budgets, but overall positive financial situation remains
 - FY2018 Fiscal Guidance to JRSO is \$64M
 - Expected FY2018 International Contributions to JR Operations are \$14.7M
 - NSF has received \$6M of expected \$12M for South China Sea Expeditions
- JR Staffing
 - 10 U.S. Science Party members on JR Expeditions
 - Those sailing under Onboard Outreach Program are members of the Expedition Science Party
 - Future Memoranda will treat all JR berths equally, adding Co-chief scientists and onboard outreach members to the total quotas.
- JR Facility Review Progress and Schedule through FY19
- MGG IODP Proposals
 - Two IODP related proposals were recommended for funding by NSF MGG Program from the November Panel:
Lizarralde (833-Full Guaymas Basin seismics)
One other being finalized

The next critical points for the IODP will be 1) the *JOIDES Resolution* (JR) Assessment Workshop and 2) the internal decision to renew or re-compete the JRSO Cooperative Agreement. Dr. Allan also noted that NSF would begin discussions with the international JR partners regarding changes to their Memoranda.

Dr. Allan then described outcomes from the JRSO Site Visit and FY2016 Review, an NSF Panel that met at TAMU March 1-3, 2017. He noted that the review followed the NSF Large Facilities Office (LFO) Guidelines for Review of Large Facilities and the NSF JR Cooperative Agreement Internal Management Plan, and that NSF accepted all the Panel recommendations. Specifically, he mentioned:

- The review's Executive Summary states:
 - The *JOIDES Resolution* is a unique and outstanding scientific deep-sea drilling vessel capable of exploring on a global scale. No other platform offers its range of capabilities. JRSO is performing the required tasks of technical and scientific support to the worldwide community of research in outstanding ways. The JR is a superb mentoring platform that brings together young and experienced researchers for periods of months at a

time. The *JOIDES Resolution* (JR) Science Operator Site Visit Panel concludes that the facility is being managed exceptionally well by the JRSO, and also overseen effectively by the JRFB and NSF to meet the Science Plan.

- Also:
 - Panel was impressed that the JRSO had fully addressed recommendations of FY2015 NSF Panel
 - NSF has asked the JRSO to address all Panel recommendations regarding the JR facility and GCR facility
 - NSF will bring staffing and Education and Outreach concerns to IODP Forum

Follow-on questions and discussion resulted in the following statements / directives:

- The JR Review Report is *confidential* and is given to JRFB members only.
- International contributions (including CPP funds) are not subject to fiscal year constraints. US contributions (if CPP funds are from another US government agency) would have to be spent in the fiscal year received / budgeted.
- The NSF is committed to supporting the geophysical needs and seismic capabilities of the U.S. science community.

4C. Renewal Process for JRSO Cooperative Agreement in 2019

Dr. Allan and Dr. Beth Christensen, U.S. Advisory Committee for Scientific Ocean Drilling (USAC) Chair, emphasized that the *JOIDES Resolution* (JR) Assessment Workshop (a.k.a. Denver II) is a window on the U.S. Community's opinion of the effectiveness of the program as it applies to renewal of the JR facility, not renewal of the program.

5. Report of the Science Support Office (SSO)

Dr. Holly Given, SSO Executive Director, presented a compilation of IODP proposal progress from Pre-proposals through scheduled and drilled proposals as shown in Appendix A. She noted that the SSO is in Year 4 of a 5-year Cooperative Agreement.

5A. Review of Y1-3 of SSO and Comparison with IODP Phase I

Dr. Given then gave a brief summary of the tasks / responsibilities of the SSO. She summarized the statistics of proposal / data progress since the JRFB last met and discussed the history and development of the new non-disclosure agreement process.

At the request of the JRFB Chair, Dr. Given then compared aspects of the Integrated Ocean Drilling Program management structure to the current IODP, looking at IODP-MI's budget from FY2012. Most notable were the lower cost (with significant differences in scope), and the improved proposal evaluation process, which shortened the time from proposal to drilling. Dr. Given noted that the number of active proposals is

decreasing, likely a result of the increase in drilling accomplished. Overall, comparing 2017 to 2014 proposal statistics, she noted slight changes in:

- Themes
- Oceans (a result of progress along the ship track)
- Stage (a result of the more efficient SEP)
- Number of *Chikyu* proposals in the pool

5B. Logistical and Information Technology Accomplishments

Dr. Given summarized SSO accomplishments in coordinating various aspects of the review process, including:

- Coordinating fast-track and out-of-cycle reviews (22 to date)
- Implementing the Dormant Proposal Review Process (15 deactivated)
- Developing a confidential data and NDA process (3 to date)
- Increasing awareness of confidentiality
- Implementing a consistent process for meeting planning (16 to date)

Dr. Given highlighted the SSO's most beneficial management practices, including:

- Advocating for consistent IODP policies, practices, lexicon, and branding
- Spearheading the "Small Group" Meetings to improve / enhance cooperation
- Balancing the needs of proponents and management
- Standardizing the workflow for meeting preparation

Accomplishments related to the new Joomla3 web site included its highlighting new information and policies, its simpler layout (less content, more links to promote content alignment across IODP), the sortable tables for proposals and expeditions, and the use of password-protected meeting logistics articles, all making the web site easier for the community to use.

Dr. Given noted that the SSO IT team, under the direction of SSO Co-PI, Dr. Karen Stocks, made huge progress in integrating the Site Survey Data Bank (SSDB) and the Proposal Data Base (PDB) by implementing a single sign-on system, and using back-end PostgreSQL databases, which permits auto-generation (vs. manual input) of sites in SSDB. In addition, the IT team made many discrete but complete improvements to PDB and SSDB, which included:

- For PDB
 - Migrating to modern, flexible software (Yii and PostgreSQL)
 - Streamlining the user interface, adding functionality, simplifying site forms, adding validation and progress indicators
 - Adding auto notification to confirm co-proponent status
 - Adding site naming controls to reduce common errors

- Adding >50 features or other improvements (rebuilding upload tools, removing time-outs, adding file size limits, adding the named data-lead, adding primary and alternate site identifiers, permitting the re-ordering of proponents, etc.)
- For SSDB
 - Updating guidelines for Site Characterization data
 - Rebuilding the bulk download tool to eliminate Java security restrictions
 - Prohibiting the upload of identical files into the same proposal

And these improvements will continue with the current development of the new SSDB “Submission Package” capability.

Finally, Dr. Given stressed that all of these systems are supported with robust security and hardware backup systems, including production / hot-swap / development versions, hosting in a second location, maintaining only warranted hardware, updating to current versions of all software, maintaining all code in a private Git repository for backup and version control, and implementing a best practice-based cybersecurity policy.

Dr. Koppers pointed out that the SSO accomplished a lot with a budget significantly lower than IODP-MI, and Dr. Allan pointed out that the SSO budget was increased from that originally proposal because the SSO completed their original scope (for the first three years) and NSF gave them new tasks.

6. IODP Forum Report

Dr. Jamie Austin, Forum Chair, reported on IODP Forum-related activities, including:

- The IODP Forum’s general purpose and meeting schedule: Next meeting confirmed for September 11-13, 2017 in Shanghai, China
- Actions to support IODP Forum 2015 consensus statements, including:
 - Coordination of IODP-related activities at the International Geological Congress in Cape Town, South Africa
 - Coordination of the Inaugural Program Member Organization (PMO) Meeting following the 2016 Forum Meeting in Búzios, Brazil
 - Discussion of seismic data acquisition challenges at the 2016 Forum Meeting followed by a “formal meeting” of a small but international group, which generated a white paper submitted to NSF and other appropriate stakeholders
 - Acknowledgement of the current actions and future plans of Member Nations (China, Japan, India, and Brazil) as partners and participants in the IODP
 - Support of the Izu-Bonin-Mariana (IBM) workshop, which is being planned for spring 2019 in northern Japan

Dr. Austin noted that people have to show up for the Forum to be effective. JRFB Member, Dr. Geraldo Nunes added that having the Forum meeting in Brazil was vital in getting the Brazilians to renew their agreement.

Dr. Austin plans to publish the 2017 Forum Meeting Agenda following this JRFB meeting. He will participate in a meeting with the EU, South Africa, and Brazil to align drilling and research strategies, and he noted that ANZIC was holding a similar regional planning meeting in Sydney in preparation for the return of the *JOIDES Resolution*.

7. Report of the ECORD Facility Board

Dr. Gilbert Camoin presented an update on the European Consortium for Ocean Research Drilling (ECORD) FY18 renewal process, and the Mission Specific Platform (MSP) expedition schedule (2017-2023). Through FY18 ECORD members include:

Germany	France	United Kingdom
Norway	Switzerland	Sweden
Netherlands	Italy	Spain
Denmark	Ireland	Austria
Portugal	Finland	Canada (thru 2017)

ECORD and Canada will have the remainder of this year to identify a long-term funding source if Canada is to continue as a member. In addition, ECORD is negotiating with Turkey to become a member, and negotiating an in-kind contribution to an upcoming expedition from Russia.

Dr. Camoin stated that ECORD renewal would rely on:

- Science results measured against the Science Plan over the first phase of IODP (2013-2018)
- The success of ECORD's financial model for platform operations during the first phase of IODP
- The operational plans defined for Mission-Specific Platforms (MSP), *JOIDES Resolution*, and *Chikyu* during the second phase of IODP (2019-2023)

He briefly reviewed the membership and schedule of the external review panel, as it leads up to the final External Review Report / ECORD Evaluation Report, which will be distributed to the supporting / funding agencies to help them make their decisions regarding future funding. The panel's mandate is to review: 1) the achievements of ECORD within the IODP, 2) the impact of MSPs in particular, and 3) the effectiveness of the ECORD entities, particularly the ECORD Management Agency (EMA) and the ECORD Science Operator (ESO). In support of this mandate, the agenda for the Evaluation Committee Meeting currently features four science talks summarizing the outcomes of the completed MSP expeditions as they pertain to the Science Plan themes.

Dr. Camoin reviewed the schedule for the ECORD renewal process. He also reviewed the overall MSP expedition schedule (2013-2023) relative to progress and budgets.

He also summarized the outcome of the Operational Reviews for Expedition 357 (Atlantis Massif) and Expedition 364 (Chicxulub), and noted that the success of these expeditions supports ECORD's requirement that future drilling programs stress scientific excellence, diverse science themes (much more diverse than the previous program), and diverse drilling/coring systems to address scientific objectives.

Dr. Camoin stated that of the six proposals before the EFB, three are scheduled, and six (4 Pre and an MDP and an ADP) were added prior to the April deadline.

Upcoming meetings include:

- ECORD Science Support and Advisory Committee (ESSAC) -- October 23, 2017
- ESSAC and ECORD Council -- October 24-25, 2017
- ECORD Facility Board Meeting -- March 6-7, 2018

Dr. Camoin indicated that none of the currently available proposals fill ECORD's low cost expedition slots, but ECORD is working with the proponents to see if they can reduce scope while still achieving their science objectives.

8. Report of the Chikyu IODP Board

Chikyu IODP Board (CIB) Chair, Dr. Yoshiyuki Tatsumi, presented an update highlighting:

- Expedition 365 - NanTroSEIZE Shallow Megasplay Long-Term Borehole Monitoring System (LTBMS)
- Expedition 370 - T-Limit of the Deep Biosphere off Muroto
- CIB Meeting #5 consensus items related to approved activities in the near future, including:
 - Endorsement of Expedition 380 – NanTroSEIZE shallow riserless LTBMS (Oct. - Dec. 2017) and encouraged onboard activity, workshop / field work at sea
 - Endorsement of NanTroSEIZE Deep riser drilling at Site C0002 for Nov. 2018 – Mar. 2019
 - Designation of Proposal 871-CPP (Lord Howe Rise (LHR) Continental Ribbon) as a “*Chikyu* Project” and creation of a LHR Project Coordination Team
 - Requested updates to CRISP (537), IBM (698), and Hikurangi (781) by October 1, 2018
- CIB Meeting #5 consensus items related to *Chikyu* / IODP performance review, including:
 - *Chikyu* / IODP operation

- Fund raising / saving
- Education and Outreach
- Long-Range Plan

The CIB recommended: 1) scheduling proposal 871-CPP during the available IODP window in 2020, and 2) soliciting new and exciting riser pre-proposals for current and future IODP consideration, and 3) a 2-year extension to his position as CIB Chair. The CIB also scheduled the next meeting for March 19-20, 2018.

Dr. Tatsumi concluded with a graph of the *Chikyu* schedule per the Mid-Term Plan, an update regarding the membership of the CIB Science Board, and then he opened the floor to questions. Dr. Austin and Dr. Given asked when the CIB would schedule the LHR and Site C0002 drilling? Regarding LHR, Dr. Tatsumi reiterated that the CIB created the LHR Project Coordination Team, and scheduling of this expedition will occur based on their recommendations. Regarding C0002, Dr. Shin'ichi Kuramoto stated that JAMSTEC is working on the confirmation / contracting portion of this drilling program. The schedule will be finalized after this group meets in June.

Dr. Koppers noted that the JR has done extensive work on three of the proposals for which the CIB is requesting updates, and he asked if the CIB had any notion of when they might act on these proposals? Dr. Tatsumi stated that while action depends on budget, the existing results from the JR's portion of these proposals are a good foundation in support of seeing future work scheduled.

9. Policies and Guidelines Updates

The JRFB Subcommittee on Policies and Guidelines (Dr. Christina Ravelo, Dr. Coffin, Dr. Given, and Dr. Koppers) finalized updates to six IODP documents. Dr. Koppers noted that five or six documents remain to be updated.

ACTION ITEM 1: The JRFB Subcommittee on Policies and Guidelines will continue to update and reformat all remaining policies and guidelines for the general IODP program, for the *JOIDES Resolution*, and for the JRFB Advisory Panels.

9A. Updates on Proposal Submission Guidelines

Dr. Koppers summarized the changes made to resolve the issues identified in each of the documents as follows:

9A1. Role of JRFB and Other Facility Boards

“When with the Facility Boards, all forwarded proposals are considered for implementation and expedition scheduling.”

And

“Proponents can also submit an unsolicited PRL to communicate any changes or status updates about “at FB” proposals to the Facility Board that are important for scheduling decisions. These documents, including potential replies by the Facility Board, become part of the IODP proposal database and archive.”

9A2. Requirement of Addenda at Expedition Stage

“When drill sites are changed or added to an already scheduled expedition, but before the expedition sails, submission of an Addendum is required to describe the changed or new sites and to provide a rationale for how those fit the primary objectives in the proposed scientific drilling project. Upon decision by the Facility Board Chair, the SEP may be asked to provide comments on the Addendum (Section 6-1-B), but in all cases, the EPSP reviews the sites in question via an e-review or during their annual meeting (Section 6-1-C). The Facility Board has the final decision in approving or rejecting any or all of the changed or added sites that are part of an Addendum.”

Dr. Koppers explained that this new text was written to clarify the role of the Facility Board (FB), and retain the ability of proponents to communicate with the FB prior to scheduling through Proponent Response Letters. For site changes that occur between scheduling and sailing, proponents must communicate through an Addendum. Either communication would become part of the proposal package.

EPSP Chair, Dr. Barry Katz, and Dr. Given feel there are more scenarios possible than the one stated in the proposed text modification. For example, some sites are changed by the EPSP, not the proponent, to improve safety while maintaining (to the best of the EPSP’s ability) scientific integrity. Or EPSP may restrict drilling at a particular site, which could have a greater impact on the proposed science than would site relocation. Dr. Katz suggested JRFB implement a preventative measure requiring SEP to “kick out” all proposals with insufficient alternate sites.

Dr. Allan and Dr. Katz agree that this issue highlights the potential need for two EPSP and/or JRFB meetings a year, which might increase costs, but meeting costs are small compared to the cost of the ship. Dr. Katz also noted that while his panel has attempted electronic reviews, the EPSP process requires face-to-face meetings to be fully effective.

Dr. Given noted that the proposed text modifies the current use of Addenda within the proposal submission process, which in turn adds a significant new dimension to the work of the SSO, possibly even introducing a new role in proposal management for the JRFB. This modification highlights the program’s need for a more nimble mechanism of keeping track of proposed sites.

Dr. Katz explained to the JRFB that this change was motivated by a recent event: Expedition 374 proponents presented the EPSP with 13 new sites just weeks before the recent EPSP meeting. While the EPSP members are comfortable with their decisions regarding these last-minute sites, they reviewed the (entirely new) data for safety and environmental issues only, without considering what the impact these sites have on the scientific objectives. While this case highlighted the need for a change in the process, Dr. Katz noted that the mission of EPSP is to keep things moving, so they approved these sites.

Dr. Koppers thanked the group for their comments and noted that this modification was not intended to make more work for any group or panel.

9A3. Incorporation of the ADP Proposal Guidelines

This was completed and the draft presented, as called for in a consensus item and action item from the 2016 JRFB.

9A4. Strengthening of the Drill Site Naming Convention

“Site names must strictly conform to the general format AAAA-nnX, where AAAAA represents a string of two to five alphabetic characters referring to the geographic area of the proposed drilling site, nn represents the specific two-digit site number within the area (always preceded with a 0 for site numbers less than ten, e.g. WLSHE-01A), and X represents a capital alphabetic character indicating the version of a specific site. For all newly proposed sites, site names thus end with X=A. For the second version of a site (if necessary) the site names end with X=B, etc.”

Dr. Koppers stated that this change was made to strengthen the site naming convention. Dr. Katz and Dr. Given discussed the previous “Small Group Meeting” decision, requiring site renaming when the site is moved by one or more shot-points.

9B. Updates on Site Characterization Data Guidelines

Dr. Koppers summarized the changes made to this document as small and asked the JRFB for questions / issues. None were voiced, and the meeting moved to the next topic.

9C. Updates on IODP Confidentiality Policy and Conflict of Interest Policy

The JRFB Subcommittee on Policies and Procedures combined the existing confidentiality policies (Proposal and Site Survey Data) into one document, which also defines the minimum requirements for data. The handling of proprietary data in the SSDB is addressed in the new non-disclosure agreement document.

9C1. Combining Previous Policies into one Standard IODP Confidentiality Policy

Dr. Koppers summarized the changes made to this combined document as small and provided details as follows:

9C2. Listing of the Eight Principles Governing Confidentiality in IODP

“This Standard IODP Confidentiality Policy applies to all IODP proposals, and their contents, uploaded in the PDB, as well as to all related site characterization data, uploaded in the SSDB.”

“All IODP proposal documents, and all proprietary site characterization data files, are confidential during the nurturing, evaluation and scheduling processes.”

“All IODP proposal documents, including the IODP Site Survey Forms and any other uploaded supplement, become publicly available at the expedition stage.”

“All individuals, who receive, handle, or review IODP proposals, acknowledge that all scientific ideas therein, belong to the proposal authors (i.e. the proponents).”

“Proponents are responsible for ensuring the removal of confidential information prior to release of a proposal document... and for clearly identifying confidential proprietary data files.”

“The Use of Limited Non-Disclosure Agreements is defined in a separate policy.”

9C3. Adding “Minimum Data” Requirement

“Proprietary site characterization data can be uploaded into the SSDB, and used to support an IODP proposal, with the requirement that at least a predefined subset of so-called “minimum data” be made publicly available when the JRFB, or any other Facility Board, schedules a successful proposal as an IODP expedition, as part of an IODP-related expedition, or as a series of IODP expeditions.”

The JRFB Subcommittee on Policies and Procedures proposed that the following subsets be required for each of the proposed primary and alternate drill sites because they are necessary to provide context to the scientific results of the research expedition.

- For the depth of view in seismic reflection profiles, the minimum data requirement for proprietary data is defined as at least the upper 1-second of two-way-travel-time, measured from the seafloor and into the targeted subsurface, or twice the termination depth of the deepest proposed drilling site or hole, whichever is larger.
- The along-profile dimensions of the data view for seismic reflection profiles were proposed to be at least 5 km to each side of the proposed drilling site or hole, or five times the maximum proposed termination depth, whichever is larger.
- For bathymetric maps, the areal extent should cover at least the above defined along-profile dimensions, plus an extra 5 km, in all directions.

Through extensive discussion, the following points were made:

- At present, site data are released to the JRSO for download when the SSO gives the appropriate JRSO technician access via SSDB following scheduling of a proposal. If the data are under a Non-Disclosure Agreement (NDA), the JRSO must establish its own NDA with the data owner because the expedition is beyond the SSO’s scope of proposal review.
- The SSO is developing a new “NDA” flag in the SSDB so future data users will not have to rely on keeping track of disclosure restrictions outside the system.

- While the data used in making environmental and safety drilling decisions must be made available to the ship operator and the science party (to faithfully transfer the science of the proponent to the operator and the science party), most proponents likely don't understand that their standard data hold (not including proprietary industry data under an NDA) is removed when an expedition is scheduled, and their data become public at that time.
- The EPSP data package should define minimum data requirement because:
 - The EPSP's decisions (and the data used to make those decisions) establish the set-point for legal liability and disclosure. These are typically 2D slices in the data volume.
 - There might not be 5 km coverage on some sites.
 - Operationally, the minimum requirements suggested in the proposed statement could restrict the addition or modification of sites while on the ship, and the proponents will need to understand that this could limit them and restrict their flexibility at sea.
- The JRFB Chair may need to establish a working group on this topic.

Dr. Allan stated that NSF would support Facility Board requirements regarding minimum data requirements to proponents.

ACTION ITEM 2: The JRFB Workgroup on “minimum data” will provide to the JRFB their recommendations before the September 2017 FORUM meeting.

9C4. Introducing of New Policy on the Use of Limited Non-Disclosure Agreements in the IODP

“All or part of the proprietary industry site characterization data files stored in the SSDB can be subject to a Limited Non-Disclosure Agreement (LNDA) between the data owner, the proponents, SSO, and/or the IODP Science Operator.”

“Proprietary data in the SSDB that are subject to an LNDA can only be accessed, viewed, and used by IODP individuals who have verifiably co-signed the LNDA.”

“Proponents are responsible for showing that the standard IODP policy is not adequate in their case.”

“Proponents are responsible for informing the SSO and SEP.”

“Proponents also carry the responsibility to engage the legal department of the company that provides the proprietary data and propose a template for the LNDA that is acceptable to the SSO and/or IODP Science Operator.”

“An LNDA is only acceptable to the overall IODP and SSO, if the agreement satisfies the “minimum data” requirement for use of proprietary site characterization data in IODP, as explained and defined in the Standard IODP Confidentiality Policy.”

The Board Members and Liaisons agreed that any legal ramifications of disclosure are between the data owner and the individual signatories, not IODP. The data owners are provided with the names of all signatories as a courtesy by the SSO.

9D. Amphibious Drilling Proposal (ADP) Implementation Guidelines

Dr. Koppers noted that during the 2017 ECORD Facility Board Meeting, the IODP Science Operators agreed to establish separate guidelines for the implementation of ADPs because each platform is unique.

9D1. Adaptation of Guidelines for JR-ICDP Combined Expeditions Only

The ECORD Facility Board (EFB) will complete the ADP Implementation document with guidelines and policies that are specific to MSPs and send the final document to the other Facility Boards (EFB1703 Action Item 3).

ACTION ITEM 3: The JRFB Subcommittee on Policies and Guidelines will write a separate ADP Implementation Policy in support of Joint JR-ICDP Projects.

9E. Updates on JRFB Terms of Reference (TOR)

9E1. Improved Definition of the Role of NSF in the JRFB

Dr. Koppers reviewed the current JRFB TOR and indicated that the new version makes it explicit that NSF is a member of the JRFB and that, in the case of fiduciary matters, NSF decides the final budgets and JRFB is making a “recommendation for approval” to NSF.

9F. Updates and Discussion on Sample and Data Policy

9F1. Addition of XRF Scanning During Moratorium Period

Dr. Koppers reminded the Board that this addition was approved in a 2016 JRFB Consensus Statement and is being implemented in this version of this document.

9F2. Toward a Wider Definition of “Expedition Data”

Postponed until tomorrow for discussion during Item 22 (Day 2).

9G. Updates and Discussion of JR Staffing Procedures

9G1. Minimal Number of PMO Nominees

“PMOs should be aware of the need for flexibility in staffing a JR expedition, and should provide more nominations than the number required to fill the allocated berths, representing a variety of scientific expertise.”

And

“Each PMO also provides the JRSO with a rationale and ranking, if so applied, for their nomination list.”

Each PMO will provide this because the Science Operator needs to see more applications than berths, representing a wide variety of scientific backgrounds, with a ranking and rationale for these nominees.

9G2. Other Recommendations from the JRSO NSF Panel Reviews of FY15-16

“The PMOs must provide nominations of scientists with adequate skill in both written and spoken English, as that is the language used during meetings at sea and ashore, and for all scientific and technical writing associated with JR expeditions.”

Drs. Malone and Neal requested changes, which were noted, and will be implemented by the subcommittee before a new version of the document is posted on iodp.org.

JRFB Liaison for the JAMSTEC Center for Deep Earth Exploration (CDEX), Dr. Shin'ichi Kuramoto, expressed his concern that while the Japanese encourage participation in this program, those interested in participating may not have the spoken skills required in this statement. Dr. Allan stated that these documents express best practices, with English speech necessary for safety purposes (medical diagnosis). Many attendees agreed that the two months on the ship, with very supportive English speaking colleagues, would improve the English of all limited English speakers. Dr. Koppers closed the session by committing to looking into what the PMOs can do to help scientists with limited English prepare for a cruise.

Items 9H and 9I were postponed until Day 2.

CONSENSUS STATEMENT 3:

The JRFB approves the following updated policies and guidelines:

1. IODP Proposal Submission Guidelines (17 May 2017)
2. IODP Guidelines for Site Characterization Data (17 May 2017)
3. *JOIDES Resolution* Conflict of Interest Policy and Implementation Guidelines (17 May 2017)
4. JRFB Terms of Reference (17 May 2017)
5. *JOIDES Resolution* Standard Measurements (17 May 2017)
6. *JOIDES Resolution* Staffing Procedures (17 May 2017)

CONSENSUS STATEMENT 4:

The JRFB provisionally approves the new **Standard IODP Confidentiality Policy** (17 May 2017), which supplants both the previous IODP Proposal Confidentiality Policy (February 2015) and the previous IODP Site Survey Data Confidentiality Policy (February 2015). The new policy will be considered for approval (via email) at a later date, following the recommendations of an **Ad-hoc Workgroup**, which is charged with providing a definition for the new “minimum data” requirement principle. This workgroup consists of Anthony Koppers (JRFB Chair), Sean Gulick (SEP Co-chair for site characterization), Barry Katz (EPSP Chair), Mitch Malone (JRSO Representative), Jamie Allan (NSF), Karen Stocks (SSO IT Specialist), Holly Given (SSO Director).

CONSENSUS STATEMENT 5:

The JRFB approves the new **Use of Limited Non-Disclosure Agreements in IODP Policy** (17 May 2017), which governs the limited application of these agreements between data owners, the proponents and the IODP Science Support Office and/or IODP Science Operator.

10. SEP Overview of Proposals for FY19-20 Expedition Scheduling

10A. Statistics of JR Proposals at JRFB, in SEP Holding Bin and with SEP

Dr. Koppers summarized the status and distribution of proposals available for JRFB review.

10B. Science Evaluation Overview of Proposals Ready for Scheduling and Relevant Proposals in the SEP Holding Bin

SEP Co-Chairs Dr. Ken Miller and Dr. Gulick reviewed SEP summaries for the proposals to be considered by the JRFB.

11. Updates on Scheduled Expeditions and Proposals at JRFB

Dr. Katz provided a summary of the EPSP review of Proposal 887-CPP2 (Gulf of Mexico Gas Hydrates) and Proposal 833-Full2 (Guaymas Basin Activity). He noted that the May 2017 EPSP meeting was his 95th as Chair, and that the panel reviewed approximately 100 sites at this meeting alone. He reiterated that the EPSP has found that e-reviews are not effective and emphasized that more alternate sites are needed for Full proposals. Other recommendations (from a variety of panel members) included:

- The program could consider requiring (rather than just encouraging) alternate sites in Full proposals.
- The EPSP Meeting should be scheduled for several months before the JRFB Meeting.
- Another EPSP meeting will be needed before the May 2018 JRFB.
- As the complexity of drilling increases, and proposed science reaches into areas that drillers like to avoid, we should consider sending more pre-proposals and Full proposals to EPSP for previews.
- The JRFB Chair and one or both SEP Co-chairs should attend the EPSP meetings. If either felt EPSP decisions were altering, compromising, or reducing a proposal's science objectives, the JRFB Chair could communicate directly with the proponent to work out a solution.
- The EPSP Members, the JRFB Chair, and the NSF Program Director should review the data provided by the proponents in their Safety Review Report prior to the meeting.

12. Options for a FY19-20 JR Expedition Scheduling

12A. Update on ICDP-Oman Core Description Project

Dr. Koppers noted that (over the last year) no formal request has been made by the Principal Investigators for the use of the JR for the description of cores from the ICDP-

Oman project. At this moment, therefore during this meeting this project is not being considered by the JRFB. However, Dr. Clement stated that the *JOIDES Resolution* is providing some support (beyond the support that the *Chikyu* is providing and has already provided). Dr. Kuramoto gave an update of the progress to date on the *Chikyu*.

12B. Update on 800-MDP, Multi-leg SloMo Expedition

Dr. Koppers summarized the progress on Expedition 360 and 362T and he introduced the Co-chief scientist's and Lead Proponent's request (via Proponent Response Letter (PRL) to the JRFB) for a detailed planning group to make recommendations on how to deepen the hole. Dr. Allan recommended the JRFB direct the proponent to write a proposal to the USSSP (or the other PMOs) to fund such an effort, as planning groups don't exist under the current IODP structure. Dr. Clement suggested that this expedition's operations review might put a better light to this request, as the findings could still apply to either the SW Indian Ridge or the Superfast projects.

The proposed Workgroup is detailed in Consensus Statement 7: Day 2 agenda item 14.

12C. Various Options for Expedition Schedules

JOIDES Resolution Science Operator Manager of Science Operations, Dr. Mitch Malone, presented the details and rationale for several possible FY18-19 schedules.

13. Discussion of the FY19-20 Expedition Scheduling Options

Dr. Malone provided answers to JRFB member questions regarding the scheduling options provided.

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14. Development of the FY19-20 JR Schedule

Dr. Koppers asked those with conflicts to leave the room. JRFB Member Dr. Christina Ravelo and observer David Goldberg (Lamont) left the room, and Drs. Gulick and Austin (with institutional conflicts) were asked to refrain from asking questions or making comments. Dr. Malone provided an update to the options presented previously, and Dr. Koppers then led the Board in a discussion of potential schedules, their scientific importance and impact, as well as transit / cost implications. He asked the JRFB members to state which schedule they would like to implement in FY19-20 to achieve the best science in a cost-effective way. The following list received the strongest consensus:

Following the previously scheduled Exp 378 (South Pacific Paleogene):

JR100 (non-IODP)

Amundsen Sea (839)

Iceberg Alley (902) with Falkland Water Depth Record (846-APL)

DYNAPACC (912)

Transit / Engineering Testing / Costa Rica Crustal Architecture (769-APL)

Guaymas Basin (833)

Transit / JR Tie Up / GOM Prep

Gulf of Mexico Methane Hydrates (887-CPP)

Demobilization

TBD S. Atlantic FY2020 or Transit / JR100

Dr. Nunes thanked the JRFB for including a South Atlantic expedition in the schedule, as this is very important to the Brazilian government to justify continuing the program.

CONSENSUS STATEMENT 6: The JRFB recommends Full Proposal 902 (Iceberg Alley Paleoceanography) including APL 846 (Falkland Water Depth Record) for scheduling in the second half of FY'19, following Expedition 379 (Amundsen Sea West Antarctic Ice Sheet History). This will be followed by Full Proposal 912 (Drake Passage Paleoceanography – DYNAPACC), and a transit from the Southern Ocean to the Gulf of California during which engineering tests and APL 769 (Costa Rica Crustal Architecture) are carried out. Furthermore, the JRFB recommends the scheduling of Full Proposal 833 (Guaymas Basin Activity) in the beginning of FY'20, followed by a transit to the Gulf of Mexico and a one-month tie-up period for *JOIDES Resolution* maintenance and repairs. Following a two-week preparation time window, the JRFB recommends the scheduling of Full Proposal 887 (Gulf of Mexico Methane Hydrate). Finally, the JRFB recommends the scheduling of a TBD proposal along the Brazilian margin in FY'20. The expectation of the JRFB is that there will be in total 10 months of operations in FY'20.

CONSENSUS STATEMENT 7: The JRFB recommends the immediate formation of a “Deep Crustal Drilling Engineering” workgroup at the JRFSO with representatives of the JRFB and JRFSO, Siem Offshore drilling engineers, and the principal proponents, in order to review the results of Expedition 360 “SW Indian Ridge Lower Crust and Moho, Leg 1” and Expedition 355 “Superfast Spreading Rate Crust, Leg 4” and make recommendations on how to successfully achieve drilling, coring and logging deeper than 1.5 km into ocean crust hard rock environments. The JRFB will be represented by Clive Neal (workgroup chair), Mike Coffin and Wolfgang Bach. The JRFSO will be represented by Mitch Malone and Jay Miller. Other interested parties within IODP such as engineers from JAMSTEC will be invited.

ACTION ITEM 4: The “Deep Crustal Drilling Engineering” workgroup will provide a written report to the JRFB two months before the JRFB1805 meeting in May 2018.

15. Long-Term Cruise Track of the *JOIDES Resolution*

15A. Proposal Pressure in the South, Equatorial, and North Atlantic

Dr. Koppers projected the map of proposals at SEP and JRFB and the schedule for those proposals still in the SEP.

15B. Alternative Long-Term Cruise Tracks

Dr. Koppers presented an update to the Cruise Track. He received input and consensus with the Board's recommended changes.

CONSENSUS STATEMENT 8: The JRFB affirms that the *JOIDES Resolution* will at least fulfill a single global circumnavigation of the oceans by 2023.

15C. Calls for Proposals in the North Atlantic and Arctic

The Board approved the following proposal call text as drafted by Dr. Koppers.

CONSENSUS STATEMENT 9: The JRFB affirms that based on current and anticipated proposal pressure, the *JOIDES Resolution* will follow a path from the Gulf of Mexico in FY19 to the South Atlantic for the opportunities for drilling there in FY20. The JRFB expects that the *JOIDES Resolution* will start to operate in the general area of the Equatorial and North Atlantic, Gulf of Mexico, Mediterranean, Caribbean, and the Arctic in FY21 and through FY22. Furthermore the JRFB expects that the *JOIDES Resolution* will complete its global circumnavigation in the Indo-Pacific region in FY23.

15D. Reaffirmation of at least a Single JOIDES Resolution Circumnavigation by 2023

The Board approved consensus statement 8 (see above) as drafted by Dr. Koppers.

16. Executive Session to Discuss FY16 JRSO Site Review and Co-Chief Scientists' Evaluation Reports

Closed session – no notes taken.

17. Discussion of NSF's Response to FY16 Site Review

Dr. Allan stated that NSF's response to the JR Facility Review Panel Report will be posted to the JRSO web site, and that the panel thought the platform was being run well with the following recommendations:

17A. Facility Communication Recommendations

- Improve communication to the science community regarding improvements and advances in capabilities on the JR, as well as limitations of capabilities, particularly in third party tools (are they operational or experimental?).

17B. IODP Program and Facility Legacy Recommendations

- Advertise within the community the success of the JR Publications Services and continue your innovative methods of archiving of digital documents and making documents available.
- Evaluate long-term needs for the Core Repository to insure an appropriate balance of core preservation techniques (air-conditioning vs. refrigeration, racks on tracks, on-site instrumentation, etc.) is available.

17C. JR Science Party Staffing Recommendations

- Coordinate regular PMO meetings to improve the number and diversity of nominations for the science party.
- Initiate a dialogue and perhaps discuss an appropriate venue to understand the purpose of, and to establish overarching programmatic goals for, sailing Education or Outreach officers. Understanding that Education and Outreach have different philosophies is an important step toward establishing these programs and goals. NSF recommends that the IODP Forum take the lead in this action.

Dr. Carl Brenner, Director of the U.S. Science Support Program, stated that the USSSP had attempted to address the perceived lack of philosophy behind the Education and

Outreach programs by presenting an E&O white paper at the last meeting of the U.S. Advisory Committee for Scientific Ocean Drilling (USAC), and now, given this directive, they will reach out to a wider audience. Dr. Brenner suggested that the ECORD Outreach and Education Task Force might be the most appropriate venue to discuss program-wide E&O issues, as there are usually no Education or Outreach professionals at the Forum meeting. Dr. Koppers and Dr. Austin argued that the Forum is a wide-open entity and that Education and Outreach officers should attend to foster communication with the other IODP science participants, but they agreed that more communication is better, and discussions at other venues will also be important.

CONSENSUS STATEMENT 10: The JRFB is very pleased with the results and recommendations presented in the FY16 Co-chief Scientists Report and the FY16 JRSO NSF Site Review Report (February 2017). Both reports point out the outstanding operation, very capable management, and highly significant and operationally critical engineering improvements of the *JOIDES Resolution* facility by the JRSO. In addition, the JRFB fully supports the conclusions and recommendations by the NSF in their response to the FY16 reports, in particular to have the JRSO develop a long-term plan for the continued accommodation of cores in the Gulf Coast Repository.

ACTION ITEM 5: The JRSO will provide a written report to the JRFB two months before the May 2018 JRFB Meeting delineating options, cost estimates and/or solutions for the expansion plans of the Gulf Coast Repository.

CONSENSUS STATEMENT 11: The JRFB affirms its long-term goal to maintain the *JOIDES Resolution* facility and the Gulf Coast Repository as a state-of-the-art “floating Earth science laboratory” that is up-to-date with current analytical equipment, software and databases, while adding new standard shipboard and onshore analytical capabilities, if required by a demonstrable need of the larger IODP science community.

ACTION ITEM 6: The JRSO is asked to provide annual reports to the JRFB during its annual meetings, delineating options, cost estimates and/or solutions for the addition of new analytical capabilities on the *JOIDES Resolution* or for onshore capabilities supported through the Gulf Coast Repository.

CONSENSUS STATEMENT 12: The JRFB finds that a closer coordination between the expedition science objectives and both the education and outreach programs is warranted, including the participation of seagoing educators, videographers and other education and/or outreach officers. The JRFB supports the plan to discuss the role of education and/or outreach officers during the 2017 IODP Forum and PMO meetings in Shanghai, China.

CONSENSUS STATEMENT 13: The JRFB supports the JRSO scheduling engineering testing during transits on an as needed basis. Mechanisms for assessing the readiness of tools and other engineering innovations are required and, when proven ready, scheduling their testing at-sea with minimal impact on science is necessary. Such testing is needed to enhance the productivity of scientific ocean drilling and such engineering advances should be widely advertised to the community in order to inform future drilling proposals. Regular updates from the JRSO to the JRFB on engineering developments and testing are requested.

CONSENSUS STATEMENT 14:

The JRFB is very pleased with the numerous achievements of the IODP Science Support Office (SSO), in particular the outstanding management of the proposal process, the state-of-the-art operation of the proposal and site characterization databases, the development of new software tools to help proponents and panel members to work more efficiently with proposals and the large number of related data files, and the smooth organization of the meetings of the JRFB and its Advisory Panels. The JRFB is looking forward to the implementation of further improvements to the proposal and site characterization databases as laid out in the SSO FY18 APP.

TOPICS POSTPONED FROM DAY 1

9H. Discussion on Science Party Issues

Dr. Koppers introduced the topics as follows and led the Board in discussion.

9H1. Abolishing the Requirement of Synthesis Papers by Co-Chief Scientists

Dr. Clement showed statistics for publication and citation of synthesis papers following each expedition of the current program (2013-2023). The Co-chiefs complaint is based on the fact (as shown in the statistics) that few are generated within the salaried timeframe and there are very few citations of those generated. Dr. Miller noted that because many expeditions are multi-faceted, a synthesis paper is difficult, if not impossible to produce, but Dr. Allan noted that while responsibility for writing a synthesis paper is not stated in the Co-Chief contract, removing it as a program requirement could result in a reduction in U.S. Co-Chief financial support. Dr. Koppers requested and received approval of his Consensus Statement and argued that, because the publication process now takes longer, the synthesis paper should be encouraged (when appropriate), but not required.

CONSENSUS STATEMENT 15:

The JRFB approves to remove the Co-chief Scientist Publication Requirement to publish at least one synthesis paper per expedition. However, the JRFB is asked to keep encouraging Co-chief Scientists to always consider these kind of publications, if deemed worthwhile and scientifically justified.

9H2. Staffing of Shipboard E&O Personnel

See Item 17C (above).

9I. Discussion on JRFB Handling of Proposals after SEP Forwarding

Dr. Koppers led the Board in a brief discussion to fine-tune the following consensus statement:

CONSENSUS STATEMENT 16:

The JRFB reaffirms its primary goal of implementing all proposals that are thoroughly reviewed, scientifically evaluated, and forwarded by SEP and that have been recommended for approval by EPSP. Decisions on scheduling are principally dependent on the planned regional track of the *JOIDES Resolution*, maximizing the fit and balance of proposals to the IODP 2013-2023 Science Plan, funding and ship time availability, and safety, permitting, and other logistical constraints.

Dr. Given recommended that Dr. Koppers include this statement in his letters to the proponents to help to get this message into the community.

18. Report of the JR Science Operator

18A. Review of Y1-3 and Comparison with IODP Phase I

Dr. Clement presented a brief comparison between the current and previous science operator programs. He noted that the transition from the previous to the current program was peaceful enough to be largely unnoticed by the community. He emphasized the change in operational philosophy that resulted in a great reduction in transit distance/time, and associated fuel costs. His summary included:

Operational infrastructure accomplishments in the form of:

- Fiber optic VIT and new hydraulic power unit
- Implemented a pipe refurbishment program
- Purchased new drill pipe

Operational/Engineering accomplishments in the form of:

- Half APC Corer
- Hydraulic Release Tool and drill-in casing system (HRT)
 - Saves multiple pipe trips for typical casing installation
- Videos for each major tool to help science party understand the operations

Operational accomplishments in the form of:

- Hard rock spud in on Expedition 360
- Third longest drill string deployment from the JR
- Near record recovery on Expedition 363 (Western Pacific Warm Pool)

Laboratory / Instrumentation improvements in the form of:

- New supercomputing rock magnetometer installed in Guam port call
- New XRF core scanner at GCR
- Hand Held XRF on JR
- Built in HEPA filtered microbiology sampling enclosure for clean sampling
- Added external scientist to the Laboratory Working Groups
- Using workshops to address laboratory issues (color reflectance, stratigraphic correlation, paleomagnetism, microbiology (contaminant testing))

Application development and IT improvements in the form of:

- LIME – data editing/QC tool
- Live (formerly LIMSPEAK)
- Track systems standardized
- Internet bandwidth more than doubled (1 Mb up and 2 Mb down).

Publications accomplishments in the form of:

- Open access since the mid-90s (both data and publications)
- AGI Scientific Ocean Drilling Bibliographic Database
- ORCID researcher and contributor identifiers (orchid.org)

- FundRef funding tracking
- CrossMark metadata

Dr. Clement's budget comparison showed a peak in 2012 with an average at \$69M per year. He stressed that JRSO worked hard to reduce the budget as they were tasked, and their efforts resulted in a 5th expedition in 2018.

JRFB Member, Dr. Christina Ravelo commented that while the half APC is great, it takes longer and tends to produce more gaps in recovery. She asked if the drillers could do a full APC with drill-over? Dr. Clement noted that this introduced the risk of bending the equipment, so the drillers tend to be reluctant to do this when they have non-magnetic collars. Because the JRSO tries not to micromanage the ship, with this sort of risk-time-sample tradeoff, they leave the decision to the Co-chief scientists. Dr. Malone stated that the JRSO also seeks input from the ship's superintendent and ops to assure that they're comfortable with drilling-over as needed.

19. The JR Science Operator Draft FY'18 Annual Program Plan

Dr. Clement gave a brief operational review of the expeditions scheduled in FY18:

- Expedition 374: Ross Sea West Antarctic Ice Sheet History
- Expedition 372: Creeping Gas Hydrate Slides & Hikurangi LWD
- Expedition 375: Hikurangi Subduction Margin
- Expedition 376: Brothers Arc Flux
- Expedition 369: Australia Cretaceous Climate & Tectonics

He then gave a brief summary of the 2018 budget and the expectations included in that budget: five expeditions -- four of which are complex/costly. Dr. Allan pointed out that the exceptional costs for 2018 are accounted for in the increased bandwidth (deemed necessary), and the LWD cost, which is a known and high-cost/risk factor.

Dr. Clement emphasized that impact of the budget increase might be mitigated with TAMU's anticipated carry forward, if fuel costs cooperate. And while the 2016 NSF Review Panel recommended approximately \$1 Million in cost increase for staff and increased bandwidth, TAMU will continue to look for a way to bring this down.

Dr. Coffin asked if the JR would need a major refit anytime soon? Dr. Clement stated that the ship owner is looking at alternatives to keep the ship on track, and they will be investing in the derrick (either replace or repair) soon. But post-2019, the ship owner will be looking into what they can or must do to keep the ship in operation.

CONSENSUS STATEMENT 17:

The *JOIDES Resolution* Science Operator (JRSO) Annual Program Plan FY'18 is recommended for approval in principle. The final plan will be considered for approval by the JRFB at a later date, but before the end of July 2017.

(Postscript: The JRSO APP FY18 was approved (via email) on 20 June 2017.)

20. The Science Support Office Draft FY'18 Annual Program Plan

Dr. Given presented her first draft of the SSO Annual Program Plan. She reviewed the planned budget, which remained within 2% of the FY17 budget while retaining the same level of staffing and transitioning from Dick Norris to Donna Blackman as scientific advisor.

While the majority of the FY18 task work remained the same, the SSO continues to strive to support the IODP community, and the science by working on improvements to our databases by:

- Scoping out the concept of a Master Site Table in the Proposal Data Base (PDB)
- Implementing a new file flag for data files subject to LNDAs
- Planning for technical refresh of SSDB (perhaps at SEP in January)
- Implementing a static site for Integrated Ocean Drilling Program documents

Finally, Dr. Given gave a quick review of the plan going forward, which includes an accomplishment-based renewal proposal for a “staying the course” program. Dr. Koppers stated that the SSO is on the right track and has performed outstandingly.

CONSENSUS STATEMENT 18:

The Science Support Office (SSO) Annual Program Plan FY'18 is recommended for approval in principle. The final plan will be considered for approval by the JRFB at a later date, but before the end of July 2017.

21. Update on US-IODP *JOIDES Resolution* Facility Renewal

Dr. Beth Christensen, U.S. Advisory Committee Chair, and Dr. Brenner summarized the *JOIDES Resolution* facility renewal process. Dr. Christensen discussed the schedule and reminded the group that the JR Assessment Workshop Goals, are to:

- Assess the role of the *JOIDES Resolution* to date in accomplishing the IODP Science Plan
- Project the role of the facility in the completion of the remainder of the IODP Science Plan
- Highlight the regional operational approach, including planning and science syntheses workshops and products

She then showed the JR Assessment Workshop timeline -- to review what has been accomplished and what remains to be done. She also reviewed the Steering Committee's approach to the final product, noting that the workshop will host approximately 75 attendees, representing the broad U.S. community, and the survey will tie the success of the 14 challenges to the facility. One goal of the workshop is to capture how this regional approach is permitting the IODP to do more and better science. Dr. Christensen listed the steering committee members and gave basic statistics regarding survey response and international participation. She also outlined and provided the rationale for the workshop application requirements. Finally, she

discussed the agenda for the workshop, and presented the purpose of outlining the accomplishments toward the Science Plan.

Dr. Brenner then provided a summary of the demographics of the survey results and emphasized that these are preliminary statistics. The survey received 876 valid responses with a wide range of countries participating. Approximately half of the participants were veteran scientists (over 10 years into their career) and more than 60% had published research or had sailed on an expedition for IODP. Dr. Christensen noted that the original request for participation was not as effective as a later request from Dr. Koppers in which he approached institutional points-of-contact directly.

Dr. Coffin, on behalf of ANZIC, thanked USAC and USSSP for fast-tracking the Australasian workshop, which is getting a great response.

Dr. Koppers indicated that he sees the JRFB as the custodians of the JR Facility, while the JRFB Advisory Panels (SEP and EPSP) are facilitators for the science being carried out with the JR. He then asked what the role of the JRFB, SEP and EPSP would be during the JR Assessment Workshop? What can they do to provide context of the current IODP program and our new approach to JR operation? Dr. Christensen stated her desire to see no more than 2-3 Board or Panel-based observers/floater for each theme, and Dr. Brenner encouraged JRFB, SEP, and EPSP members to apply to attend the workshop.

Dr. Koppers also stated that the Denver 1 Workshop in 2012 has had a long-lasting effect on the IODP program and the JR in particular. Most of the science priorities have been followed and most of the operational inventions established during Denver 1 have now been implemented by the JRFB. Think about CPPs, regional planning, hybrid expeditions, non-traditional expedition lengths, and synthetic expedition grouping like IBM (Izu-Bonin-Mariana) Arc, Monsoon, South China Sea marginal sea rifting, and Antarctic paleoclimate. He then stated that the JR Assessment Workshop could potentially have the same positive effects by providing the JRFB with future directions in how to best fulfill the years 2019-2023 through JR operations.

Dr. Christensen reminded the Board that the workshop (plan, as expressed in the agenda), will begin by providing attendee groups with a one-page summary of each expedition, and the leaders for each group will generate strong responses within the context of how the *JOIDES Resolution* facility has met / accomplished the challenges within each theme (How has the science plan been addressed to date by the facility and how it will be addressed moving forward?). Each group will present their results in plenary, and the entire group will assist in refining the final text.

The goal of the second day is to come to consensus on the challenges and determine what the future holds, though not in terms of long-range planning (as was done in the Denver I workshop). It's a straightforward task of distilling the community's opinions (through the survey data) and generating a report, and not intended to be a visionary workshop. However, if time is available, the group could have long-range, planning-type discussions.

22. Need of Additional IODP Analyses

Dr. Christensen presented, based on USAC discussion and repeated requests to USAC for improvements / enhancements to on-board analytical technology, the following model to permit continued innovation in science on the *JOIDES Resolution* and keep the *JOIDES Resolution* at the forefront of its field.

Proponents identify, within their proposals and from a list of pre-determined measurements that the JRSO agrees to include in their budget, analyses critical for fulfilling mission objectives. The proponents should state clearly that, because of limited room on the *JOIDES Resolution*, these analyses must be done post-cruise, and are to be managed as shipboard measurements. The Science Evaluation Panel (SEP) will then evaluate if these measurements are critical.

These analyses would be part of the pre-cruise planning (in some cases it would require cores not be split) and this could be manageable if it's defined in advance. The data would be available to the science party immediately as shipboard data.

While this process was not intended to replace post-cruise science, but to enhance legacy data, it generated the following questions:

- If the SEP agrees that the requested measurements needed to achieve the objectives, is the JRSO responsible for seeing that these measurements are accomplished?
- If you provide a list of pre-approved measurement to limit what people can request, will this result in proponents asking for these measurements, regardless of critical need?
- How would the data be dealt with in LIMS?
- How might this impact SEP workload?
- Will SEP approve these measurements? Is approval by JRSO or NSF more appropriate?

Dr. Allan said that he finds this intriguing and worth further thought. Perhaps the model can be similar to that of a CORK. Proponents identify the data sets in the proposal and fund the analyses by writing proposals to NSF or other funding agencies. Tasking the JRSO with analyses would require they send it out for commercial bid. The SEP Co-chairs agreed that the evaluation / review of these requests is within the purview of SEP, and this sort of request is a regular part of MSPs proposals.

Therefore, proponents can recommend analyses in their proposal to SEP, and they should state in the proposal that this data would be considered expedition data. However, their funding would / must come from another source. This is constrained by the supplemental measurement objectives and how they relate to the expedition objectives. This does not address the integration of that data into LIMS, which is not non-trivial for the JRSO. However, it gives the JRSO and JRFB 4-years (from proposal submittal to expedition drilling) to figure out how to do this properly.

Finally, the Board agreed that it needs a higher-level view of data -- perhaps a panel that doesn't meet but advises via email to provide the long view and overarching guidance for those times when people want to look outside the standard measurements. Consulting with the lab working groups and reviewing Standard Measurement documents is advisable.

23. Appointment of the New JRFB Chair

Dr. Koppers noted that the JRFB Terms of Reference (TOR) calls for the appointment of a new chair after a 2-year term. Drs. Neal and Ravelo have expressed a willingness to chair the Board or the Board could put out a call for a new chair. Dr. Koppers also recommended, based on his experience, the JRFB Chair be a 3-year term, and in the third year, the Board elect a new chair (Chair-Elect) to shadow the chair before becoming Chair. The Board supports / approves this change to the TOR and agrees on internal nomination.

Dr. Ravelo, while willing, prefers not to chair at this time because of departmental duties. Dr. Neal is nominated, approved, and accepts his appointment as Chair-Elect.

CONSENSUS STATEMENT 19:

The JRFB extends the term of the current JRFB Chair Anthony Koppers with one year and agrees to change the term of the JRFB Chair to nominally three years.

CONSENSUS STATEMENT 20:

The JRFB appoints Clive Neal as the new JRFB Chair, starting 1 October 2018 and with a three-year term, following one year as Chair-Elect.

24. Membership of JRFB and the Curatorial Advisory Board

Dr. Koppers noted that the JRFB term of Dr. Ravelo ends on September 30, 2017, and he thanked her for her service. He also introduced the new members of the Curatorial Advisory Board (CAB).

CONSENSUS STATEMENT 21:

The JRFB sincerely thanks Christina Ravelo for her excellent service on the JRFB as science member. Over the past three years the JRFB has gained tremendously from Christina's vast knowledge on paleoclimatology and IODP science in general.

ACTION ITEM 7: The JRFB Chair will request that USSSP solicit applications for the JRFB U.S. science member replacement of Christina Ravelo. Recommendations from this process will be circulated to the JRFB (by e-mail) for approval.

25. Review of Consensus Statements and Action Items

Dr. Koppers led the review of consensus statements and accepted appropriate changes and additions (see below). The final statements are compiled at the front of this document.

ACTION ITEM 8: The JRFB Chair, in collaboration with the SEP Co-Chairs, will continue monitoring and deactivating inactive (>5 years) SEP proposals as necessary.

ACTION ITEM 9: The JRFB Chair will continue monitoring proposals at the JRFB that have been inactive for 5 years or more and request proponent teams to provide the JRFB with an update via an Addendum and/or PRL.

ACTION ITEM 10: An EOS article by JRFB Chair Anthony Koppers and JRFB Chair-Elect Clive Neal will be written and submitted by July 2017 to update the IODP community on the status of the IODP program and the focus of the *JOIDES Resolution* scheduling, the JRFB model, and plans for drilling expeditions in the future up to the end of IODP 2013-2023.

26. Other Business and Next JRFB Meeting

The JRFB discussed 2018 schedules for the following meetings:

- EFB is scheduled for June 15-16, 2018.
- JRFB will meet May 15-16, 2018 at the new NSF building in Alexandria VA.

Dr. Koppers, on behalf of the JRFB, thanked NSF for hosting the meeting, the SSO for their hard work in supporting the meeting, and for all participants for their active participation.

Meeting adjourned at 4:45 pm.

Appendix A

Progress of IODP Proposals submitted since October 2013

#	Proposal Short Title	Pre	Full	at FB	Scheduled	Drilled
834	Agulhas-Transkei Transect					
835	Japan Trench Tsunamigenesis					
836	Continental Margin Methane Cycling					
837	Sumatra Seismogenic Zone					362
838	South China Sea Rifting					
839	Amundsen Sea Ice Sheet History				379	
840	Niger Transform Margin					
841	Creeping Gas Hydrate Slides				372	
842	Madeira Abyssal Plain Hydrogeology					
843	Amazon Margin Drilling					
844	Comet Nucleus Material					
845	Agulhas LGM Density					361
846	Falkland Water Depth Record					
847	Drake Passage paleoenvironment					
848	Weddell Sea History					
849	Indian Peninsula Paleoclimate					
850	Transect Drilling During Transits					
851	Northwest Atlantic Cenozoic					
852	North Sea GlaciStore					
853	South Atlantic Transect					
854	Arctic Atlantic Gateway Climate					
855	SWIR hydrothermal mineralization					
856	Proposal 837 Site Survey					
857	DREAM: Mediterranean Salt Giant					
857A	DREAM: Deep-Surface Connection					
857B	DREAM: Balearic Promontory					
858	NW Australia Palaeoceanography					
859	Amazon Margin Drilling					
860	Coulman High Paleoclimate					
861	Antarctic Peninsula thermochronometry					
862	SW Atlantic Paleogene Climate					
863	ISOLAT Southern Ocean Paleoclimate					
863A	ISOLAT: Indian Antarctic Paleoceanography					
864	Equatorial Atlantic Gateway					
865	Nankai Microbial Temperature Limit					370
866	Japan Trench Paleoseismology					
867	Red Sea Plio-Pleistocene					
868	Drake-Scotia Paleoclimate					
869	Pacific Meridional Overturning Circulation					
870	Rio Grande Rise Origin					
871	Lord Howe Rise Crustal Evolution					
872	Manus-Basin sulfide deposit					
873	Drake Passage Plio-Pleistocene paleoceanography					
874	Neogene Newfoundland Sediment Drifts					
875	Brazilian Equatorial Margin Paleoceanography					
876	Bend-Fault Serpentinization					
877	High-resolution Indian Monsoon					
878	South China Sea Rifting					367/368
879	Corinth Active Rift Development				381	
880	Experiment: Drilling parameters for Lithology					
881	Sao Paulo Plateau magmatic system					
882	Brazilian Equatorial Margin Tectonics					
883	Walvis Ridge Hotspot					
884	Southern Australia Cretaceous Anoxia					
885	Ulleung Basin Gas Hydrates					
886	NW Pacific Bend-Fault Hydrology					
887	Gulf of Mexico Methane Hydrate					
888	Aleutian Basin Formation					
889	HAITI-DRILL: Sliding-Doors Fault System					
890	Walvis Ridge Hotspot					
891	Indonesian Throughflow Makassar Strait					
892	Reykjanes Mantle Convection					
893	Taiwan Arc-Continent Collision					
894	S. Pacific Quaternary Paleoproductivity					
895	Mediterranean-Atlantic Gateway Exchange					
896	North Atlantic Fjord Sediment Archives					
897	Southern Ocean Cretaceous Anoxia					369
898	Fore Arc Mohole-to-Mantle					
899	Tyrrhenian Continent-Ocean Transition					
900	Rainbow Massif Hydrothermalism					
901	Taiwan Arc-Continent Collision					
902	Iceberg Alley Paleocanography					
903	Argentine Margin Seaward Dipping Reflectors					
904	Sao Paulo Plateau Continental Rifting					
905	Goodenough Basin Subduction System					
906	Rio Grande Rise Formation					
907	Sunda Shelf Sea Level					
908	Costa Rica Megathrust Fluid-Pressure					
909	NW Greenland Glaciated Margin					
910	Continental Margin Methane Cycling: Rio Grande					
911	Argentine Margin Paleocanographic Transects					
912	Drake Passage Paleocanography					
913	East China Sea Rifting					
914	Brazilian Equatorial Margin Paleocanography					
915	North Atlantic Fjord Sediment Archives					
916	Gulf of California Environmental Change					
917	Florida Straits Gateway Record					
918	Southern Ocean Climate Evolution					

Bold:	Pre/Full	
Thin:	APL	
		Deactivated
		Active