

**IODP Science Planning Committee****12<sup>th</sup> Meeting, 25–27 August 2008****Advanced Center For Universities, Sapporo, Japan*****Science Planning Committee (SPC)***

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Jan Behrmann	Leibniz Institute for Marine Sciences, IFM-GEOMAR, Germany
Gilbert Camoin	CEREGE, Centre National de la Recherche Scientifique, France
Steve D'Hondt	Graduate School of Oceanography, University of Rhode Island, USA
David Feary	National Academy of Sciences, USA
Gabe Filippelli	Department of Earth Sciences, Indiana University-Purdue University, Indianapolis, USA
Gretchen Früh-Green	Institute for Mineralogy and Petrology, ETH Zurich, Switzerland
Will Howard (non-voting)	Antarctic Climate & Ecosystems Cooperative Research Centre, University of Tasmania, Australia
Hugh Jenkyns	Department of Earth Sciences, University of Oxford, United Kingdom
Dae Choul Kim <sup>a</sup> (non-voting)	Department of Environmental Exploration Engineering, Pukyong National University, Korea
Shuichi Kodaira <sup>b</sup>	Institute for Frontier Research on Earth Evolution (IFREE), JAMSTEC, Japan
Yong-II Lee (non-voting)*	School of Earth and Environmental Sciences, Seoul National University, Korea
Qianyu Li (non-voting)	Laboratory of Marine Geology, Tongji University, China
Katsumi Marumo	National Institute of Advanced Industrial Science and Technology, Japan
Akihiko Maruyama	National Institute of Advanced Industrial Science and Technology, Japan
Takeshi Matsumoto*	Department of Physics and Earth Sciences, University of the Ryukyus, Japan
James Mori (Chair)	Disaster Prevention Research Institute, Kyoto University, Japan
Greg Mountain	Department of Geological Sciences, Rutgers University, USA
Hiroshi Nishi <sup>c</sup>	Department of Natural History Sciences, Hokkaido University, Japan
Naohiko Ohkouchi	Institute for Frontier Research on Earth Evolution (IFREE), JAMSTEC, Japan
Larry Peterson	Rosenstiel School of Marine and Atmospheric Science, University of Miami, USA
Carolyn Ruppel	United States Geological Survey, Woods Hole, USA
Hiroaki Sato	Department of Earth and Planetary Sciences, Kobe University, Japan
Tomochika Tokunaga*	Department of Environment Systems, University of Tokyo, Japan
Ben van der Pluijm	Department of Geological Sciences, University of Michigan, USA

<sup>a</sup>Alternate for Yong-II Lee<sup>b</sup>Alternate for Takeshi Matsumoto<sup>c</sup>Alternate for Tomochika Tokunaga

\*Unable to attend

***Liaisons, Guests, and Observers***

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Naokazu Ahagon	Graduate School of Science, Hokkaido University, Japan
Jamie Allan	National Science Foundation (NSF), USA
Nobuhisa Eguchi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Dan Evans	ECORD Science Operator (ESO), British Geological Survey, UK
Akira Ishiwatari (SSEP)	Center for Northeast Asian Studies, Tohoku University, Japan
Tom Janecek	IODP Management International, Inc., Washington, D.C. Office, USA
Barbara John (SSEP)	Department of Geology and Geophysics, University of Wyoming, USA
Barry Katz (EPSP)	Chevron Corporation, USA
Hiroshi Kawamura	IODP Management International, Inc., Sapporo Office, Japan
Masataka Kinoshita (NanTroSEIZE)	Institute for Frontier Research on Earth Evolution (IFREE), JAMSTEC, Japan
Shin'ichi Kuramoto	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Hans Christian Larsen	IODP Management International, Inc., Sapporo Office, Japan
Mike Lovell (STP)	Department of Geology, University of Leicester, United Kingdom
Alberto Malinverno	Borehole Research Group, Lamont-Doherty Earth Observatory, USA
Mitch Malone	Integrated Ocean Drilling Program, Texas A&M University, USA
Catherine Mével	ECORD Managing Agency (EMA), Paris Geophysical Institute (IPGP), France
Greg Myers	IODP Management International, Inc., Washington, D.C. Office, USA
Hiroko Osawa	IODP Management International, Inc., Sapporo Office, Japan
Toshiyuki Oshima	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan

## 12<sup>th</sup> SPC (25–27 August 2008) Meeting

Christina Ravelo	Department of Ocean Sciences, University of California Santa Cruz, USA
David Rea (AM DPG)	Department of Geological Sciences, University of Michigan, USA
Dale Sawyer (SSP)	Department of Earth Science, Rice University, USA
Jeff Schuffert	United States Science Support Program (USSSP), The Consortium for Ocean Leadership, USA
Harold Tobin (NanTroSEIZE)	Department of Geology and Geophysics, University of Wisconsin-Madison, USA
Keita Umetsu	Advanced Earth Science & Technology Organization (AESTO), Japan
Bill Ussler (EDP)	Monterey Bay Aquarium Research Institute, USA
Yukihisa Washio	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Bonnie Wolff-Boenisch	ECORD Science Support & Advisory Committee (ESSAC), France
Yuki Yoshioka	Japan Drilling Earth Science Consortium (J-DESC), Japan
Barry Zelt	IODP Management International, Inc., Sapporo Office, Japan

## IODP Science Planning Committee

12<sup>th</sup> Meeting, 25–27 August 2008

Advanced Center For Universities, Sapporo, Japan

### DRAFT EXECUTIVE SUMMARY (v1.1)

#### 1. Introduction

##### 1.3. Approve SPC meeting agenda – highlight action items

**SPC Consensus 0808-01:** The SPC approves the agenda of its twelfth meeting on 25–27 August 2008 in Sapporo, Japan.

##### 1.4. Approve last SPC meeting minutes

**SPC Consensus 0808-02:** The SPC approves the minutes of its eleventh meeting on 3–6 March 2008 in Barcelona, Spain.

#### 7. Review of Proposal 728-APL2

**SPC Motion 0808-03:** Recognizing the high scientific priority of Proposal 728-APL2 (Gulf of Papua Coralline Barrier Reef), which targets a record of the 19ky melt-water pulse at a single site in the Gulf of Papua, and its high potential to complement the scientific objectives of the South Pacific Sea Level (Great Barrier Reef; GBR) expedition (Proposal 519-Full2), the SPC requests that site GoP-01 be included in the 519-Full2 program plan contingent on the GBR drilling platform transiting through Torres Strait, and contingent on Site Survey Panel and Environmental Protection and Safety Panel approval.

*Feary moved, Mountain seconded; 17 in favor (Behrmann, D'Hondt, Feary, Filippelli, Früh-Green, Jenkyns, Kodaira, Marumo, Maruyama, Mori, Mountain, Nishi, Ohkouchi, Peterson, Ruppel, Sato, van der Pluijm), none opposed, 4 non-voting (Camoin, Howard, Kim, Li).*

#### 8. NanTroSEIZE science update

##### 8.2. Discussion

**SPC Consensus 0808-04:** The SPC commends Harold Tobin and Masataka Kinoshita for their skillful guidance of the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) to date and appreciates their ongoing efforts to pursue the best scientific results in the face of a number of challenges. The SPC also thanks CDEX, the crew and scientific support staff of DSDV *Chikyu*, JAMSTEC personnel, and all NanTroSEIZE scientists for their hard work to make the project a success. Data produced by NanTroSEIZE have already enhanced our understanding of geological processes in the Nankai subduction zone and have advanced the IODP toward realizing the high-priority goal of seismogenic zone drilling.

#### 9. Asian Monsoon Detailed Planning Group (DPG) report

**SPC Consensus 0808-05:** The SPC accepts the Asian Monsoon Detailed Planning Group (DPG) report and, in light of the importance of this topic, will carefully consider the recommendations outlined in this detailed report for implementation of a strong Asian Monsoon drilling initiative.

The SPC commends David Rea for his leadership and the DPG members for an extremely helpful and rapidly completed report. We thank them for the service, consider their work complete, and hereby disband the Asian Monsoon DPG.

**SPC Consensus 0808-06:** The SPC accepts the Stage 1 recommendation of the Asian Monsoon Detailed Planning Group (DPG), which includes as its first priority the drilling objectives of Proposal 552-Full3 (Bengal Fan). SPC also accepts the other aspects of the Stage 1 recommendation of the Asian Monsoon DPG that concern the coring of selected sites on the southeast Asian margin. The target of these sites is to obtain late Miocene to present sedimentary records to develop regionally-coherent data sets characterizing erosional and hydrologic dynamics in response to the onset and intensification of the Asian Monsoon. The SPC therefore urges the proponents of Proposals 618-Full3 (East Asia Margin) and 683-Full (East Asia Topography and Monsoon) to respond to the DPG recommendations in refining the drilling objectives of these efforts.

## 10. Science Advisory Structure (SAS) reports

### 10.2. Site Survey Panel (SSP)

**SPC Consensus 0808-07:** The SPC thanks Dale Sawyer for his dedicated and exemplary service as chair of the Site Survey Panel. He provided thoughtful leadership that promoted international contributions on the panel.

### 10.4. Scientific Technology Panel (STP)

**SPC Consensus 0808-08:** The SPC receives STP Consensus statements 0807-01, 0807-02 and 0807-03 related, respectively, to the LIMS test drive and update, the magnetic susceptibility tool and the downhole magnetometer proposal, and the update on the *Chikyū*.

**SPC Consensus 0808-09:** The SPC accepts STP Consensus 0807-05 on third party tools and instruments and forwards it to IODP-MI for implementation in cooperation with the STP.

**SPC Consensus 0808-10:** The SPC receives STP Consensus Statement 0807-09 on Steve D'Hondt's presentation of the Subsurface Life Task Force report.

**SPC Consensus 0808-11:** The SPC accepts STP Recommendations 0807-10, 0807-11, 0807-12, 0807-13, 0807-14, and 0807-15 on formation factor determination, dissolved inorganic carbon measurement, negative perception of routine sampling for frozen microbiology/biogeochemistry sample preservation, microbiology inclusion and outreach, submission of microbiology data and samples to international databases and culture collections. The SPC forwards these recommendations to IODP-MI for discussion and implementation with the Implementing Organizations (IOs). The SPC recommends that IODP-MI and/or IOs seek input on details of implementation from the STP and/or the Subsurface Life Task Force if and when such input is deemed useful by IODP-MI or an IO.

**SPC Consensus 0808-12:** The SPC accepts STP Recommendation 0807-17 on the Kochi Microbiology Repository and on long-term sample storage. The SPC forwards the recommendation to IODP-MI for discussion with the Implementing Organizations (IOs) and evaluation of costs as recommended.

**SPC Consensus 0808-13:** The SPC accepts STP Consensus 0807-19 on a case-by-case STP liaison to meetings of the Engineering Development Panel (EDP) and forwards it to IODP-MI.

**SPC Consensus 0808-14:** The SPC accepts STP Consensus 0807-20 on the STP and EDP roadmaps, and collaboration of the two panels where there is significant synergy.

**SPC Consensus 0808-15:** The SPC thanks Mike Lovell for his unflagging and thoughtful dedication to advancing scientific ocean drilling through his leadership of the IODP Scientific Technology Panel (STP). We also thank Mike for his unstinting effort in teaching us the many definitions of STP.

### 10.5. Engineering Development Panel (EDP)

**SPC Consensus 0808-16:** The SPC accepts EDP Action Item 0807-08 on establishing a Microbiology Contamination Working Group.

**SPC Consensus 0808-17:** The SPC accepts EDP Consensus 0807-11 on the preparation of a draft scoping study on ultra-deep drilling.

**SPC Consensus 0808-18:** The SPC accepts EDP Consensus 0807-12 on developing a mechanism for evaluating engineering testing time on IODP Platforms.

**SPC Consensus 0808-19:** The SPC receives EDP Consensus 0807-13 on regularly sending an EDP liaison to each Scientific Technology (STP) meeting. The SPC supports liaisons between the two panels.

### 12. Future role of the Industry-IODP Science Program Planning Group (IIS PPG)

**SPC Consensus 0808-20:** The SPC thanks the Industry-IODP Science Program Planning Group (IIS PPG) for its role in promoting industry-IODP interactions and for suggesting the formation of an Industry Task Force. The IIS PPG has successfully advanced IODP interests with new constituencies. The SPC is grateful to the IIS PPG members for their time, energy, and expertise, and to Ralph Stephen for his leadership of the PPG.

### 13. Complementary project proposals (CPPs)

**SPC Motion 0808-21:** The SPC will make a decision on a complementary project proposal (CPP) by either forwarding it to the Operations Task Force (OTF), or declining it. This will be done at the SPC meeting which immediately follows the Science Steering and Evaluation Panel (SSEP) meeting that forwarded the proposal.

*Ruppel moved, Behrmann seconded; 13 in favor (Behrmann, D'Hondt, Feary, Filippelli, Früh-Green, Jenkyns, Marumo, Mori, Mountain, Nishi, Peterson, Ruppel, van der Pluijm), none opposed, 3 abstained (Kodaira, Ohkouchi, Sato); 1 absent (Maruyama); 4 non-voting (Camoin, Howard, Kim, Li).*

**SPC Consensus 0808-22:** The SPC reiterates its formal endorsement of complementary project proposals (CPPs) as a mechanism for conducting scientific drilling (a) with substantial third-party financial support, (b) on IODP platforms, and (c) under the auspices of the IODP. The SPC also continues to support a streamlined mechanism for evaluating CPPs within the Science Advisory Structure (SAS) framework. The SPC formally approves and adopts the CPP policies in Appendix A of the meeting minutes, effective immediately.

### 14. FY2009/2010 engineering development

#### 14.2. SPC discussion and prioritization

**SPC Consensus 0808-23:** The SPC recognizes the progress that has been made with the Simple Observatory design, and endorses its continuation as well as the second year development of the Motion Decoupled Hydraulic Delivery System outlined in the draft FY2010 engineering plan presented by IODP-MI. In addition, the SPC recognizes the high

scientific value of providing a wireline magnetometer to all IODP platforms and looks forward to the start of this development in FY2010.

## **16. Prospects for riser drilling beyond NanTroSEIZE**

**SPC Consensus 0808-24:** The SPC reaffirms its commitment to Proposal 537B-Full4 (Costa Rica Seismogenesis Project - CRISP - Phase B) as a highly ranked riser-drilling proposal residing with the Operations Task Force (OTF). The committee wishes to see necessary actions toward the process of readying this proposal for operations.

The SPC requests that IODP-MI and the platform operator scope this proposal to assess key operational necessities for implementation. The SPC requests that the Site Survey Panel work with the CRISP proponents to determine any scientific gaps for final site characterization and project implementation. The SPC also requests that the proponents work with the Environmental Protection and Safety Panel to update relevant information.

## **17. Procedures for SPC proposal handling**

### **17.3. Protocols for forwarding to the Operations Task Force (OTF) and Tier 1 and 2 classification**

**SPC Consensus 0808-25:** At its March 2009 meeting, the SPC intends to review and rank (1) new proposals that have been forwarded by the Science Steering and Evaluation Panel (SSEP), (2) existing proposals residing with the SPC, and (3) all Tier 2 proposals that are residing with the Operations Task Force (OTF) and that are not on any OTF-approved schedule for FY2009 or FY2010.

In March 2010, and at subsequent ranking meetings, the SPC will normally rank (1) new proposals forwarded by the SSEP, (2) existing proposals residing with the SPC, and (3) the Tier 2 proposals that have been residing with the OTF for two years and that are not on an approved schedule at the time of the SPC meeting.

## **24. Approve new Site Survey Panel (SSP) chair and vice chair**

**SPC Consensus 0808-26:** The SPC appoints Jin-Oh Park as chair and Gilles Lericolais as vice chair of the Site Survey Panel, effective immediately.

## **25. Approve new Scientific Technology Panel (STP) chair and vice chair**

**SPC Consensus 0808-27:** The SPC appoints Clive Neal as chair and Saneatsu Saito as vice chair of the Scientific Technology Panel, effective immediately.

## **26. Approve new Environmental Protection and Safety Panel (EPSP) vice chair**

**SPC Consensus 0808-28:** The SPC appoints Manabu Tanahashi as vice chair of the Environmental Protection and Safety Panel, effective immediately.

## **27. Other business**

**SPC Consensus 0808-29:** The SPC supports pursuing a more flexible approach to expedition design. The combination of environmental windows, restricted scheduling, and urgency in moving forward rapidly with science after a hiatus and in advance of renewal, provides an incentive to implement expeditions in a different way than the standard expedition model. Further, more flexible implementation may provide better opportunities to achieve top science objectives while operating under operational realities for the remainder of this program and for renewal.

The SPC members on the Operations Task Force (OTF) will initiate the flexibility model by reviewing northern Pacific proposals currently residing with the OTF and under consideration for possible scheduling in FY2010. This review will begin immediately, and will focus on balancing the highest possible scientific outcomes with operational efficiency.

The SPC constitutes a subcommittee (Filippelli, Ohkouchi, Peterson) to explore how to develop a flexibility scheme at the proposal level that ensures maximum science and maximum implementation flexibility. This subcommittee will report on these efforts at the March 2009 SPC meeting. The subcommittee will pursue a number of lines of inquiry, potentially including:

1. Request that the Implementing Organizations (IOs) provide guidance about expedition flexibility, including ramifications of combining expedition objectives and/or staffing and crew rotation to implement various length expeditions and/or combined science parties and/or short-term port calls for crew and scientist rotation.
2. Request that the funding agencies and Program Member Offices (PMOs) provide information about what financial impact the above flexibility options might have.
3. Request that the Science Steering and Evaluation Panel (SSEP) considers how proposals might include additional information about objectives achieved with respect to the overall proposal objectives with streamlined drilling plans.

## 29. Review of motions and consensus statements

**SPC Consensus 0808-30:** We gratefully thank Dr. Katsumi Marumo for his efforts as a SPC member during 2006 through 2008. Dr. Marumo is a specialist in geochemistry and clay mineralogy, including mineral (or metal)-microbe interactions. His experience in applying portable drilling systems in hydrothermal vent systems helped us to understand how the IODP works. Recently, Marumo-san has become interested in terrestrial heavy metal pollution and its removal technologies. Although this does not necessarily imply that he should be designated as a EPSP member, we look forward to seeing his great contributions to the IODP and ocean sciences in the future.

**SPC Consensus 0808-31:** The SPC thanks Steve D'Hondt for his service to SPC and especially for his insight and leadership on issues related to biogeochemistry and the deep biosphere. Steve's influence has been instrumental in educating the SPC and other SAS committees about integrating microbiologists into the IODP community and microbiology into IODP projects.

**SPC Consensus 0808-32:** For his apt colloquialisms, his clarity of presentations, his bravery in stating the unpopular when we need to hear it, and his always careful assessment of the science, we thank Greg Mountain for his able service on SPC. He has been a true advocate for the success of the IODP, providing a combination of high scientific standards and proponent advocacy that is the hallmark of our program. His voice and humor will be sorely missed.

We wish him a platform that doesn't founder, a sea level that varies wildly, and a sequence that is always prograding.

**SPC Consensus 0808-33:** The SPC thanks Naokazu Ahagon of Hokkaido University, Keita Umetsu and Yuki Yoshioka from AESTO for their efforts in hosting and supporting its meeting in the excellent room at the Advanced Center For Universities in Sapporo.

**IODP Science Planning Committee****12<sup>th</sup> Meeting, 25–27 August 2008****Advanced Center For Universities, Sapporo, Japan****DRAFT MINUTES (v1.1)**

<b>Monday</b>	<b>25 August 2008</b>	<b>09:00-17:00</b>
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**1. Introduction****1.1. Call to order and introductions**

SPC chair Jim Mori called the meeting to order at 09:00. Mori said the committee members were lucky to be on the Science Planning Committee (SPC) at an important time, adding that proposals chosen for implementation by the SPC will be the ones that finish up the first phase of the IODP in 2013. Mori mentioned that at the present meeting the committee would discuss procedures for looking at proposals and setting priorities. All meeting participants introduced themselves.

**1.2. Welcome and meeting logistics**

Local host Naokazu Ahagon welcomed the meeting participants and outlined the logistics for the meeting.

**1.3. Approve meeting agenda – highlight action items**

Mori listed some of the major agenda items: FY2010 scheduling; Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) report; Asian Monsoon Detailed Planning Group (DPG) report; FY2009/2010 engineering development proposals; future riser drilling options, proposal ranking procedures; Expedition 310 (Tahiti Sea Level) report and assessment; and long-term science planning.

Mori asked for any additions or changes to the agenda. He noted Carolyn Ruppel would present the report for agendum 12 (future role of the Industry-IODP Science Program Planning Group; IIS PPG) rather than the PPG chair, Ralph Stephen, who was not attending the meeting. Zelt noted that approving a new Site Survey Panel (SSP) vice chair should be added to agendum 24 (approve new SSP Chair). An additional discussion item, “Flexibility in Implementation”, was later added to the agenda (see agendum 27: other business). With these minor additions, the committee approved the agenda by consensus.

<b>SPC Consensus 0808-01:</b> The SPC approves the agenda of its twelfth meeting on 25–27 August 2008 in Sapporo, Japan.
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**1.4. Approve last SPC meeting minutes**

Jim Mori asked for comments or suggestions for changes to the draft minutes for the eleventh SPC meeting (March 2008, Barcelona, Spain). With no comments, the committee approved the minutes by consensus.

<b>SPC Consensus 0808-02:</b> The SPC approves the minutes of its eleventh meeting on 3–6 March 2008 in Barcelona, Spain.
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**1.5. Items approved since March 2008 SPC meeting**

None.



## 1.6. SPC procedures and protocol

### 1.6.1. Terms of reference, Robert's Rules, ranking/voting procedures

Jim Mori referred to the SPC terms of reference and noted that a SPC decision requires either a consensus or an affirmative vote of at least two-thirds of all members present and eligible to vote. He also pointed out that a quorum comprises two-thirds of the committee. Mori mentioned that the SPC occasionally uses straw votes, which are unofficial and generally do not appear in the minutes (unless specifically requested by the chairperson). He explained that SPC meetings are conducted according to Robert's Rules of Order, and listed some of the salient points from this set of rules. Mori asked the meeting participants to speak slowly and clearly, and to make their point in as few words as possible for the benefit of the participants whose first language is not English.

### 1.6.2. Conflict-of-interest policy and statements

Jim Mori reviewed the conflict-of-interest procedures for the meeting. He noted that the meeting participants should declare all potential conflicts now, including institutional, although in the past the committee has not generally regarded institutional conflicts as real conflicts. The committee members and other meeting participants declared the following direct or potential indirect conflicts of interest regarding potential discussions; the chair's ruling follows each member's declaration(s).

#### *SPC member conflicts:*

<b>Name</b>	<b>Declaration</b>	<b>Ruling by Mori*</b>
Camoin	Proponent: 519-Full2 (Great Barrier Reef) at OTF	<b>Conflict: 1</b>
D'Hondt	Proponent on three proposals at OTF (545-Full3 (Juan de Fuca Flank Hydrogeology); 662-Full3 (South Pacific Gyre Microbiology); 677-Full (Mid-Atlantic Ridge Microbiology))	No conflict
Feary	Participant in planning for the Ocean Drilling Consortium (use of <i>JOIDES Resolution</i> when off contract with the IODP)	No conflict
Kodaira	Proponent of NanTroSEIZE proposals	No conflict
Li	Proponent: 683-Full (East Asia Topography and Monsoon) – part of Asian Monsoon DPG	<b>Conflict: 2</b>
Mountain	Participant in planning for the Ocean Drilling Consortium (use of <i>JOIDES Resolution</i> when off contract with the IODP)	No conflict
Peterson	Co-chief on Melville cruise with 728-APL (Gulf of Papua Coralgal Barrier Reef) lead proponent (Droxler), which led to 728-APL.	No conflict

#### *Observer and liaison conflicts:*

<b>Name</b>	<b>Declaration</b>	<b>Ruling by Mori</b>
Ravelo	Proponent: 477-Full4 (Okhotsk/Bering Plio-Pleistocene)	No conflict
Sawyer	Participant in planning for the Ocean Drilling Consortium (use of <i>JOIDES Resolution</i> when off contract with the IODP)	No conflict
Ussler	Proponent on an engineering development proposal	<b>Conflict: 3</b>

#### **\*Conflicts:**

**1:** Conflicted for agendum 7 (Review of 728-APL2).

- 2: Conflicted for agendum 9 (Asian Monsoon DPG report).  
 3: Conflicted for agendum 14 (FY2009/2010 engineering development)

## 2. Agency reports

### 2.1. Japan Ministry of Education, Culture, Sports, Science, and Technology (MEXT)

Toshiyuki Oshima took the MEXT report in the agenda book as read. He added that the Japan Drilling Earth Science Consortium (J-DESC) will host a domestic big meeting in October or November 2008, at which discussions will focus on renewal of the IODP beyond 2013, and the future of ocean drilling. The outcome of this meeting will be input to the IODP New Ventures in Exploring Scientific Targets (INVEST) conference (23-25 September 2009, Bremen, Germany). Oshima also reported on some Japanese outreach activities and personnel changes at MEXT.

John asked about precise dates for the Japanese domestic big meeting. Oshima said that exact dates were not yet set. John requested that the meeting not be held 10-15 November, i.e., during the next Science Steering and Evaluation Panel (SSEP) meeting.

### 2.2. U.S. National Science Foundation (NSF)

Jamie Allan took the NSF report in the agenda book as read. After complementing the local meeting hosts for providing the “finest meeting room ever in IODP”, Allan reaffirmed the NSF’s commitment to the IODP. He reported that, following discussions with the Minister for MEXT in May 2008, NSF Director, Arden Bement, stated that the NSF intends “...to support a ten year extension of IODP beyond the current phase.” In addition, the NSF will provide the *JOIDES Resolution* to the IODP for 70% of the time during FY2009 to FY2013; more if possible. Allan reviewed the NSF Geosciences Directorate structure, noting that the NSF’s Ocean Drilling Program (ODP) was a part of the Marine Geosciences Section, which itself is part of the Ocean Sciences Division within the Geosciences Directorate. He also mentioned several personnel changes at the NSF. Addressing IODP membership, Allan reported that the lead agencies were in final negotiations with Australia/New Zealand (1/4 participation unit) and India (1/6 participation unit) for Associate membership. The lead agencies are also negotiating with China and Korea for renewal of their memberships. Allan concluded with a slide show showing progress on the *JOIDES Resolution* refurbishment. He said the project was 98% complete in terms of earned value for the shipyard. However, he noted that the final stage of such a project is always difficult; for example, he cited an outstanding issue with finishing up the electrical connections (230-240 km of electrical cabling were ripped out and reinstalled). Allan pointed out that the original lab stack, which was designed with a five-year life span, was in service for twenty-one years; the life span of the new lab stack module is through 2023.

Oshima noted that the former Minister for MEXT has stated that *Chikyu* will be available for scientific ocean drilling for at least the next twenty-five years. MEXT also intends to continue leading the IODP (with the NSF). He added that the MEXT Council will meet in January 2009 in conjunction with the next Science Advisory Structure Executive Committee (SASEC) meeting. Allan added that the lead agencies have already started planning for program renewal beyond 2013.

Filippelli asked if the lead agencies anticipate any changes in the financial aspect of a renewed program. Mével stated that it was too early to know for sure, but this was under discussion in Europe. Allan said it was not yet known if the *JOIDES Resolution* will be provided to the program for 70% or 100% of the time. He added that the lead agencies hope other IODP members will consider becoming lead agencies; the lead agencies also welcome any additional resources that other countries can bring to the program.

### **2.3. ECORD Managing Agency (EMA)**

Catherine Mével took the EMA report in the agenda book as read. She reported that the IODP booth at the August 2008 International Geological Congress meeting in Oslo had a different attendance profile in comparison to an American Geophysical Union (AGU) meeting, e.g., with many attendees from Asia and Russia. She added that many visitors wanted educational material for classes, and that this represented a good way to promote the program. Mével mentioned a new European Consortium for Ocean Research Drilling (ECORD) brochure, which features a black cover designed to attract attention; she said this was successful. Referring to mission specific platform (MSP) operations, Mével said that the funding for New Jersey Shallow Shelf (Proposal 564-Full2) and Great Barrier Reef (South Pacific Sea Level; Proposal 519-Full2) was secure. The ECORD Council plans to fund one MSP expedition every year during the last three years of the current phase of the IODP, hoping to increase the visibility of ECORD and prepare for program renewal. She stressed that more MSP proposals were needed at the SPC and OTF level. Mével reported that in preparation for the INVEST conference, the ECORD Science Support and Advisory Committee (ESSAC) is organizing a workshop/conference (“Beyond 2013 - The Future of European Ocean Drilling Research”) at the European Geophysical Union (EGU) meeting in April 2009. This meeting will address several issues, including: (1) the future of ECORD; (2) new scientific objectives in scientific drilling; (3) relationships between the IODP and other programs; (4) collaboration between academia and industry; and (5) new technologies. Mével also reported that, at the European Commission level, ocean drilling is specifically mentioned in the “Deep Sea Frontier” science plan, but, even if this work program was funded, it would not provide funds to support drilling science or operations. Finally, Mével mentioned the 2008 BioMarine Forum (October, Marseille) at which ECORD will promote the IODP as much as possible.

Mori reiterated the current lack of mature MSP proposals, saying the program needs to encourage more such proposals to provide a good stock for future operations.

### **2.4. China Ministry of Science and Technology (MOST)**

Qianyu Li reported that in June 2008, MOST held an advisory meeting in Beijing at which several options were discussed for China’s continued participation in the IODP. Li noted that he had not heard if MOST intends to increase its membership contribution, but he added that China would certainly renew its membership for the next five years. He also mentioned that China is interested in funding one or two cruises outside of the IODP.

### **2.5. Korea Institute of Geoscience and Mineral Resources (KIGAM)**

Dae Choul Kim stated he was not a member of KIGAM, but he thought KIGAM’s budget for IODP may increase next year.

Ruppel commended KIGAM and Korean scientists for their hard work in trying to engage the *JOIDES Resolution* for outside-IODP work.

### **2.6. Australian Research Council (ARC)**

Will Howard summarized the status of the Australia-New Zealand IODP Consortium (ANZIC). He said that a Memorandum of Understanding (MOU) was agreed upon and initialed in Beijing in June 2008, with signatures to be finalized by early next year. Howard noted that ANZIC has a 30% membership in the IODP, and that the ARC has a five-year commitment through 2012. New Zealand, which contributes 5% of the membership is currently committed only to the first two years. The ANZIC Program Member Office is located at the Australian National University (ANU), with Richard Arculus as Director, and Neville Exon as Project Scientist. A Science Steering Committee was recently formed, with Will Howard as chairman. Howard added that ANZIC is currently fairly active in the IODP, with four active proposals with lead proponents from Australia or New Zealand, and eleven

other active proposals with non-lead proponents from Australia or New Zealand. ANZIC scientists participated in NanTroSEIZE expeditions, and will participate in the Canterbury Basin, Wilkes Land Margin, and Great Barrier Reef expeditions. Howard pointed out that sustaining ANZIC involvement post-2013 is a challenge, and now was the time to start making the case for renewal of Australian membership. This, he said, will require development of a new set of proposals. The ANZIC Science Steering Committee will look into nurturing new proposals, as well as old proposals from the Ocean Drilling Program (ODP) that were never updated for the IODP. Howard pointed out that Australia also faces a major challenge in funding, because the structure does not allow scientists to be funded during or after expeditions. Funds for scientists are available only for travel to/from expeditions and meetings.

### **3. Implementing Organization (IO) reports**

#### **3.1. Center for Deep Earth Exploration (CDEX)**

Shin'ichi Kuramoto provided an update of CDEX activities. He reported on damage to the bevel gears on *Chikyu's* azimuthal thrusters, which was discovered during an overhaul inspection after Expedition 316 (NanTroSEIZE Stage 1: Shallow Megasplay and Frontal Thrusts). All bevel gears will be replaced by newly designed ones, with manufacturing to be complete by the end of November 2008, and repair work to be complete by the middle of January 2009. Kuramoto also reported on the status of legacy core distribution to the Kochi Core Center, which is to be finished by September 2008. He mentioned that a total of 84 km of legacy core had been received, and the total number of sample requests to date is sixty-one. Kuramoto also provided information on the J-CORES scientific data management system used by CDEX, both on *Chikyu* and onshore. He concluded by mentioning recent CDEX education and outreach activities.

Filippelli asked about the typical turnaround time for a sample request. Kuramoto replied that it depended on the number of samples requested, with the shortest turnaround time being about one month.

Allan added that he and Rodey Batiza (Section Head of Marine Geosciences Section, NSF) recently visited the Kochi Core Center, which he described as a truly fabulous place, with the unique ability to do things with cores on site using exotic instrumentation.

#### **3.2. U.S. Implementing Organization (USIO)**

Mitch Malone gave a status report on the refurbishment of the *JOIDES Resolution*. He mentioned that: (1) steel construction is almost complete; (2) more than 97% of electrical cables have been pulled, with shipyard electrical work focused on main power systems; (3) installation of science equipment to laboratories should begin in mid-September 2008; (4) outfitting of accommodations is progressing at a steady pace; and (5) the passive heave compensator was completely refurbished, with installation on the rig floor in progress. Malone noted that more than seventy science work packages are complete; the systems were successfully tested in mid-June by an independent science team during a 2.5-days hands-on review. He added that installation of science equipment on the *JOIDES Resolution* is targeted for mid-September. Malone said that the electrical systems remain the main pacing item due to several challenges, including shipyard over-commitment. This, he added was being mitigated by a number of measures, including involvement of Transocean senior management and ODL staff supplementing shipyard staff. Malone stated that the targeted mid-October sail away date remains feasible. He noted that flexibility that was built into the schedule is becoming limited. A critical milestone is upcoming in mid-September that will allow better assessment of the schedule; meanwhile, the USIO will be exploring contingencies to be prepared for any further slippage in vessel delivery.

Mountain asked if the USIO needed any SPC input to address contingencies. Malone replied that the USIO would first go to the OTF, but added that, until mid-September, it was too early to do that. Ruppel asked if by the next SPC meeting (March 2009) the *JOIDES Resolution* will be drilling. Malone said it definitely will be. Ruppel asked about fuel costs. Malone said it would cost \$3.5M to fill up in mid-October 2008. He added that the total fuel cost for FY2009 is estimated to be about \$9.5M. Allan added that in 2000, fuel for twelve months of operation cost about \$2M; the same would now cost about \$14M.

Note: in mid-September 2008, the NSF announced that the critical mid-September milestone would not be met, and the USIO indicated that the ship will sail from the shipyard by the end of January 2009.

### **3.3. ECORD Science Operator (ESO)**

Dan Evans provided a brief update to the written report in the agenda book. He explained that the New Jersey Shallow Shelf expedition was postponed for this year because the only potential contractor could not provide a platform. A new call for tenders resulted in four tenders issued; a contract meeting would be held this week with a potential contractor. Evans added that ESO is still seeking a replacement for Stephen Hesselbo as New Jersey co-chief scientist.

For the Great Barrier Reef (GBR) expedition, Evans reported that ESO has been granted a permit to drill; however, core sites are limited to twenty-five at seven locations (too few), and the permit expires 1 November 2009, which is too early. He added that implementation of GBR in 2009 is dependent on an early start of the New Jersey expedition. Evans stated that platform tenders were currently being assessed. Jody Webster and Yusuke Yokoyama have been appointed as co-chief scientists; the call for science party applications is now out.

Howard asked about the latest start for New Jersey drilling that would still permit GBR to be implemented in 2009. Evans replied that June 2009 would be the latest (assuming it is possible to get an extension of the GBR permit), but ESO will try to implement NJ by the beginning of May.

### **4. IODP Management International, Inc. (IODP-MI) report (items other than IODP platform scheduling)**

Hans Christian Larsen displayed the latest Science Advisory Structure (SAS) meeting schedule, and noted that the Site Survey Panel (SSP) meeting scheduled for July 2008 was cancelled because there was an insufficient number of proposals for review to justify a meeting. He added that a few urgent reviews were being conducted electronically.

Larsen presented proposal statistics for the 1 April 2008 submission deadline, and for all active proposals. He noted the relatively low number of proposals requiring riser drilling, and mentioned that this would be addressed in a separate agenda item (agendum 16). He added that the SAS needs to realize that the current way of generating and nurturing riser proposals has not worked. Larsen also noted the low number of MSP proposals. Ruppel commented that there was a highly ranked MSP proposal at the previous SPC meeting which now has funding for a site survey (Proposal 637-Full2; New England Shelf Hydrogeology).

Larsen provided an update on the upcoming IODP-MI-funded workshop on “Acquiring high to ultra-high resolution geological records of past climate change by scientific drilling”, to be held 29 September–1 October 2008 in Potsdam. He mentioned that more than 150 applications were received, with a target of about seventy participants. Peterson (a co-chair of the workshop steering committee) added that a December 2008 AGU session has been organized as a follow-up to accommodate some of the people that cannot attend the workshop. Larsen also reported briefly on long-term thematic reviews. The final report from

the first IODP Thematic Review on climate variability is available online. The second review, on oceanic crustal structure and formation, will take place 2-3 October 2008 in Zurich. Larsen commented that it is only a couple of years after an expedition is completed that its impact and achievements become understood.

Früh-Green noted that a small (20-25 persons) workshop on heterogeneity of oceanic crust, primarily funded by ESF/Magellan, UK IODP and InterRidge, would take place in September. Mével added that a workshop on Arctic Ocean history, funded by the United States Science Support Program (USSSP) and ESF/Magellan, would take place in early November. Schuffert mentioned that the deadline for applying had just passed, with over one hundred applications received for eighty slots.

Larsen summarized the status of the FY2009 Annual Program Plan (APP), noting that the revised draft budget meets the lead agencies science operating costs (SOCs) budget target of \$35M, and is consistent with the current operational schedule. He mentioned that recent cuts to the budget led to: (1) moderate full-time equivalent (FTE) reduction; (2) some reduced borehole logging programs; (3) reduction of the IODP Proceedings to only the Initial Reports Volume, and only on the web (i.e., no DVD volume); and (4) no IO handling or review of data reports and syntheses papers. He added that funding for shipboard support, engineering and data management development, and the renewal conference (IODP New Ventures in Exploring Scientific Targets; INVEST) was maintained.

Larsen presented a brief overview of the Scientific Earth Drilling Information System (SEDIS), noting that it was a system for making data available to the community. He said that SEDIS includes a facility for the submission of post-expedition data. Larsen added that the SAS, particularly the Scientific Technology Panel (STP), may be asked to review scientific data sets.

Larsen gave a brief update on IODP-MI staff changes, noting that IODP-MI is advertising for a new President. He concluded by listing the steering committee members for the INVEST meeting.

Schuffert sought clarification on Larsen's comments about data reports. He asked if members of the science party would no longer have that avenue to fulfill their obligations, and instead would have to successfully publish a paper in the open literature. Larsen replied that this was the case, noting that the decision to terminate the data reports had programmatic consequences. Allan stated that he had only just learned of this decision. He stated that the lead agencies would probably be reluctant to make this decision on their own, and recommended that the SAS look into it. He asked how much money would be saved. Larsen said he did not have the figures, which anyway should come from the USIO. Allan told Mori that the SPC should look into this and give it some serious thought because it has significant consequences for IODP policy. Mori wondered whether the SASEC would be the more appropriate body to look into it. Allan replied that it was up to the SPC to decide, but reiterated that the decision to terminate the data reports should be examined by the SAS. He added that the lead agencies may be in a position where they will have to tentatively, but not fully, approve the Program Plan. Larsen stated that, with such a limited budget, there is nothing else to cut that does not cost drilling time. Malone explained that the USIO had to meet a budget target by either cutting shipboard services or something else; publications are 100% SOC's, so they could be cut. Feary stated that synthesis papers are a major legacy of the program, adding that he would hate to see these papers at the whim of external publication. He suggested the SPC should be concerned if there is a suggestion that these synthesis papers will not be published. Larsen noted that the decision to terminate IODP synthesis papers would affect expeditions starting with Expedition 301. John agreed with Feary, stating that

without synthesis papers the program is losing a lot of invaluable legacy and post-cruise information. She said this would be a big loss. Allan said that the program was in a tough position with limited resources. He said that it was not strictly an issue of funding for operations versus publications. He again stated it would be useful for the lead agencies to receive advice from the SAS.

Howard asked for amplification on the idea of the STP reviewing data reports. Larsen replied that it would not be done at an STP meeting, but the STP would take care of the review process of datasets. He added that this idea has not yet been discussed with the STP, but he suggested it would fit with other STP tasks. Howard suggested it could be a large volume of work. Larsen agreed, noting that some expeditions generate a couple of data reports, while others may have twelve to fifteen data reports. He described it as a non-trivial issue.

Ruppel stated she had a visceral reaction to cutting something from the program that is very important, but she said nothing that will be cut in the next few years will be unimportant. She added that every model has to be looked at. Ruppel said that it was basically impossible for the SPC, or any SAS group such as the SASEC, to have an intelligent discussion on the issue without knowing the budgetary implications. Larsen agreed that the problem was too complex to find a solution at this meeting, but stated he would like to get comments on the importance of the publications. Mori noted that the SASEC has a budget committee to look at these kinds of things. Früh-Green wondered if there had been discussions about alternate ways of doing/funding the publications. Larsen said he had been thinking about alternatives, such as the STP review of datasets, or perhaps publication of papers in *Scientific Drilling*.

### **5. Science Advisory Structure Executive Committee (SASEC) report**

Jim Mori reported on the June 2008 SASEC meeting. He noted that the SASEC could not approve the FY2009 Annual Program Plan at the meeting because the budget did not match guidance from the lead agencies. He added that the SASEC will vote by e-mail to approve the Program Plan with advice from its budget subcommittee.

Mori reported that the SASEC (in Consensus 0806-05) accepted SPC Consensus 0803-20 on the recommendation of the deep biosphere and seafloor ocean as the theme for the next long-term thematic review.

Mori also presented a number of SASEC consensus statements addressing proposal handling. He noted that in SASEC Consensus 0806-04, the SASEC supported the consideration of thematic balance when proposals are ranked by the SPC. He presented SASEC Consensus 0806-12, in which the SASEC recommends that the SPC implement procedures to: “(1) provide more specific feedback to proponents, particularly in terms of their potential success in prioritization for drilling; and (2) streamline the processing of proposals forwarded to them from the SSEP.” Mori also presented SASEC Consensus 0806-11, in which the SASEC “encourages the community to continue to submit proposals for drilling within the current program and in preparation for renewal of the program.” With regard to riser drilling, Mori presented SASEC Consensus 0806-03, in which the SASEC “reaffirms IODP’s commitment to maximize riser drilling with *Chikyu* over the next five years.”

Ruppel commented that there have been three examples in the last fourteen months of the SASEC being “out of touch”: missions, recasting of the Initial Science Plan (ISP), and thematic reviews. She asked if the SASEC sees any problem with how the SPC is looking at thematic balance within the ISP. Mori replied no. Ruppel wondered what the consequence would be if the SPC puts forward a schedule that the SASEC does not think properly addresses balance. Mori replied that the SPC should consider what it is doing, and the way it is doing it.

Referring to SASEC Consensus 0806-12, Filippelli asked what it meant. Mori replied that it refers to deactivation and a need to deal more harshly with proposals. Behrmann said he thought the core of the message did not imply deactivation, but rather addressed the fact that there are many proposals residing with the OTF, and that proponents have some expectation of being told if their proposal has a chance to be drilled before 2013. Mori mentioned that at the SASEC meeting, Manik Talwani had advocated stopping the submission of new proposals, but the SASEC disagreed, resulting in SASEC Consensus 0806-11. Mori said that if the submission of new proposals is stopped now, there would be insufficient proposals for the planned renewal of IODP (post-2013). In addition, he said it was important to get new ideas into the system, and to keep people involved in the program.

Howard said that in reading the SASEC minutes, he came across the discussion on the requirement for 3-D seismic data for riser drilling. He said he had not appreciated how expensive it was to acquire such data. Mori said that for riser drilling, you really need to image the target beforehand, and generally the only way to do this is with a 3-D survey. He added that perhaps under certain conditions (e.g., a structurally simple environment), 3-D data may not be necessary. Mountain wondered about the geographical overlap between areas where 3-D seismic datasets and good scientific targets exist. He expressed concern that there was no intersection between the science community and the community that knows about the 3-D datasets. Ruppel commented that purchasing data directly from those who acquired them can be much cheaper than paying for acquisition. Feary thought the discussion was more within the purview of the Site Survey Panel (SSP). Mori replied that the SSP evaluates the data. Larsen said the requirement for a 3-D seismic survey prior to riser drilling means that a new mechanism was needed for fostering riser drilling projects. He called it a huge problem. Sawyer said that the proponents who submit data to the SSP are responsible for knowing about datasets in the area they are working. He doubted that proponents would be so naïve as to not know about the existence of industry data in their study area. He added that the SSP has members who also might know about the existence of 3-D datasets. Sawyer said there are two types of 3-D data: large, regional-scale datasets, and high resolution datasets; but all are expensive to acquire, and there are no good mechanisms for funding acquisition. Mori said that perhaps the SPC could make a recommendation on how to deal with the site survey funding issue.

## **6. Operations Task Force (OTF) report: FY2009/2010 IODP expedition scheduling I - update on schedule developments**

Tom Janecek explained that normally at this meeting the SPC would approve an FY2010 schedule, but for various reasons this would not be practicable. He pointed out that, besides the Great Barrier Reef expedition which may start at the beginning of FY2010, there will be no MSP operations in FY2010. Also, there will be no *Chikyu* operations in FY2010 (most will be in FY2009 and FY2011), and an FY2010 schedule for the *JOIDES Resolution* is uncertain and dependent on the location of non-IODP contract work.

Janecek described changes to the FY2009 platform schedules relative to the schedules approved at the March 2008 SPC meeting. For MSP operations, the main change was the delay of the New Jersey Shallow Shelf expedition from FY2008 to FY2009, now targeted for May-August 2009.

FY2009 *Chikyu* operations have been delayed to March 2009 because of damage to the azimuthal thrusters. Other constraints include the Kuroshio Current, fishing unions, and NanTroSEIZE Project Management Team (PMT) prioritizations. The OTF options for FY2009 *Chikyu* utilization were: (1) allocate all time to NanTroSEIZE; (2) split time between NanTroSEIZE and non-NanTroSEIZE; or (3) allocate all time to non-NanTroSEIZE effort. In

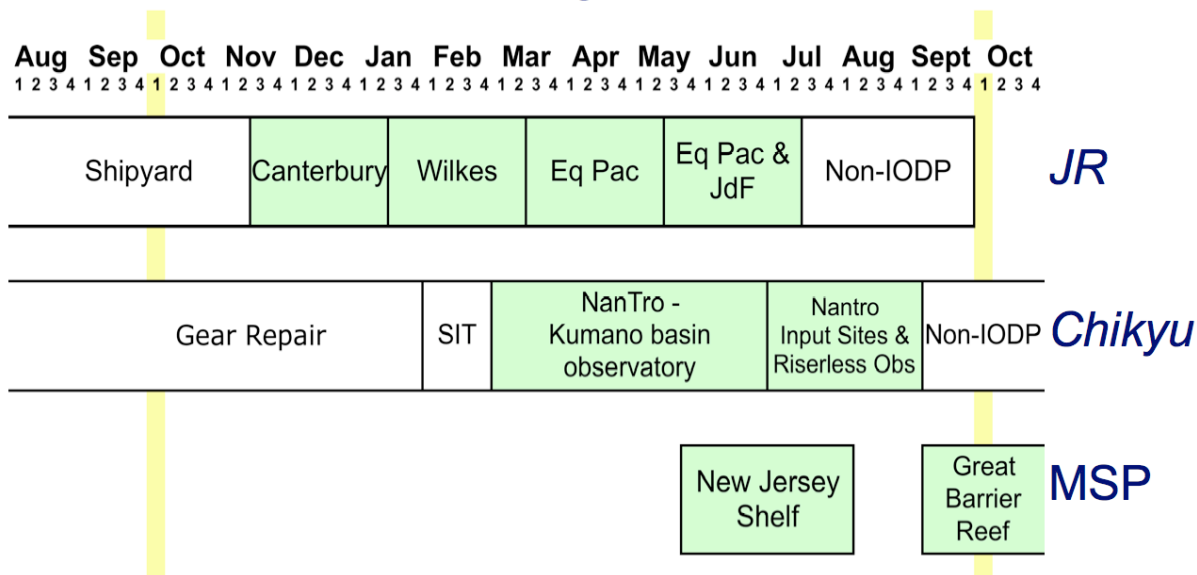


considering these options, the OTF noted: (1) the importance of progress at NanTroSEIZE to the IODP; (2) the need to maximize operational flexibility; (3) the limited operations to date at NanTroSEIZE; (4) the likelihood of the *JOIDES Resolution* operating in the Pacific in FY2010; and (5) no viable non-NanTroSEIZE riser options are ready for FY2009. The OTF’s recommendation is to make progress on the PMT’s second and third priorities, i.e., installing upper-plate observatories; and sampling inputs to the subduction zone.

Further delays in delivery of the *JOIDES Resolution* beyond September 2009 led the OTF to consider the SPC priorities for FY2009 operations as specified in SPC Consensus 0803-04. In that consensus statement, the SPC’s preference was to implement Canterbury Basin, Wilkes Land Margin, Pacific Equatorial Age Transect II plus Juan de Fuca Flank Hydrogeology remedial cementing, and Bering Plio-Pleistocene. The second priority was implementation of Canterbury, Wilkes, Pacific Equatorial Age Transect II plus Juan de Fuca Flank Hydrogeology remedial cementing, and Pacific Equatorial Age Transect I. The preferred option required idle time of thirty days prior to the Bering Sea expedition, and therefore a thirty day extension of the operational window for FY2009. OTF deliberations noted: (1) only an eight-month budget, which means the extra thirty days come at the expense of other operations; (2) idling the vessel while paying the day-rate with no science was deemed not acceptable; (3) no viable IODP operations for thirty days idle time; (4) need to maximize contiguous non-IODP days; and (5) a good chance for the Bering Sea option in FY2010. Based on these factors, the OTF recommended proceeding with the SPC’s second priority FY2009 schedule.

Janecek showed a summary figure of the revised FY2009 OTF schedule recommendations.

## FY2009 Platform Schedules As of August 2008



Janecek summarized scheduling issues beyond FY2009. For MSP operations he noted that, beyond FY2010, ECORD desires to implement one MSP for each fiscal year. He described *Chikyuu* scheduling beyond FY2009 as problematic, particularly with regard to the ability to achieve the primary objective (deep fault) due to uncertainties of the Kuroshio Current. He noted that one option was to consider a commitment to another riser project, such as the Costa Rica Seismogenesis Project (CRISP). For the *JOIDES Resolution*, Janecek said there

were too many uncertainties until the location of commercial (outside-IODP) work was known.

For *JOIDES Resolution* scheduling beyond FY2009, Janecek said that he wanted to establish a selection protocol for the OTF, and look at new models for increasing the number of science operations implemented each fiscal year. He presented a draft scheduling protocol which addressed several issues: (1) period(s) of operation; (2) area(s) of operation; (3) weather window(s); (4) Tier 1 designation; (5) Tier 2 ranking order; and (6) cost. Janecek presented an example of how the protocol would work.

Mori noted that the SPC would return to the selection protocol topic later on the agenda (agendum 14.1), adding that he wanted the SPC to approve the presented protocol, or some other. Ruppel reminded the committee that there are five SPC members on the OTF. She asked if the SPC trusted those five SPC members to represent the wider interests of the committee.

Filippelli noted that Janecek's example included items with both low cost and high cost implications. He wondered if it would ever be possible to know what "high cost" means in terms of real dollars. Janecek replied that the IOs would have to bring that information to the OTF. He said that as options become more developed, details of costs would become clearer.

Feary wanted to know about the implications of variable length expeditions, for example, in terms of crew changeovers, etc. Janecek said that the OTF was looking for input from the SPC to establish the realm of possibilities that the SPC wants to see, e.g., more science programs in a year within eight months. The OTF would then investigate and look into cost implications. Filippelli stated that he wanted to ensure that the SPC returns to this later in the agenda because it will provide a better framework for the OTF (see agendum 27). He also wondered how the SPC would consider, as an example, two high priority expeditions that each cost 1.5 times the cost of a normal expedition. He wondered about the comfort level of the committee in such a scenario, which would take up one month of the schedule to accommodate two high priority expeditions. Ruppel expressed confusion over the issue of different length expeditions, saying that it was a high level policy issue which needed the full discussion of the committee and others in the room. Larsen noted that Expedition 307 (Porcupine Basin Carbonate Mounds), though originally proposed as a standard eight-week expedition, was later scaled down to 2.5 weeks and was very successful. Malone added that Expedition 308 (Gulf of Mexico Overpressures) was also shorter than normal.

### **7. Review of Proposal 728-APL2 (Gulf of Papua Coralgall Barrier Reef)**

Conflicted SPC member Gilbert Camoin left the room for this agenda item. Watchdogs for the review were David Feary, Greg Mountain and Hugh Jenkyns. Lead watchdog David Feary reminded the committee of its previous recommendation (SPC Consensus 0803-27), which included requesting that the proponents submit a revised ancillary project letter (APL) with a revised drilling plan based on a single hole. Feary noted that the APL planned to piggyback on the Great Barrier Reef drilling, and was based on the likelihood that the drilling platform will transit through Torres Strait. Feary summarized the main scientific objectives of both the Great Barrier Reef drilling, and Proposal 728-APL2. The committee's discussion focused on the benefits of implementing the APL at the expense of three operational days of Great Barrier Reef drilling. Eventually, the watchdogs' recommendation that the APL be supported as an add-on to the Great Barrier Reef drilling, subject to review and approval by both the SSP and EPSP, was accepted in a motion.

**SPC Motion 0808-03:** Recognizing the high scientific priority of Proposal 728-APL2 (Gulf of Papua Coralgal Barrier Reef), which targets a record of the 19ky melt-water pulse at a single site in the Gulf of Papua, and its high potential to complement the scientific objectives of the South Pacific Sea Level (Great Barrier Reef; GBR) expedition (Proposal 519-Full2), the SPC requests that site GoP-01 be included in the 519-Full2 program plan contingent on the GBR drilling platform transiting through Torres Strait, and contingent on Site Survey Panel and Environmental Protection and Safety Panel approval.

*Feary moved, Mountain seconded; 17 in favor (Behrmann, D'Hondt, Feary, Filippelli, Früh-Green, Jenkyns, Kodaira, Marumo, Maruyama, Mori, Mountain, Nishi, Ohkouchi, Peterson, Ruppel, Sato, van der Pluijm), none opposed, 4 non-voting (Camoin, Howard, Kim, Li).*

During the discussions, Ruppel commented that APLs are always implemented at the expensive of other drilling operations, and would always be problematic. She asked Mori to take that message to the SASEC, and suggested that APLs should not be encouraged. D'Hondt stated that APLs are a long standing part of the IODP proposal process; he recommended not sending such a message to the SASEC.

## **8. NanTroSEIZE science update**

### **8.1. Presentation**

Harold Tobin and Masataka Kinoshita presented a status report on NanTroSEIZE drilling, with Tobin presenting the objectives and organization of NanTroSEIZE and key Stage 1 results, and Kinoshita presenting a revised schedule for future drilling and plans for Stage 2 riser drilling and observatories. Tobin noted that NanTroSEIZE is “all about fault mechanics”, with the drilling transect spanning the up-dip limit of the M8+ 1944 Tonankai subduction earthquake. He reviewed the history of the NanTroSEIZE proposals (Proposals 603-CDP, 603A-D) during their tenure in the SAS, noting that NanTroSEIZE was the first IODP complex drilling project (CDP). Tobin explained that the NanTroSEIZE Project Management Team (PMT) divided the project into discrete stages, which do not correspond directly to the individual proposals, and which also are not individual expeditions. Tobin briefly synopsised the stages, noting that: Stage 1 was completed during 2007-2008 with riserless drilling of eight sites; Stage 2 was planned for 2009 with riser drilling at site NT2-11 and additional riserless operations at subduction input sites and observatory sites; Stage 3 was planned for 2011-2012 with ~6000m of riser drilling at site NT3-01 and observatory installations at other sites; and Stage 4 will comprise long-term monitoring using observatories installed in two deep riser holes. Tobin also briefly described the 3-D seismic survey used to underpin the drilling.

Tobin summarized the results from Stage 1 drilling, which comprised Expeditions 314 (LWD Transect), 315 (Megasplay Riser Pilot) and 316 (Shallow Megasplay and Frontal Thrusts). He noted that: (1) these represented the first expeditions by *Chikyu*; (2) seventy-one scientists from twelve countries were on board for five months of continuous operations (September 2007 – February 2008); (3) thirty-three holes were drilled at eight sites up to 1400m below the seafloor; (4) core samples were obtained from active faults; and (5) major variations in stress orientations were found, providing evidence for the location of the up-dip limit of the frictionally locked plate interface. Tobin also summarized future drilling plans, including: (1) in 2009, Expeditions 319, 322 and 323 designed to drill and prepare for installation of seismic, geodetic and hydrologic observatories at three sites above the seismogenic zone, and core the subduction inputs to basement; (2) in 2011, installation of monitoring systems in cased boreholes; and (3) from 2011- 20??, conduct riser drilling into the megasplay fault/plate boundary. Tobin also mentioned plans to link NanTroSEIZE observatories to the Japanese seafloor cabled network, DONET, to allow real time borehole monitoring.

Kinoshita listed the principal objectives of future drilling as prioritized by the NanTroSEIZE PMT: (1) drilling to the plate boundary in the seismogenic zone; (2) installing up to three upper-plate observatories; (3) sampling inputs to the subduction zone; and (4) drilling to intermediate depth into the fault zone. Kinoshita also reviewed the revised plans for each stage.

## 8.2. Discussion

van der Pluijm said that the removal of site C0001 (megaseismic fault) reduced his excitement level towards the project. He said that moving from site C0001 to site NT2-11 for riser drilling was not a minor change. Tobin replied that the PMT has a set of objectives, and recovery of fault zone material has been deferred. He said the observatories are equally, if not more, important than sampling. Behrmann said that during Expedition 315 the sticky zone could not be traversed. He suggested that the PMT was very wise to walk away from site C0001, and doubted it would ever be worthwhile to return because it would not be possible to set casing. This, he said, made the deep frontal part of the accretionary prism technically impenetrable to drilling with current technology, and thus site C0002 might provide the only option to get to the deep fault.

Ruppel asked what the PMT felt were the principal frustrations in the process of keeping the SAS and IOs satisfied. She wondered if there was something that the SPC could do to address any problems. Tobin replied that the SAS has been incredibly supportive. He mentioned that there was some frustration early on in the SAS process because the rules kept changing, which delayed proposals by a couple of years.

Ruppel asked how the cable observatory component (DONET) was funded, and whether it was connected to the IODP in any way. Kinoshita replied that it was a separate project funded by MEXT. Mori suggested that, although the projects were separate, the existence of one helps the other. Tobin agreed, saying that there was good communication between constituents of the two projects. He added that the cable locations were designed to be close to the borehole sites.

Mountain asked which sites were impacted by the Kuroshio Current. Tobin explained that site NT2-04 and sites further south were impacted. He said the current has a long term history of swinging around, and can go into a meandering mode for years where it swings away from the NanTroSEIZE region. He expressed hope that the combination of a riser fairing and reduced current will permit some riser drilling in the area. Feary wondered how much advance warning would accompany a change to the meandering mode. Kinoshita estimated three months, adding this was not enough time to prepare for riser drilling. Sato asked for clarification on technical developments to avoid current-induced vibration. Kuramoto replied that CDEX has ordered a fairing system for the riser, which should be delivered before March 2009. This, he said, should reduce vortex induced vibration.

Mori asked if the SPC agreed with the PMT's prioritization of the objectives. Mountain commended the entire project structure, saying it has worked well in the face of unforeseen challenges. He added that the PMT system is working well. van der Pluijm wondered if the fourth priority (drilling to intermediate depth into fault zone) would be higher if not for the technical difficulties. Tobin explained that the list of priorities mixes scientific goals with operational issues. He suggested the fourth priority would rate higher on purely scientific grounds. But, he added, even if the Kuroshio Current was not a problem, drilling conditions at site C0001 (NT2-03) were very difficult. Ruppel agreed with Mountain, saying the system is working well. She recommended trusting the PMT, and commended it. She added that she did not want to mess with their priorities. Mori suggested that a statement of support for the

NanTroSEIZE operations to date would be appropriate. Ruppel drafted a statement which was later accepted by consensus of the committee.

**SPC Consensus 0808-04:** The SPC commends Harold Tobin and Masataka Kinoshita for their skillful guidance of the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) to date and appreciates their ongoing efforts to pursue the best scientific results in the face of a number of challenges. The SPC also thanks CDEX, the crew and scientific support staff of DSDV *Chikyu*, JAMSTEC personnel, and all NanTroSEIZE scientists for their hard work to make the project a success. Data produced by NanTroSEIZE have already enhanced our understanding of geological processes in the Nankai subduction zone and have advanced the IODP toward realizing the high-priority goal of seismogenic zone drilling.

### 9. Asian Monsoon Detailed Planning Group (DPG) report

Li, a proponent of Proposal 683-Pre (East Asia Topography and Monsoon), left the room for this agenda item. David Rea, chair of the Asian Monsoon and Cenozoic Tectonic History DPG, reported on the outcome of the March 2008 DPG meeting. Rea noted that the tasks of the DPG were to: (1) design a drilling plan based on the information presented in IODP Proposals 552-Full3 (Bengal Fan), 595-Full3 (Indus Fan), 618-Full3 (East Asia Margin) and 683-Full (East Asia Topography and Monsoon); (2) identify outreach and education possibilities; (3) incorporate climate modeling into the planning; and (4) identify proxies for uplift and erosion and for the monsoon. Addressing the task of outreach and education, Rea said the DPG felt that in the years since the beginning of the IODP, outreach and education has become an integrated and sophisticated part of the total effort, and therefore the DPG essentially defers to the knowledge and abilities of other groups (e.g., ECORD, J-DESC, Consortium for Ocean Leadership). On the topic of modeling, the DPG report noted that “more recent sophisticated modeling studies over the past decade have generally confirmed the apparent relationship between enhanced topography and the monsoon circulation.” The DPG recommended that a paleoclimate modeler be assigned to the shipboard/shore-based scientific parties as soon as they are selected. Rea noted that the DPG report lists numerous proxies for: sources of clastic sediment; estimation of exhumation rates; terrestrial response to monsoon strength; and marine response to monsoon strength. The DPG noted that a variety of proxy records will be required to resolve the suite of issues associated with the mountains and monsoons enterprise. The drilling plan recommended by the DPG comprised two stages. Stage 1 comprises: (a) drilling the Bengal Fan as outlined in Proposal 552-Full3, using the *JOIDES Resolution*; and (b) drilling the top 1000 m of the distal sites offshore from the Mekong and Red River systems (Proposal 618-Full3), and Yangtze River system (Proposal 683-Full), also using the *JOIDES Resolution*. Stage 2 comprises: (a) using *Chikyu* to deepen the holes offshore from the Mekong and Red Rivers to recover Paleogene materials, and drilling a new deep hole offshore from the Yangtze to the top of the Oligocene; and (b) drilling the sites on the Indus Fan in the Arabian Sea (Proposal 595-Full3), which may require relocation of the sites, or resolution of regional political and security issues.

Mori said that if the DPG’s report is accepted, the SPC will have to follow up with consistent proposal rankings at its March 2009 meeting. Filippelli expressed support for the work of Rea and the DPG. Camoin wondered how the DPG recommendations would be factored into the SPC proposal evaluations in March 2009, with only some of the proposed sites recommended for drilling. Mori replied that, in the past when evaluating proposals, sometimes only specific parts of a proposal were considered. He said that watchdogs would have to consider recommending just a part of the proposal. Mountain expressed concern that the Stage 1b component would not give startling results. Rea said that drilling the top 1000m would provide samples back to the Late Miocene, a time when a lot of things changed, and hopefully this could be compared to the longer record in the Bengal Fan. He said the main

issue with doing only the top section is that it would orphan the rest of the proposal. Ruppel said that this was not a problem; the proponents could be asked to submit an addendum focusing on the shallow drilling. Camoin wondered what would happen if, for example, the Bengal Fan (Proposal 552-Full3) ranked highly in March 2009, but the proposals in Stage 1b did not; he wondered what would be missed. Rea replied that one would not see the other half of the drainage question. He said it may not be a primary part of the picture, but any additional information would be important. Filippelli suggested Proposal 552-Full3 and the Stage 1b proposals not be ranked as discrete proposals. Nishi asked for clarification on the SAS stage of Proposals 618-Full3 and 683-Full. Camoin replied that Proposal 618-Full3 resided with the SPC, and thus would be ranked in March 2009, but Proposal 683-Full resided with the SSEP, and thus would not be ranked. Mori suggested that the SPC make a statement accepting the DPG report, and thanking Rea. Schuffert said that the statement should clarify the status of the DPG; i.e., specify if it is finished. Filippelli drafted a statement that was later accepted by consensus of the committee.

**SPC Consensus 0808-05:** The SPC accepts the Asian Monsoon Detailed Planning Group (DPG) report and, in light of the importance of this topic, will carefully consider the recommendations outlined in this detailed report for implementation of a strong Asian Monsoon drilling initiative.

The SPC commends David Rea for his leadership and the DPG members for an extremely helpful and rapidly completed report. We thank them for the service, consider their work complete, and hereby disband the Asian Monsoon DPG.

On Tuesday the SPC continued discussion on the DPG report, and discussed the wording of an additional consensus statement accepting the recommendations of the report. Filippelli again suggested that if the SPC truly supported the recommendations of the DPG, it would rank Proposals 552-Full3 and 618-Full3 together at its March 2009 meeting. Früh-Green preferred that they be ranked separately. Camoin suggested it would be difficult to package the two proposals together for ranking. He said the SPC has a memory, and when the two proposals are reviewed, the recommendations of the DPG report would be factored in. He suggested asking the proponents of Proposal 618-Full3 to submit an addendum addressing the recommended Stage 1b drilling plan. Howard, Feary and Ruppel concurred. Katz stated that the EPSP has looked at Proposal 618-Full3 and found that, as currently laid out, the proposed drilling would take four to five years. He suggested that the proponents need guidance to help focus the proposal. van der Pluijm suggested that the SPC should do more than just acknowledge the DPG recommendations; he suggested that the committee should make a commitment to implementing the recommendations. Filippelli drafted a statement which was accepted by consensus of the committee.

**SPC Consensus 0808-06:** The SPC accepts the Stage 1 recommendation of the Asian Monsoon Detailed Planning Group (DPG), which includes as its first priority the drilling objectives of Proposal 552-Full3 (Bengal Fan). SPC also accepts the other aspects of the Stage 1 recommendation of the Asian Monsoon DPG that concern the coring of selected sites on the southeast Asian margin. The target of these sites is to obtain late Miocene to present sedimentary records to develop regionally-coherent data sets characterizing erosional and hydrologic dynamics in response to the onset and intensification of the Asian Monsoon. The SPC therefore urges the proponents of Proposals 618-Full3 (East Asia Margin) and 683-Full3 (East Asia Topography and Monsoon) to respond to the DPG recommendations in refining the drilling objectives of these efforts.

**Tuesday****26 August 2008****09:00-17:00****10.1. SSEP**

Akira Ishiwatari presented a report on the May 2008 SSEP meeting, at which the panel reviewed sixteen proposals, including two with new external reviews. He summarized the dispositions of the proposals, noting that the two proposals with external reviews were forwarded to the SPC for review in March 2009: Proposal 636-Full3 (Louisville Seamounts) with a five star grouping, and Proposal 698-Full2 (Izu-Bonin-Mariana Arc Middle Crust) with a four star grouping. He also mentioned that four other proposals were selected for external review. Ishiwatari also described some confusion over a decision to send Proposal 698-Full2 to the Engineering Development Panel (EDP) for review. He noted that, in the future, the SSEP will need to provide written justification for a review by either the EDP or STP, and an indication of the specific technical aspects of the proposal that the EDP and/or STP should focus on. Ishiwatari reported that at the May meeting, Hans Christian Larsen had asked the SSEP to provide input (by its next meeting in November 2008) into the program renewal process. Larsen had suggested that such input could perhaps be in the form of white papers on what has been achieved, what needs to be achieved, and what new science is missing in the current ISP. Ishiwatari also mentioned that Jim Mori had requested that all three SSEP co-chairs attend the March ranking meetings of the SPC.

Mori mentioned that he has asked the SSEP to assign a star grouping to proposals that were sent to the SPC prior to the introduction of the SSEP's star system. Ruppel asked how the idea of having operational input at the SSEP meeting (as discussed at the previous SPC meeting) worked. Mori replied that if the SSEP identified an operational issue, they would send the proposal to the EDP for review. Janecek said that the IODP-MI operational staff (Janecek and Greg Myers) were at the SSEP meeting to offer opinions, but that it did not work out that way. Ruppel said the SSEP needs to do more. Mori disagreed with Janecek; he said there was discussion on the difficulties of drilling the deep hole proposed in Proposal 698-Full2, and the panel was informed about the technical challenges.

**10.2. Site Survey Panel (SSP)**

Dale Sawyer explained that with only six proposals to review, a decision was made to cancel the planned July 2008 SSP meeting. He said that, normally, the SSP would review about twenty proposals at one of its meetings. Sawyer noted there were four proposals with significant new data submissions, and these were reviewed electronically via e-mail. The reviews of the other two proposals, both with no new data submissions, were deferred until the next meeting. Sawyer commented that, having gone through the e-review process, he felt that it was not a good way to conduct reviews (especially in the summer when many panel members are on vacation). He added that, while perhaps the process could be improved, it will not effectively replace the discussion of proposals at a face-to-face meeting. Because the reviews were not yet finalized, Sawyer asked a proponent of one of the four proposals (Camoin; Proposal 519-Full2) to leave the room for his presentation. Sawyer then summarized the reviews and described the site survey data status of the proposals reviewed by the SSP. Sawyer presented the SSP's recommendations for its next chair (Jin-Oh Park) and vice chair (Gilles Lericolais). He also thanked his Korean colleagues for gracefully handling the cancellation of the July meeting, and announced that the next meeting would take place in Busan, Korea in February 2009.

The committee thanked Sawyer for his leadership of the panel during the last two years.

**SPC Consensus 0808-07:** The SPC thanks Dale Sawyer for his dedicated and exemplary service as chair of the Site Survey Panel. He provided thoughtful leadership that promoted international contributions on the panel.

### **10.3. Environmental Protection and Safety Panel (EPSP)**

Barry Katz reported on activities at the June 2008 EPSP meeting, at which sites from six proposals were reviewed. He noted that the EPSP now meets once per year in June. Katz summarized the results of the site reviews, noting: (1) for Proposal 605-Full2 (Asian Monsoon) all ten sites were recommended for approval as requested; (2) for Proposal 519-Full2 (South Pacific Sea Level: Great Barrier Reef) all thirty-eight sites were recommended for approval as requested, with approval applying to a 250m-diameter around each site; (3) for Proposal 600-Full (Canterbury Basin; Expedition 317) a decision on two alternate sites was deferred pending inspection of additional data (the sites were later recommended for approval via e-review); (4) for Proposal 482-Full3 (Wilkes Land Margin; Expedition 318), four alternate sites were recommended for approval as requested; (5) for Proposal 601-Full3 (Okinawa Trough Deep Biosphere) thirteen of seventeen sites presented were recommended for approval as requested; and (6) for Proposal 633-Full2 (Costa Rica Mud Mounds) nine of twelve sites presented were recommended for approval, either as requested or after relocation by the EPSP. The EPSP also reviewed nine additional NanTroSEIZE sites, recommending approval (in some cases pending receipt of additional data) of all but one. Katz mentioned that Manabu Tanahashi was the EPSP's nominee for vice chair. Katz also noted that he believed the EPSP has now reviewed all proposals residing with the OTF.

Ruppel expressed confusion over the roles of the EPSP and CDEX in site evaluation. She wondered if there was redundancy, or if the two groups were looking at different things. Katz explained that the EPSP represents the program, not the operator. He said that the operator has a different set of safety requirements, and looks at different things, although there is some similarity. He added that the EPSP is still working on its relationship with CDEX. Ruppel again said that there appeared to be redundancy with the CDEX review and EPSP review of NanTroSEIZE sites. She asked what the EPSP provides that CDEX does not. Katz explained that the EPSP has more drilling experience among its membership. He added that the panel acts as a collector of corporate knowledge for the program. Allan pointed out that the EPSP played an extraordinarily important role in the development of an environmental impact statement for the refurbished *JOIDES Resolution*. Katz said that another difference between the panel and the operators is the nature of the skill sets, with the USIO safety panel being more focused compared to the much broader range of skills represented on the EPSP. Janecek commented that the EPSP only works if the operators listen.

### **10.4. Scientific Technology Panel (STP)**

Mike Lovell presented a report on the July 2008 STP meeting. He noted that the STP considered three big issues in detail: (1) implementation of the IODP QA/QC policy; (2) the status of microbiology within the IODP; and (3) the development of an STP roadmap. The STP also discussed the issues of intellectual property, intellectual property rights and patents, resulting in an overall agreement that this issue needs to be addressed at the lead agency level, and that the STP does not have the necessary expertise or knowledge to propose specific actions for implementation. Lovell noted that the STP generated twenty-six recommendations and consensus statements, and one action item. He presented a number of items, some for informational purposes, and others for comment on by the SPC. SPC member Steve D'Hondt prepared draft SPC responses to each STP item. The responses, which appear below, were presented, refined and accepted by consensus of the committee on Wednesday.

Lovell presented STP Consensus 0807-01 on the USIO's Laboratory Information



Management System (LIMS) test drive for informational purposes only. He then presented STP Consensus 0807-02 on a magnetic susceptibility tool and downhole magnetometer proposal.

STP Consensus 0807-02: STP thanks Trevor Williams for his presentation on the current status of the magnetic susceptibility tool and congratulates him and the Lamont group for the successful completion of the construction and tests of the new tool. We look forward to seeing the data from this new and improved downhole tool at a future STP meeting.

STP also thanks Trevor for his presentation of the proposed down hole magnetometer tool. STP is excited about the extended capabilities that this tool represents, particularly the ability to obtain downhole magnetostratigraphy. The incorporation of this tool into the existing Schlumberger tool string is a great advance and enhances the scientific opportunities. STP hopes that the development of this instrument moves forward in a timely manner (for inclusion in the IODP Engineering Development Plan for FY10).

**SPC Consensus 0808-08:** The SPC receives STP Consensus statements 0807-01, 0807-02 and 0807-03 related, respectively, to the LIMS test drive and update, the magnetic susceptibility tool and the downhole magnetometer proposal, and the update on the *Chikyu*.

Lovell presented STP Consensus 0807-05 on third party tools QA/QC.

STP Consensus 0807-05: STP recommends that the IODP 3rd Party Tools document be renamed to include both 3rd Party Tools AND Instruments explicitly. The document should also be revised to include the need for proponents to include protocols for defining and recording appropriate QA/QC procedures and relevant meta-data.

**SPC Consensus 0808-09:** The SPC accepts STP Consensus 0807-05 on third party tools and instruments and forwards it to IODP-MI for implementation in cooperation with the STP.

Lovell presented STP Recommendation 0807-09 on microbiology in the IODP.

STP Recommendation 0807-09: The STP thanks Steve D'Hondt for his presentation on the IODP-MI Microbiology Task Force Report. We recognize that urgent action is required by IODP-MI to move microbiology in IODP forward.

**SPC Consensus 0808-10:** The SPC receives STP Consensus Statement 0807-09 on Steve D'Hondt's presentation of the Subsurface Life Task Force report.

Lovell presented STP Recommendation 0807-10 on formation factor determination. Ruppel stated that formation factor is a derived parameter, not a fundamental property that is measured. Discussion ensued on the difference between formation factor and what is actually measured. Lovell also presented STP Recommendation 0807-11 on dissolved inorganic carbon, 0807-12 on microbiology routine sampling for frozen preservation, 0807-13 on the negative perception of routine sampling for frozen microbiology/biogeochemistry sample preservation, 0807-14 on the inclusion of microbiology on the sample request forms and to enhance outreach, and 0807-15 on the submission of sequence data to international databases and banks.

Mori asked if these recommendations represent large changes that will take a lot of time onboard a platform. D'Hondt replied that the recommendations could be handled relatively easily, for example, with existing instruments in some cases. Mori asked about the difficulty of keeping frozen samples. D'Hondt replied that this issue would require discussion between

IODP-MI and the IOs. He noted that both the Kochi Core Center and Texas A&M University (TAMU) have facilities. He said an expedition would require between 0.5 to 1.5 freezers, with one freezer costing about \$10K. He added that liquid nitrogen costs would be higher, but would be a better way to store samples. Malone stated that there was no issue for implementation beyond cost. However, he said that the microbiology community would have to make an effort to use the facilities, and he wondered if the samples would ever be used. D'Hondt countered that the program has done very little to advertise microbiology samples (e.g., they are not mentioned on the sample request form). He said it is necessary to have samples from throughout the oceans, but conceded it was likely that not all samples would be utilized. He also pointed out that the microbiology work cannot be done if samples are not collected. Ruppel wondered if the intention was to develop a routine for doing microbiology sampling and measurements on expeditions not focused on microbiology. D'Hondt said yes, and added that there were two ways to go about sampling: through dedicated expeditions, or by standard sampling to provide materials to the community. D'Hondt explained that IODP-MI sponsored a microbiology workshop about two years ago, which was attended by about 120 participants. The Subsurface Life Task Force was convened about one year later to provide suggestions for an implementation strategy that would address the recommendations from the workshop. The task force also came up with specific recommendations, which were given to IODP-MI, which then approached the SAS (i.e., STP) for advice. Ruppel wondered if there was a report from the task force. D'Hondt replied that there were two reports: one from the workshop, and one from the task force. He explained that the task force's recommendations went to IODP-MI, which approached the STP for advice because the SPC did not have the expertise to deal with the details.

STP Recommendation 0807-10: STP recognizes the need to routinely determine Formation Factor. However, STP has concerns about how to ensure the quality of the data. STP recommends that IODP-MI work with the IOs and the microbiology and physical properties communities to identify an appropriate means for making this determination.

STP recommends that once this issue is resolved, routine determination of FF start.

STP Recommendation 0807-11: STP recognizes the need for standard DIC measurement in order to accurately determine in situ pH and to quantify subseafloor microbial respiration. Consequently, STP recommends that DIC concentration be added to the existing list of porewater chemistry standard measurements.

STP requests the IODP-MI Microbiology Taskforce provide additional information to IOs on detection limits, etc. which may impact the instrumentation (e.g., coulometer or TOC analyzer) that can be assigned for analysis.

STP Recommendation 0807-12: STP recognizes the need for routine sampling for frozen preservation from all expeditions and suggests following the recommendations of the IODP Microbiology Task Force for routine deep-frozen ( $\leq -80^{\circ}\text{C}$ ) bulk sediment, formalin-fixed samples and deep-frozen basement samples. These are as follows:

-- On every expedition, in association with IW samples, deep-frozen bulk sediment should be taken in quadruplicate (e.g., with 30cc sterile cut-off syringes) where possible or in duplicate (as two successive whole rounds) where sediment is too indurated for syringe sampling.

-- Formalin-fixed frozen sediment samples should be taken in quadruplicate on every expedition, in association with IW samples, in concert with sampling for standard cell counts. These samples may be subsamples of a pooled formalin-fixed sample taken with two 3cc cut-off syringes. These samples will be used for cell counting and related analyses.

With the above strategy, if samples are too poor in quality for IW recovery, they should not

be sampled for frozen preservation. Also with the above strategy, if sediments are too hard for IW recovery, they need not be sampled for routine frozen samples. However, this approach should not be taken to preclude modification of routine sampling to include intact samples from seafloor horizons where the sediment is too well indurated for IW sampling. -- Frozen solid-phase samples of basement are required for expeditions that core basement. Sample frequency for basement samples should be decided at the pre-cruise meeting. IODP-MI should consider whether these changes necessitate a revision to the IODP Sample, Data Obligations Policy.

STP Recommendation 0807-13: There is concern that routine sampling for frozen preservation may be viewed negatively by some shipboard science parties, which will be asked to accept some loss of sample without a clear understanding of the rationale. Additional education and outreach to the science party is an important component of the routine sampling request. One option is to develop a promotional set of materials to aid in education of shipboard science parties. IODP-MI should take leadership on working with the IOs and members of the subsurface life community to enhance science party participation.

STP Recommendation 0807-14: STP recommends that IODP-MI take leadership on working with the IOs and the IODP-MI task force to modify the sample request forms to include microbiology (all sample types) and to enhance access through improved web pages.

STP Recommendation 0807-15: STP recommends following the IODP Microbiology Task Force recommendations that all published sequence data and standardized contextual data must be submitted to an appropriate international database, and that all published culture strains must be deposited in publicly accessible culture collections. IODP-MI should take the lead in ensuring that this is done.

IODP-MI should consider whether these changes necessitate a revision to the IODP Sample, Data Obligations Policy.

**SPC Consensus 0808-11:** The SPC accepts STP Recommendations 0807-10, 0807-11, 0807-12, 0807-13, 0807-14, and 0807-15 on formation factor determination, dissolved inorganic carbon measurement, negative perception of routine sampling for frozen microbiology/biogeochemistry sample preservation, microbiology inclusion and outreach, submission of microbiology data and samples to international databases and culture collections. The SPC forwards these recommendations to IODP-MI for discussion and implementation with the Implementing Organizations (IOs). The SPC recommends that IODP-MI and/or IOs seek input on details of implementation from the STP and/or the Subsurface Life Task Force if and when such input is deemed useful by IODP-MI or an IO.

Lovell presented STP Recommendation 0807-17 on the Kochi microbiology repository, and long term frozen sample storage. Lovell noted that the Kochi Core Center is a very exciting storage facility. He said the big question is whether to use freezers or liquid nitrogen to preserve samples.

STP Recommendation 0807-17: STP thanks Fumio Inagaki for his presentation on the Kochi (KCC) microbiology repository, and recognizes the significance of KCC's proposal as the first proposal for such a facility.

STP recognizes there is an immediate need for storing routine microbiology samples at very cold temperatures, but is concerned about the ongoing costs beyond the pilot project. STP

also recognizes there are significant concerns with sample storage costs. STP requests a report from KCC on the pilot project and recommends using the KCC facility as an opportunity for testing liquid nitrogen storage against storage in –80C freezers (e.g., at College Station) for incremental degradation of microbes and molecular signatures with time.

STP recommends that IODP-MI requests, as soon as possible, a break down from KCC of the total costs involved in operating the facility, such as shipping, maintenance, liquid N2 replacement, PFA vials, personnel costs, etc. This will allow IODP-MI to evaluate future costs of potential operation at KCC.

In addition, STP recommends that IODP-MI and the IOs investigate the long-term total costs (e.g., support, facilities, staff, infrastructure, maintenance, shipping, materials, supplies) and relative benefits of multiple options for deep-frozen sample archives (e.g., liquid N2 vs. ultra-low freezers) and frozen sample archives and make recommendations for future facilities at IODP core repositories.

**SPC Consensus 0808-12:** The SPC accepts STP Recommendation 0807-17 on the Kochi Microbiology Repository and on long-term sample storage. The SPC forwards the recommendation to IODP-MI for discussion with the Implementing Organizations (IOs) and evaluation of costs as recommended.

Lovell presented STP Consensus 0807-19 on an STP liaison to the EDP.

STP Consensus 0807-19: STP notes that the development of the EDP and STP Roadmaps will inevitably contain some overlap. In order to ensure that progress is made in an efficient way, we suggest that STP send a liaison to the EDP meetings on a case-by-case basis after consultations between the chairs on the meeting agenda. STP would welcome a liaison from EDP as and when appropriate.

**SPC Consensus 0808-13:** The SPC accepts STP Consensus 0807-19 on a case-by-case STP liaison to meetings of the Engineering Development Panel (EDP) and forwards it to IODP-MI.

Though not presented by Lovell, the committee discussed, and accepted STP Consensus 0807-20 on the STP road map.

STP Consensus Statement 0807-20: STP recognizes the significant overlap of some issues on the EDP and STP roadmaps, but that there are many others that do not. STP suggests that both EDP and STP continue to develop their roadmaps and collaborate on those issues where there is significant synergy.

**SPC Consensus 0808-14:** The SPC accepts STP Consensus 0807-20 on the STP and EDP roadmaps, and collaboration of the two panels where there is significant synergy.

Lovell noted that the STP requested approval of its nominees for chair (Clive Neal) and vice chair (Saneatsu Saito).

The committee thanked Mike Lovell for his leadership of the STP during the last two years.

**SPC Consensus 0808-15:** The SPC thanks Mike Lovell for his unflagging and thoughtful dedication to advancing scientific ocean drilling through his leadership of the IODP Scientific Technology Panel (STP). We also thank Mike for his unstinting effort in teaching us the many definitions of STP.

### 10.5. Engineering Development Panel (EDP)

Bill Ussler reported on the July 2008 EDP meeting. He presented four consensus statements for consideration by the SPC. SPC member Gabe Filippelli prepared draft SPC responses to each EDP item. The responses which appear below, were presented, refined and accepted by consensus of the committee on Wednesday.

Ussler presented EDP Action Item 0807-08 on microbial contamination of core.

EDP Action Item 0807-08: EDP responds to STP Consensus 0802-06 by establishing a Microbiology Contamination Working Group (Holloway, Ussler, Tamura, and Thorogood) to investigate technologies and strategies for reducing microbial and drilling fluid contamination of cores.

**SPC Consensus 0808-16:** The SPC accepts EDP Action Item 0807-08 on establishing a Microbiology Contamination Working Group.

For informational purposes, Ussler presented EDP Consensus 0807-10 on ultra-deep boreholes. He displayed a compilation of deep drilling statistics, showing water depth, borehole depth, and total depth for several previously drilled deep holes, site NT3-01 of NanTroSEIZE, and the proposed deep hole in Proposal 698-Full2 (Izu-Bonin-Mariana Arc Middle Crust). Ussler also displayed the current drilling capabilities of *Chikyu* and the *JOIDES Resolution*. Ussler then presented EDP Consensus 0807-11 on an ultra-deep drilling scoping study.

Katz said that a lot of drilling in the Gulf of Mexico is comparable to the deep holes proposed for NanTroSEIZE and Proposal 698-Full2, i.e., water depths of ~2000m and total drillstring lengths of 9-9.5km, with high temperature and pressure. He suggested that a lot of the technology developed by industry could be transferred over to the IODP. Ussler agreed that the proposed deep drilling was technically possible. Katz added that the big question was, given the high temperature and pressure, how much coring would be required. Ussler replied that for the IODP drilling, core is very important, but 10% recovery may be the best that could be expected.

EDP Consensus 0807-11: The EDP recognizes SPC's interest in understanding the technological challenges associated with a future Moho drilling project (in reference to SPC Consensus 0708-30). and has initiated discussions about this problem that will continue at future panel meetings. EDP requests that IODP-MI prepare a draft scoping study on ultra-deep drilling to be reviewed at the January 2009 EDP meeting.

**SPC Consensus 0808-17:** The SPC accepts EDP Consensus 0807-11 on the preparation of a draft scoping study on ultra-deep drilling.

Ussler presented EDP Consensus 0807-12 on engineering testing time on IODP platforms.

Ruppel asked how engineering development legs were handled in the past. Janecek replied that there was an ad hoc pathway, but he wanted to formalize the pathway. He said that there would be more details under agenda 14.1, but briefly outlined a process in which: (1) IODP-MI would work with the IOs; (2) the EDP would vet the plan; (3) the plan would go to

the OTF to see if it could be incorporated into an annual schedule; and (4) the SPC would approve the schedule, including the science and engineering development components. Ruppel wondered where in the process there would be the check against the use of precious financial resources to do engineering development instead of science. Janecek replied that the OTF would try to insert development and testing as needed, and the SPC would see that in the proposed schedule and discuss if it were acceptable or not. He said that it would be an up-front process which everyone would have to buy into. Ruppel wondered if doing more engineering development testing meant there would be a possibility for more than seven months of ship time. Allan replied that previously the Scientific Measurement Panel (SciMP) made recommendations for engineering development testing, but there has been a long debate about assigning time to engineering development on the drillship. He added that without consistent time available on the ship, development was impeded. Allan said he recognized that it was difficult to give up time on an expedition, but noted that the testing might only be three or four days. He asked if the SPC thinks that effective engineering development testing is important to the program. Filippelli said that it would be a challenge for the SPC to be faced with a program plan with both a science and engineering component. He suggested that it seemed as if the SPC was being asked to just trust that the engineering part is important. Janecek replied that starting next year the SPC will see some of the testing of engineering development programs that the SPC has already approved. He said these programs will require testing. He added that if the SPC wants to see engineering development, it will have to accept the price of time devoted to testing.

EDP Consensus 0807-12: At-sea engineering testing is part of any Engineering Development project in the program, whether it is a 3rd party tool development, or an internal engineering project conducted by the IOs. Allocation of engineering testing time is critical for proper engineering development and must be included in future operational planning on an as needed basis. We endorse IODP-MI efforts to develop a means for accepting formal requests for engineering testing time at sea. The EDP is willing to review requests for at sea testing forwarded by IODP-MI.

**SPC Consensus 0808-18:** The SPC accepts EDP Consensus 0807-12 on developing a mechanism for evaluating engineering testing time on IODP Platforms.

Ussler presented EDP Consensus 0807-13 on an EDP liaison to the STP.

EDP Consensus 0807-13: Although the STP and EDP have distinct mandates and non-overlapping areas of responsibilities, the EDP recognizes common technological interests exist between the STP and EDP. The EDP requests permission to send an EDP liaison to each regularly scheduled STP meeting beginning at the early 2009 STP meeting.

**SPC Consensus 0808-19:** The SPC receives EDP Consensus 0807-13 on regularly sending an EDP liaison to each Scientific Technology (STP) meeting. The SPC supports liaisons between the two panels.

## 11. Report on the Ocean Drilling Consortium (ODC)

Greg Mountain reported on the ODC workshop, which was held in June 2008 and attended by academic and industry representatives. He noted that the goal of the ODC is to use the *JOIDES Resolution* during the four months of the year when it will be unavailable to the IODP, to pursue goals of mutual interest in academia and industry. He added that the ODC's nine-member steering committee has almost finished a proposal which will be presented to energy companies within the next month. He explained that the companies would then decide

whether or not to buy into the consortium. Mountain outlined the three principal scientific themes of the ODC: (1) rifted margins (structure and evolution of deep-water basins); (2) reservoirs (origin, architecture, and properties); and (3) source rocks (distribution and origin of organic-carbon-rich strata). For each theme, Mountain listed several potential questions that could be addressed, and showed potential study areas and drill site locations. Mountain showed a timeline for the ODC, which included: (1) submission of proposal to energy companies in September 2008; (2) decision on whether the ODC will proceed in May 2009; (3) possible first four-month block of ODC drilling starting June 2010; and (4) possible second four-month block of ODC drilling starting June 2012. Mountain stressed that the drilling schedule shown in the timeline was hypothetical.

D'Hondt asked why all the target areas are in the Atlantic Ocean. Mountain replied that it just turned out that the themes were best addressed in the Atlantic. Feary added that other ocean basins were considered, but ones in the Atlantic rose to the top because of readiness. D'Hondt asked if consideration of seafloor microbes fits into any of the planned drilling. Mountain replied that, though mentioned at the workshop, it received "blank stares". He added that there could be potential in the third theme.

Ohkouchi asked if the data collected by the ODC would be confidential or open. Mountain replied that the ODC steering committee is pursuing a two-year moratorium on shipboard measurements (compared to one year in the IODP). He mentioned that the energy companies are interested in a synthesis report. This, he explained, could be a proprietary report available to the companies twelve months post-cruise. Feary added that all shipboard data will ultimately be available to the community. Ohkouchi asked if samples collected would be stored in IODP core repositories. Mountain said yes, and added that data would be published in a similar manner.

Jenkyns asked about the level of commitment from the energy companies. Mountain replied that there was a spectrum of interest levels. He added that he would like to see many more companies involved to strengthen the concept. He said that the six companies involved so far may not be sufficient, adding he hoped eight or ten companies would get involved. Besides the six companies currently involved, he said that others have expressed curiosity.

Nishi asked if the schedule shown was for the *JOIDES Resolution*. Mountain said yes, but again stressed that the expedition timeline was just one straw plan.

Ruppel said that the slide of the schedule was an unfortunate one to end on. She said that scheduling of the *JOIDES Resolution* will be controlled by off-IODP work, but said there are other options (besides the ODC), such as the United States Geological Survey's interest in hydrates in the Pacific. Ruppel stated that the ship will find work when it is not under contract to the IODP, whether it be with the ODC or not; the question, she said, is whether or not it brings a net benefit to the program.

van der Pluijm asked about the level of excitement for the ODC's proposed science plan. He wondered what sort of people would be involved in the expeditions, and what options there would be for students and post-docs to be involved. Mountain replied that the workshop had more applications than spaces. Feary added that the ODC is outside the IODP, and thus it is a global community that will be tapped, and not just IODP countries. John suggested that the first theme is of tremendous interest to the scientific drilling community. Sawyer noted that the ODC has every intention of involving students, trainees, grad students, etc. in staffing. He said the companies are interested in the involvement of academic scientists. Feary said that over the long term, industry sees this as a way to get better trained graduate students who would be potential future employees. van der Pluijm said that the main point is that the

science aspect is important and exciting, as distinguished from the financial aspect. Ruppel said the ODC is, in the end, a business venture. van der Pluijm and Mountain vehemently disagreed. van der Pluijm said he saw it as a scientific possibility. He asked why Ruppel called it a business venture. Behrmann also disagreed, saying that the scientific themes of the ODC were deeply rooted in the IODP themes. He said that calling it a business venture was inappropriate. Ruppel replied that scientifically it is exciting, and it is great that some science will come out of it, but industry cares about the bottom line. Katz commented that if industry was really interested in this as a business venture, it would be out there addressing the issues right now. He said it was more of a science project for industry.

Nishi said that there is a complication because the IODP ship time is affected by the ODC business schedule. He expressed confusion over how the ODC is sometimes separate from the science community, but sometimes not. He suggested it would be less confusing if it was kept completely separate from the science community. Mountain replied that it is important for the ODC to build on good science, and that an effort to commingle what both groups are good at was needed as opposed to keeping the groups separated. van der Pluijm commented that the ODC needs to be presented as a science plan, not as a business plan. Peterson asked if, even though the presented timeline was hypothetical, whether there was any sense that industry feels it is being dragged into a long-term commitment. Mountains said no, adding there was interest up to at least 2013.

## **12. Future role of the Industry-IODP Science Program Planning Group (IIS PPG)**

Carolyn Ruppel presented a status report on the IIS PPG. She listed the key elements of the group's mandate: (1) promote IODP proposals to address industry-relevant objectives within the context of the ISP; (2) develop effective links between academic and industry scientists; and (3) engage industry professionals as ambassadors in communicating and promoting IODP activities. She listed some challenges, noting that it was never clear how this group could be a PPG. She said that Ralph Stephen (chair of the IIS PPG) felt there were vastly different stages of maturity for industry-IODP interaction in different countries, and for some countries (e.g., the UK) the PPG represents a step backwards. She added that the mandate is sufficiently vague that it is hard to measure success/failure of the PPG. Ruppel listed some of the achievements of the IIS PPG: (1) the IIS PPG recommended formation of an Industry Task Force independent of the SAS and the IIS PPG, which effectively became the ODC; (2) the IIS PPG used their contacts to advise IODP-MI on the "right" people to engage in the ODC at various companies; (3) encouraged future Arctic drilling and the Arctic workshop; (4) industry-IODP meeting in Tokyo in summer 2007; (5) promoted a South Atlantic IODP proposal submission as part of the rifted margins "mission" (though it was not selected for mission status); and (6) identified industry-relevant proposals within the SAS. Ruppel stated that the IIS PPG's mandate expires at the end of 2008, and she suggested there was no need for the PPG to meet before then. She recommended that the IODP should maintain a permanent industry-related group within the SAS, which should: (1) not be a PPG; (2) needs a clear mandate; and (3) needs strong leadership from academics with deep, established interactions with industry. Ruppel also presented a draft statement thanking the IIS PPG which, after revision on Wednesday, was accepted by consensus of the committee.

Mori said he was unsure what sort of group could be set up that would meet Ruppel's criteria. Behrmann wondered what arguments there were against maintaining the IIS PPG. Mori replied that a PPG is expected to produce proposals. Larsen added that a PPG normally exists for three years. He suggested that perhaps the PPG should be maintained until it was known if the ODC is successful. Ruppel stated that the ODC was not a part of the SAS. Larsen agreed, but said that the ODC will be using the *JOIDES Resolution*. Sawyer suggested, rather than forming a new industry-oriented group, the program should make a commitment to



involve more industry people throughout the SAS, so that they could be contributing to various panels such as the SPC. Ruppel suggested that perhaps it would be possible to move to a less formalized system, and have meetings that involve industry and academic people, for example, in conjunction with big petroleum meetings. Behrmann suggested that such a group would not have the same level of commitment to the program as a PPG. He felt that industry people would find being on a committee such as the SPC a waste of time, because it is very tedious. Larsen suggested that if the SPC feel the IIS PPG has more or less fulfilled its mandate, then it should disband the PPG. He added that at its next meeting, the SPC could decide if another group is needed. He also expressed support for Sawyer's idea of involving more industry people on other panels. Ruppel suggested there would not be much time at the March 2009 SPC meeting to discuss this matter. She volunteered to investigate possibilities between now and March.

**SPC Consensus 0808-20:** The SPC thanks the Industry-IODP Science Program Planning Group (IIS PPG) for its role in promoting industry-IODP interactions and for suggesting the formation of an Industry Task Force. The IIS PPG has successfully advanced IODP interests with new constituencies. The SPC is grateful to the IIS PPG members for their time, energy, and expertise, and to Ralph Stephen for his leadership of the PPG.

### 13. Complementary Project Proposals (CPPs)

Carolyn Ruppel reported on the status of the implementation of the CPP concept. She reminded the committee that the SASEC endorsed the concept of CPPs (SASEC Consensus 0706-08), which are hybrid IODP projects with substantial external funding. The SPC also accepted the CPP concept (SPC Consensus 0708-22) and established a working group to examine the evaluation process for such proposals. Ruppel said that a CPP was defined as a project that: (1) has substantial sponsorship from a third-party, but does not have to be a "collaboration"; (2) has a compelling scientific focus; (3) is intended to be completed on an IODP platform operating under normal IO contracts; and (4) is reviewed by the SAS, but in a streamlined way. She said that a CPP is defined by: (1) a scientific focus linked to the ISP, of interest to academic scientists, and consistent with IO contracts and memoranda (e.g., oil exploration is not permissible); (2) minimum of 70% third-party commitment for POCs (at the time of drilling); (3) contains an additional proposal section (within the normal length limit) explaining the benefit of the third-party contribution and/or collaboration; and (4) is given fast-track consideration by the SAS. Ruppel noted that a draft policy on CPPs was circulated to the committee by e-mail, which included a suggested procedure for the SAS in dealing with CPPs. These procedures included: (1) proposal submission follows all normal guidelines and deadlines; (2) the CPP requires a description of, and pledge for, financial commitment; (3) some flexibility regarding standard practices (i.e., coring, logging, sampling); and (4) the SSEP would evaluate the CPP as it would any other proposal. A key question was whether the SPC should rank CPPs, and if so, when. E.g., she suggested that proposals received for the March ranking meeting could be ranked with other proposals, while proposals received for the August meeting could either be held until the following March meeting and ranked then, or the SPC could decide to immediately forward the CPP to the OTF (with a Tier 1 or 2 designation). Ruppel suggested that the SPC could decline a CPP and could also choose to send a CPP out for informal external review. She also said that while it is unlikely a CPP will ever be submitted, a mechanism for dealing with them is necessary.

D'Hondt said that while a third party might agree to cover the substantial commitment, it may be difficult to get a commitment to open ended costs. Ruppel replied that the IOs cannot be left "holding the bag". Allan commented that the day rate of the ship is predictable.

Schuffert wondered why a third party would want to spend 70% of the cost of an expedition and then give up control. Ruppel agreed that it was difficult to imagine it ever happening. Allan cited as an example studies of carbon sequestration. He said that energy companies are interested in working with academics, and may want to charter the ship independently, or within the program. Larson said that there is a full proposal in the system in which the proponents mention they could potentially use the CPP mechanism. Katz said that part of the problem is the way the budget process works. He said a third party would need to know what year a project would be implemented in order to get funds committed. Ruppel replied that she could not imagine ever getting a CPP in the system and having it drilled in the same year.

Ruppel asked if the SSEP could deal with CPPs. John replied that the SSEP does what the SPC asks. Ishiwatari expressed concern about changes to the SSEP's reviewing process, and the lack of external review. Ruppel asked if CPPs should be ranked by the SPC. John wondered what would happen if a CPP ranked low. Mori said that a framework of procedures and rules was required, but he would like to know if there was general acceptance of the strategy presented by Ruppel. Feary suggested that CPPs should not be ranked; they should be treated like an APL and given either a yes or no (yes implying forwarding of the CPP to the OTF for implementation). Ruppel said that was the SASEC's original intention. D'Hondt said that the 30% of the expedition's cost borne by the program was significant; he suggested CPPs should therefore be ranked. Allan commented that having a CPP that would contribute about \$6-7M to the program could mean that it would be possible to implement an extra one or two expeditions in a year. van der Pluijm commented that "yes or no" is a sort of ranking. He added that only top ranked proposals should go the OTF. Mountain suggested that "yes" would imply the CPP was a Tier 1 proposal. Mori said there were two issues: (1) acceptance of the general principle and rules presented by Ruppel; and (2) deciding on whether CPPs should be ranked. A straw vote on a "yes or no" evaluation showed strong support for that decision process. Behrmann opposed the idea, saying that CPPs should be evaluated the same as other proposals. He suggested that if the CPP is really great, it will fast-track itself, or there are other ways to fast-track it. Nishi also voiced concern about the decision process, especially the lack of external review. He said that fairness in the treatment of all proposals was very important.

Mori, summarizing, said that some members feel CPPs should not be given an advantage, while others feel it would be acceptable because CPPs bring in extra money to the program. D'Hondt said there would be no point for a third party to put money into a CPP unless it bought them an advantage. He said the issue was how to accommodate such an advantage without violating the normal proposal process. Behrmann suggested that one way to streamline the process would be to not allow revisions, but he added that ranking of CPPs should be mandatory. Feary said that ranking would only happen once a year, which would limit the ability of the program to respond rapidly to a CPP. Ruppel noted that the current rules already specify that revisions are not allowed. Mori suggested that Ruppel revise the policy/rules document and then distribute it for the committee to review.

Discussion continued on Wednesday based on a revised policy document, which included two options for ranking: either normal ranking or a yes/no decision. Mori said there was general agreement to accept other parts of the document, but a decision was needed on whether CPPs should be ranked or not. Peterson wondered if the SSEP would give a star grouping to a CPP. Ruppel said yes. Mori conducted another informal vote, which showed a less than two-thirds majority favoring a yes/no decision. A straw vote was conducted to gauge support for ranking of CPPs in March (regardless of when the CPP was submitted); this option had minimal support. Jenkyns said he was uncertain if ranking would be useful because while a CPP might indeed rank low, it would on the other hand bring extra money to

the program. He suggested that the SPC needs the power to say yes or no. Howard suggested that the advantage of a yes/no decision on CPPs was that it would not prejudice the ranking of other proposals. Feary opined that subjecting CPPs to a process (ranking) with flaws and limitations would constrain the ability of the program to respond quickly and get the maximum use out of the drillship. Früh-Green suggested that if a third party entity sees an onerous process for CPPs, a CPP will never be submitted. She suggested ranking would not be efficient and would be a turn-off to an outside entity. Filippelli agreed saying industry requires quick turnaround. He suggested that ranking would send a message that the program never wants to see a CPP. Behrmann said that a yes/no decision provides the answer the proponents would desire. He added that he understood “no” implied the CPP would be deactivated. Früh-Green said CPPs would be a benefit to the system and therefore worth the risk of not ranking them like normal proposals. Ruppel added that if the SPC does not like how the process works, it can change its rules, so long as the rules are fair to all proposals in the system. She said that, up to now, the program has not done a good job of engaging outside parties. van der Pluijm also expressed support for a yes/no decision. Sato said that he did not have a good idea of what type of CPPs may be submitted. He thought that if Korea or China submitted a CPP, perhaps they would want it to be evaluated and ranked, in which case ranking would be appropriate. Katz said that Proposal 589-Full3 (Gulf of Mexico Overpressures) is the type of proposal that could happen as a CPP. He said a CPP does not have to be bad science, and could be very relevant science. Mori asked for a motion.

**SPC Motion 0808-21:** The SPC will make a decision on a complementary project proposal (CPP) by either forwarding it to the Operations Task Force (OTF), or declining it. This will be done at the SPC meeting which immediately follows the Science Steering and Evaluation Panel (SSEP) meeting that forwarded the proposal.

*Ruppel moved, Behrmann seconded; 13 in favor (Behrmann, D'Hondt, Feary, Filippelli, Früh-Green, Jenkyns, Marumo, Mori, Mountain, Nishi, Peterson, Ruppel, van der Pluijm), none opposed, 3 abstained (Kodaira, Ohkouchi, Sato); 1 absent (Maruyama); 4 non-voting (Camoin, Howard, Kim, Li).*

The committee also discussed a draft statement of approval of the CPP policies specified in the document written by Ruppel (see Appendix A). With minor revisions, this statement was accepted by the consensus of the committee.

**SPC Consensus 0808-22:** The SPC reiterates its formal endorsement of complementary project proposals (CPPs) as a mechanism for conducting scientific drilling (a) with substantial third-party financial support, (b) on IODP platforms, and (c) under the auspices of the IODP. The SPC also continues to support a streamlined mechanism for evaluating CPPs within the Science Advisory Structure (SAS) framework. The SPC formally approves and adopts the CPP policies in Appendix A of the meeting minutes, effective immediately.

## **14. FY2009/2010 engineering development**

### **14.1 Engineering development plan recommendations**

Greg Myers provided a status report on FY2008-2010 engineering development plans. He reviewed the status of three FY2008 active projects: (1) Long Term Borehole Monitoring System (LTBMS), for which a prototype should be completed this year; (2) Simple Observatory Common Deployment System Design, for which design has commenced; and (3) an in-house analysis of core quality and quantity, which is ongoing. Myers reviewed the implementation status of the FY2009 engineering development plan, which includes funding for: (1) LTBMS completion and field test; (2) Simple Observatory Initiative, which includes high level design of SCIMPI and S-CORK, and the Simple Observatory Common

Deployment System Design; (3) Motion Decoupled Hydraulic Delivery System (MDHDS); and (4) continuation of in-house coring study. Myers noted that the EDP endorsed the FY2009 engineering plan (EDP Consensus 0801-15).

Before reporting on the status of FY2010 engineering planning, Myers asked conflicted meeting participants to leave the room. Eguchi, Malinverno, Malone, and Ussler left the room. Peterson, Ruppel, D'Hondt, and Mountain all declared institutional conflicts, but were not deemed to be conflicted and remained for the report. Myers reported that of three engineering development proposals submitted to IODP-MI and forwarded to the EDP for review and grouping, one was included in the FY2010 draft plan: the Multi-sensor Magnetometer Module (MMM). He noted that this tool will produce continuous records of the magnetic field in a borehole from which magnetization and polarity of the rocks surrounding the borehole can be calculated. Myers explained the scientific rationale for the tool and noted that several active proposals could benefit from the MMM. In addition to the MMM, Myers reported that the FY2010 draft plan comprised two continuing projects: (1) the MDHDS (final year); and (2) Simple Observatory development, for which one observatory design would be selected and fully funded. Myers added that he was seeking SPC endorsement of the FY2010 engineering development plan.

van der Pluijm described a problem with downhole magnetic field measurements using multi-sensor magnetometers. Myers replied that recent papers show that it can be done. Ohkouchi asked about the logging speed. Myers reported a speed of 275m/hr (standard logging speed). Janecek noted that IODP-MI will present the selected simple observatory for SPC approval at its March 2009 meeting.

A draft statement written by Mountain was presented on Wednesday and accepted by consensus of the committee.

**SPC Consensus 0808-23:** The SPC recognizes the progress that has been made with the Simple Observatory design, and endorses its continuation as well as the second year development of the Motion Decoupled Hydraulic Delivery System outlined in the draft FY2010 engineering plan presented by IODP-MI. In addition, the SPC recognizes the high scientific value of providing a wireline magnetometer to all IODP platforms and looks forward to the start of this development in FY2010.

Myers stated that there was an unfavorable perception of onboard testing of engineering development projects because it cuts into time used for science. He said that some testing only takes hours; in the case of the MMM it would take no additional ship time. He reminded the SPC of EDP Consensus 0807-12 on engineering testing time on IODP platforms (see agenda 10.5), which the SPC accepted in Consensus 0808-18. Myers explained that an engineering ship time policy does not exist, but stressed that ship time is required to complete the engineering process for new developments. He presented a suggested protocol for handling requests for testing, comprising: (1) field trial requests would be coordinated through IODP-MI, which would work with the proponents and operators to generate an acceptable deployment plan; (2) a deployment plan would be vetted through the EDP; (3) field trial requests and associated deployment plans would be forwarded to the OTF for potential scheduling; (4) the OTF would include field trials in the annual expedition schedules that are to the SPC for approval.

Früh-Green said development is an asset to the science, and the science would not advance without an opportunity for testing. She understood that some science time may be lost in the short term, but said there would be a net gain in the long term. Ruppel said she supported the concept of testing if it applied to all platforms. Myers replied that the spirit of the concept is

that it applies to all platforms. Janecek said that IODP-MI would formulate the protocol in more detail, vet it with the EDP, then come back to the SPC in March 2009 for approval.

Myers provided a brief update on plans for an emerging mud control technology sea trial using the *JOIDES Resolution*. The objective of the technology would be to enhance the capabilities of the *JOIDES Resolution*, permitting drilling in ultra-deepwater environments currently beyond the technological reach of IODP.

Mountain said that environmental concerns over the use of mud abound; he asked if this system would mitigate such concerns. Evans said that ESO preferred to use bio-degradable mud. Ruppel asked if the system would enhance the deep drilling capabilities of the *JOIDES Resolution*. Myers cited as an example Hole 1256D, which he said could be deepened using a riser-equipped ship, or using this system, thereby potentially making Moho objectives achievable. Referring to Moho objectives, Larsen said the temperatures would be hot; he asked if the mud would provide cooling. Myers said it was a possibility, but he could not quantify it. Allan asked how the system would affect continuous coring. Myers replied that it would have zero effect, and would be transparent to the coring operation. He explained that the drill pipe through the bottom hole assembly would be the same as normal, with the only difference being equipment on the seafloor. Ussler pointed out that the advantage of the mud recovery system over using a riser at the same water depth was that, with the former, the mud starts at the seafloor, so there is not a column of mud providing weight on the hole (which increases pressure and can lead to fracturing). Feary asked about the criteria for using this technology for an IODP hole. Myers said it could be used for a site with very deep objectives that would be beyond the reach of a riser-equipped ship. He mentioned that in Expedition 308 (Gulf of Mexico Overpressures) a dedicated ship was used to supply mud; he said that this system would eliminate the need for a second ship. Ruppel asked if the program would own the technology. Myers said no; the program would lease it, probably getting a reduced rate. Allan commented that the ability to control pressure in the borehole is an enormous benefit. He cited Hole 504B, saying that this hole could have been completed much more quickly with this technology. Tobin asked if the system included a blowout preventer. Myers said no. Allan stated that the system would, however, make it possible to drill deeper in hard rock environments.

#### **14.2 SPC discussion and prioritization**

See agendum 14.1 for discussion.

### **15. Operations Task Force (OTF) report: IODP expedition scheduling II**

#### **15.1. OTF update**

Janecek stated that there was nothing to add to his previous report under agendum 6.

#### **15.2. SPC discussion and approval**

Mori noted that there was no FY2010 schedule to approve, adding that a schedule will be developed prior to the next SPC meeting. He asked if the SPC was comfortable in trusting the five SPC members on the OTF to give input using the information presented earlier (agendum 6) by Janecek. D'Hondt suggested a policy of e-mailing all SPC members for approval after the OTF concocts a schedule. Mori said that discussion by e-mail does not work very well. D'Hondt suggested that, rather than leaving the decision up to the five SPC members, there would be value in coming back to the entire committee for approval. He said that once an OTF-recommended schedule exists, conducting a vote for approval would not make it any more difficult for the OTF. Ruppel replied that Janecek has enough trouble in getting responses from the five SPC members on the OTF; she said it would be even more difficult to get a response from the entire SPC. Allan stated that it was necessary for the OTF to be effective, focused and adaptive. Jenkyns and Früh-Green agreed with Ruppel. van der

Pluijm was curious to know the identity of the five SPC members on the OTF who do not respond to Janecek.

Janecek noted that the FY2010 schedule approval process was not meant to be a new system in general; he said it applied just for the FY2010 schedule, and was needed to move forward as effectively and expeditiously as possible. He said the normal mode of approval would return for future schedules beyond FY2010. He reminded the committee that everything sent to the OTF is considered drillable. Howard asked about the timeline for the FY2010 schedule. Janecek said that the OTF will need to make a decision within a couple of weeks. Howard noted that there was a lot of discussion on this topic at the previous SPC meeting, and there was an agreement to let the five SPC members on the OTF speak for the entire committee. Mori said that a new statement was not necessary, since the committee would be continuing with a previously agreed upon process. He asked if there was general agreement to continue letting the five SPC members on the OTF speak for the entire committee. There were no additional comments.

### **15.3. Nomination of co-chief scientists**

Evans reminded the committee that ESO was still looking for nominations for a second co-chief for the New Jersey expedition. Mori said that, since future expeditions are not yet known, nominations for co-chiefs will probably have to be done via e-mail after a schedule is approved.

### **16. Prospects for riser drilling beyond NanTroSEIZE**

Mori posed the question of what should be done in FY2011-2013 if the Kuroshio Current prevents *Chikyu* riser drilling at site C0002. He said it was important for the program to use *Chikyu* for riser drilling, but he did not want the vessel to go far from the NanTroSEIZE region in case the current changes, making riser drilling possible. He added that, currently, there are no other riser projects ready to be implemented. Mori also listed the current riser proposals in the system. Kodaira asked if, as a co-proponent of Proposal 695-Full2 (Izu-Bonin-Mariana Arc Middle Crust), he was conflicted. Mori replied that specific proposals will not be discussed; he ruled Kodaira as not conflicted. Mori added that a procedure to identify a backup riser project was needed. Larsen reminded the committee of SASEC Consensus 0806-03, in which the SASEC encouraged the acquisition of site survey data for other potential riser projects. He said that a process to identify targets might help in the acquisition of data.

Mori asked if there were viable alternate NanTroSEIZE riser sites. Tobin replied that the NanTroSEIZE PMT has discussed this, but the current plan was to buy time by doing non-riser drilling. He said the bottom line was the seismogenic zone objectives within the region covered by the 3-D seismic data are all in areas of high risk for a strong Kuroshio Current. He added that this also applied to sites outside the area of 3-D seismic coverage. Thus, he said, an alternate deep drilling site has not been identified. Tobin said the SPC should think about finding an alternate riser project to NanTroSEIZE.

Mountain asked if a riser program requires 3-D seismic data; if so, he suggested looking for where 3-D boxes exist. Mori replied that any riser drilling needs to image the target well. Mountain suggested that, as an example, drilling to the Moho does not require extraordinarily detailed imaging to identify the target. (He pointed out he was not advocating Moho drilling.) Mountain wondered if it would be efficient use of *Chikyu* to begin a hole and return to it repeatedly. Kuramoto replied that it would depend on the project, and technical details involving conductor pipe and casing. He said continuous drilling would be more effective.

Ruppel expressed concern over Mori's statement about not going far from the NanTroSEIZE region in case the current changes. She said she understands that NanTroSEIZE is a priority, but that Mori's statement eliminates the possibilities for many other projects. van der Pluijm said the Costa Rica Seismogenesis Project (CRISP) should be considered. Mori said he considered that to be very far from NanTroSEIZE. van der Pluijm said the program should look for good projects, and not worry about the proximity. Ruppel wondered how many years would be spent waiting for the current to change. She again disagreed with the "not far from NanTroSEIZE" comment. van der Pluijm agreed.

Howard asked what "ready" meant in Mori's statement that there are "no other riser projects ready to be implemented". He also wondered if any are close to being ready. Mori replied that he did not want to talk about specific proposals. van der Pluijm disagreed, saying it was necessary to consider specific proposals when dealing with such a major issue. Mori capitulated and asked conflicted participants to leave the room. Kodaira, Tobin, Kinoshita, Jenkyns and Ohkouchi left the room.

Katz said that in reality, 3-D seismic is not needed for every location. He said it depended on what the 3-D data were used for. From a safety standpoint, he said a good 2-D data set could be adequate. Science requirements, he added, may be different. He said a more important issue was logistical, i.e., the long planning cycle for acquiring "tubular goods". Filippelli expressed concern about having to commit money now on pipe for a project three years down the road. Sawyer agreed that a 3-D data set is not automatically required, but he said CRISP was in a tectonically complex location and, like with NanTroSEIZE, 3-D seismic data would be necessary to understand the results of the drilling.

Feary wondered why the riser proposals now with the SPC and OTF are not ready for drilling. Mori said that the IO requires 3-D seismic data for CRISP; for Proposal 595-Full3 (Indus Fan), the *Chikyu* cannot go into Pakistani waters. Janecek explained that for the latter, the issue was not the waters, but a supply base.

Larsen suggested quickly identifying what is missing for each riser proposal. He suggested the SSEP could be charged with digesting the information. Mori suggested both the SSEP and the SSP. van der Pluijm recommended looking at the science that the program wants to see implemented, rather than at what was missing for each proposal. He said that, since NanTroSEIZE focuses on seismogenic zone issues, CRISP makes sense as an alternative. Schuffert commented that the CRISP proponents have completed a 3-D design study. Mori said he thinks the CRISP proponents have submitted a proposal to NSF to fund a 3-D survey. Behrmann commented that the design survey was not for a conventional 3-D seismic survey; it involves doing a vertical seismic profile (VSP) in a drill hole. He also suggested that committing to the riser component of CRISP (Proposal 537B-Full4) would necessitate a commitment to the non-riser component (Proposal 537A-Full5). Behrmann also doubted that the structure at CRISP is as complex as NanTroSEIZE. He questioned whether 3-D data were necessary to image the target at CRISP.

Ruppel said there are too many issues to deal with now. She recommended that the SPC make a statement on the need to rapidly identify a riser strategy. She said that time is running out because it takes two years to spin up a riser project. Katz claimed it was unlikely that another riser project could be started before 2012. Larsen said that the committee cannot avoid making a choice now, adding that, at the latest, a decision would have to be made at the March 2009 SPC meeting.

Ruppel suggested that the CRISP proponents and the IOs should be asked what is required for the project to go forward. Larsen said this should be done for all potential proposals.

Ruppel replied that the SPC has not seen some of the other proposals. Howard and Feary both agreed that the readiness of other potential proposals should be looked at. Ruppel commented on the lack of readiness of Proposals 618-Full3 (East Asian Margin), 698-Full2 and 703-Full (Costa Rica SeisCORK). Filippelli suggested asking the OTF for an analysis of the readiness of CRISP. He agreed that the readiness of a few other proposals should also be investigated. Katz said that the proposed drilling in Proposal 618-Full3 is not complicated, although there is a huge amount of drilling. Ruppel noted that the Asian Monsoon DPG report recommends drilling the top 1000m, which would not require riser drilling. Rea suggested that it should still be considered as a possibility for deeper riser drilling. He said that the deeper objectives are important.

Discussion continued on Wednesday. Mori suggested asking the OTF to look at the feasibility of CRISP and report to the SPC in March 2009. He agreed that other proposals should be looked at as well, but suggested that they should first go through the ranking process in March. With the extra information about CRISP and the ranking results, the SPC in March would then revisit the issue of identifying the next riser project. Mori asked if the committee agreed to that process. Behrmann suggested instead that a scoping group be set up for CRISP. Janecek replied that one could be set up quickly. He said he would first get information from the operators on what is missing for CRISP. Howard wondered about the difference between a scoping group and the OTF. Janecek replied that a scoping group looks at what is missing, what is needed, and how to spin up a project; it would be made up of operators, proponents, and some outside people. Sawyer commented that the operators will not address science; that was the job of the SSP. He said the SSP would address specific questions the SPC wants answered. Mountain said that, in his experience, science does not hinge on having 3-D data; good 2-D data may be sufficient for siting a hole, and a 3-D survey could possibly be done after the drilling to put the results in context. He requested that the SSP evaluate that approach. Janecek wanted clarification on the specific request from the SPC to the OTF. He asked if the SPC will make a statement to the SSP. Filippelli suggested that the SPC formulate a consensus statement for guidance, outlining the issues. Katz said that the EPSP has not previewed CRISP, so he could not comment on the safety requirements. He noted, however, that the EPSP has approved several sites from the first (non-riser) phase (Proposal 537A-Full5), adding that the panel asked for several contingency sites to be established. Sawyer commented that the location of the riser drilling needed to be known before drilling for the first, non-riser, phase could begin. Ruppel said that the interdependencies of the CRISP proposals need to be clarified. Janecek commented that the interdependencies could have ramifications on *JOIDES Resolution* drilling.

Janecek asked for a clarification on whether the SPC was talking about a contingency riser project, or the next riser project. He said he hoped it was the latter, because the program would not want to invest a lot of money on pipe, etc. for just a contingency project. Mori agreed that the discussion was about the next riser project. He said that the riser proposals ranked at the March 2009 meeting will be what is on the table as potential next riser projects, along with CRISP. van der Pluijm said that this statement conflicts with the previous discussion, which he felt identified CRISP as the next riser project. Janecek said that, as long as there are no “show stoppers” from the operators viewpoint, he assumed that CRISP would be the next project. van der Pluijm said this differs from Mori’s statement that all riser proposals ranked in March will be on the table. He thought the committee had agreed to pursue CRISP as the next riser project. Mori agreed, saying the SPC has already endorsed CRISP by sending it to the OTF. Filippelli and van der Pluijm drafted a statement about CRISP which was accepted by consensus of the committee.



**SPC Consensus 0808-24:** The SPC reaffirms its commitment to Proposal 537B-Full4 (Costa Rica Seismogenesis Project - CRISP - Phase B) as a highly ranked riser-drilling proposal residing with the Operations Task Force (OTF). The committee wishes to see necessary actions toward the process of readying this proposal for operations.

The SPC requests that IODP-MI and the platform operator scope this proposal to assess key operational necessities for implementation. The SPC requests that the Site Survey Panel work with the CRISP proponents to determine any scientific gaps for final site characterization and project implementation. The SPC also requests that the proponents work with the Environmental Protection and Safety Panel to update relevant information.

## 17. Procedures for SPC proposal handling

### 17.1. Presentation and discussion protocols, SSEP input

Jim Mori listed perceived problems with SPC proposal evaluations: (1) many proposals to evaluate; (2) time restrictions; (3) repetition of discussions by the SSEP; (4) expertise balance of watchdogs; and (5) criteria for ranking. Mori listed his suggestions for dealing with SPC presentations, discussions, and input from the SSEP: (1) take the star groupings from the SSEP seriously; (2) limit discussions of science quality; and (3) focus presentations and discussion on contribution to balance of the ISP, context of the proposal with committee and workshop reports, and readiness of the proposal for drilling. Mori added that he wanted to have all three SSEP co-chairs present at the March SPC ranking meetings. He added that he has asked the SSEP to assign star groupings to proposals that were sent to the SPC prior to the introduction of star groupings. Mori said he wanted to shift SPC discussion to issues other than pure science. He asked for comments.

Ruppel said she had a fundamental disagreement, and stressed that this is the *Science* Planning Committee. She said the star ratings from the SSEP will not help the SPC make a distinction between, for example, all the four star proposals. She added that she was thankful that there is a presentation of science quality, because it is difficult to read all the proposals and keep everything in mind during the rankings. Behrmann said the previous SPC meeting was problematic because so many proposals were pulled back from the OTF for re-review and ranking. He said it was a bad idea to continue pulling so many proposals back. Mori said that at the previous meeting the SPC decided that Tier 2 proposals would be re-reviewed at each March meeting. Früh-Green said she was now against that decision. She said a problem at the previous meeting was lack of expertise balance. Camoin agreed with Ruppel, saying the SPC is a *science* committee, and therefore proposals must be judged on science. He said that issues about readiness can be dealt with by other panels with the appropriate expertise, but talking about science is the job of the SPC. Mori agreed that Ruppel had a good point, but said he would like the committee to have a general understanding for a 50-50 split on the discussion of science issues and relevance to the ISP versus other issues. Camoin stated the key issue for the SPC is prioritization (i.e., ranking). He said all the ranked proposals are good to very good proposals, and members have to choose by considering the relevance to the ISP, importance for renewal of the program, societal relevance, etc. Mori said that he wanted to shift discussions to other areas. van der Pluijm thought the proposal load at the previous meeting was not too heavy. He suggested the problem is that basically all proposals are always being considered at each meeting. Otherwise, he wondered what the problem was. Mori said there was a time issue in reviewing a large number of proposals at a four day meeting. van der Pluijm reiterated that this was because the SPC keeps returning to the same proposals that are “kept in a hopper”. He suggested that perhaps some proposals should be killed. He added, however, that discussions about science are never a waste of time for the SPC. Howard suggested proposals should first be ranked, after which other factors could be

considered. E.g., if a highly ranked proposal is not ready to be drilled, look at the next highest ranked proposal. As another example, he said that if the *JOIDES Resolution* is in the Atlantic, then look at the highest ranked, ready to drill proposals in the Atlantic. Behrmann said if a proposal is sent to the OTF it means the SPC wants it to be drilled. He added that pulling Tier 2 proposals back from the OTF at each meeting creates additional work. Feary countered by saying if Tier 2 proposals are not frequently re-evaluated, the system will not have nimbleness to get new proposals in. He added that at the previous meeting the criteria for evaluating was confusing; in some cases the proponents asked for their proposals to not be ranked, in other cases the SPC decided not to rank a proposal, while in other cases proposals were sent to the OTF that cannot be drilled. He said he hoped the ranking and forwarding of proposals to the OTF can be done more elegantly next time.

### **17.2. Ranking procedure (selection of proposals)**

Mori listed some possible criteria for ranking: (1) quality of science; (2) relevance to the ISP; (3) programmatic balance; (4) importance for program renewal; (5) readiness of proposal including SSP, EPSP evaluations; and (6) logistical considerations.

Camoin suggested discussing whether or not ranking was a good byproduct of the SPC. He asked if it was relevant to rank all proposals from 1 to N, regardless of ISP theme, ocean, platform. He wondered if perhaps another system could be found to evaluate proposals based on priorities. Jenkyns suggested ranking should be based entirely on science. After that, the ranked list could possibly be “tinkered with” if necessary. Mountain asked if Jenkyns was suggesting having two rankings: one on science only, then another which would include other factors. Jenkyns said yes, he was suggesting a two stage process: ranking on science first, then making “adjustments” to the ranked list. Ruppel felt that members should not be told precisely which criteria to use. She said the committee had the same discussion at its previous meeting, and most felt comfortable ranking primarily based on science. But she added that everyone keeps other issues in the back of their mind when ranking. Thus while it was fine to suggest criteria, Ruppel suggested that a holistic list of criteria needed to be kept in mind. Feary stated that ranking is not the end of the process of forwarding proposals to the OTF. He said ranking provided guidance, but did not guarantee thematic balance or platform considerations.

Schuffert suggested that consideration of non-science factors when ranking could doom a proposal to never being implemented. He cited as an example the Arctic drilling, which received top ranking in the ODP even though everyone knew it could never be done. However, Schuffert said, this set the stage to have the necessary capabilities in the IODP. He said there would be a similar problem if site survey status was factored into ranking; proposals with site survey deficiencies would rank low, and funding agencies will not fund site surveys for low ranked proposals. Schuffert concluded that it was dangerous to include non-science factors when ranking. He suggested they be considered only *after* ranking.

Filippelli said there is always a huge overlap in the rankings because of large standard deviations. Because of this, he said the rankings should be taken only as guidance. Mori noted that at its previous meeting, the SPC for the first time forwarded proposals to the OTF that ranked lower than some not sent to the OTF. He felt there was a reluctance to do that. He said, however, that SPC should continue to do that as long as it can justify its procedure and the rankings. Ruppel again advocated a more holistic viewpoint when ranking. Larsen agreed, saying that quality of science cannot be separated from relevance to the ISP.

Mori sensed general agreement to first rank by science, but expressed concern that the next step was a free-for-all. Jenkyns said that rules are necessary. Howard suggested first ranking on quality of science because that is a transparent process, and transparency is important. He

added that there had to be a wall between ranking based on science, and later consideration of other factors.

Ruppel said that the message from the SASEC was to be realistic, while at the previous SPC meeting the top ranked proposal could not be drilled. Larsen said he endorsed an initial ranking on science. He also endorsed reconsidering proposals at the OTF. Feary took issue with Ruppel's point, saying sometimes the SPC does not have sufficient information to judge whether the non-science issues would preclude a proposal from possibly being implemented.

Mori asked each member to state their opinion on ranking procedures and criteria. After that, he said, he wanted to come to an agreement on how to rank at the next meeting. After each member started his/her opinion, Mori noted that the opinions were fairly consistent. He sensed a general preference to first rank proposals primarily on quality of science and relevance to the ISP, followed by a second step (without voting) in which there would be freedom to selectively choose proposals to send to the OTF from within the ranked list based on other factors. van der Pluijm disagreed, saying he thought he heard support for a two-step ranking process, with the first based on quality of science only, while the second step would be another round of voting. He expressed dislike for the two-step procedure, but said that clear instructions were needed. Ruppel said that quality of science cannot be separated from relevance to the ISP. van der Pluijm said that was the reason he disliked the two-step process. Mori said he did not want a second round of formal voting. Früh-Green said that a lot of proposals have similar rankings (based on the standard deviation); she said that needs to be considered. Mori suggested that the rankings could be rounded off. Ruppel commented that more time would be needed for the second step. Howard said that if time was as problem, the SPC should consider fewer proposals. Mountain said that he suggested a second round of voting because, after the first ranking on science quality, more may be learned about the proposals just ranked which could cause one to rethink their vote and, for example, lower the ranking of a proposal. Mori reiterated that he was against a second round of voting. He preferred the final rankings to be decided upon by a round of discussion.

Mori asked if each member's ranking of the proposals should be made public. Früh-Green said it would be fairer if the rankings were not open. van der Pluijm also did not favor making the individual rankings open. He said it would serve no purpose, adding that there needs to be trust in the ranking procedure. Mori said that, for the time being, individual rankings will not be made public.

### **17.3. Protocols for forwarding to the OTF and Tier 1 and 2 classification**

Mori listed some suggested protocols for forwarding proposals to the OTF with Tier 1 and 2 classifications. For Tier 1 proposals Mori suggested: (1) highest priority proposal for an ocean basin; (2) important to complete by 2013; (3) reside at OTF for two or three years; and (4) ready for drilling. For Tier 2 proposals Mori suggested: (1) high priority proposal for an ocean basin; (2) re-evaluated at each ranking meeting; and (3) ready for drilling.

Feary disliked having "ready for drilling" in both categories. He pointed out that in March 2008 CRISP (Proposal 537B-Full4) was classified as Tier 1 (but is not currently ready for drilling). D'Hondt agreed that "ready for drilling" should not be a criteria. Ruppel took issue with "highest priority proposal for an ocean basin", wondering about the meaning of "two to three" years if the drillship is not going to that ocean for a long time. Feary added that, currently, there are two Tier 1 proposals in the Pacific. Howard suggested discarding the Tier 1 and 2 system. He said the ranking was all that was necessary; the highest priority proposal for a given ocean basin should be the one with the highest ranking.

Janecek explained that the original idea behind the Tier concept was that very high priority proposals should remain with the OTF for some specific length of time, because they require long planning and time to allocate resources. He said that, ideally, Tier 1 proposals would remain with the OTF forever. Mori said that two to three years should be “forever”, but added he was agreeable to letting them reside at the OTF at least through 2013.

Mori said that that the committee agreed to re-evaluate Tier 2 proposals at each ranking meeting. Behrmann stated that the Tier concept was intended to retain flexibility for incorporating outside-IODP work. He suggested that continually pulling Tier 2 proposals back from the OTF would impact what the IOs and IODP-MI have to do to accommodate the off-contract work. He added that it would also consume more energy and, if done every year, will require more, bigger meetings. Ruppel disagreed, saying that in SPC Consensus 0708-21 the committee decided to pull all non-Tier 1 proposals back for re-evaluation. She said it was necessary to look at all proposals at each ranking meeting out of fairness to the proponents. Janecek said his initial idea was that a Tier 2 proposal would remain with the OTF for two or three years. He explained that the OTF tries to plan two fiscal years out, so Tier 2 proposals should remain for at least two years; three would be better.

Mori asked if there was general agreement to leave Tier 1 proposals at the OTF until 2013; Tier 2 proposals for two or three years. Ruppel asked if two-three years for Tier 2 proposals applied regardless of ocean basin, pointing out that the *JOIDES Resolution* is currently not near the Atlantic. Feary said that at the previous ranking meeting he would not have been agreeable to sending so many Tier 2 proposals to the OTF if he had known they would not be re-ranked at each ranking meeting. Filippelli disagreed and said he favored leaving Tier 1 proposals forever, and Tier 2 proposals for two-three years at the OTF. Behrmann said it made no sense to pull Tier 2 proposals back to the SPC every year.

Howard suggested an alternative approach. He said the OTF has a portfolio of proposals that provide a set of options. He suggested that if the OTF needs more proposals for an ocean basin, it should inform the SPC, which would then re-rank proposals, but it would avoid re-ranking at each March meeting. Mori asked for other comments, but received none.

Mori said the choice is to leave Tier 2 proposals with the OTF for one or two years (except those being considered for scheduling). He asked each member to state their preference. Most members preferred two years. Feary stated that at the March 2008 meeting, it was agreed that Tier 2 proposals would remain with the OTF for one year. Früh-Green suggested at the March 2009 meeting the current Tier 2 proposals should be re-evaluated, but in the future Tier 2 proposals should remain with the OTF for two years. Feary thought this was a good compromise. Mori asked Ruppel to draft a statement. The statement was presented on Wednesday and accepted by consensus of the committee.

**SPC Consensus 0808-25:** At its March 2009 meeting, the SPC intends to review and rank (1) new proposals that have been forwarded by the Science Steering and Evaluation Panel (SSEP), (2) existing proposals residing with the SPC, and (3) all Tier 2 proposals that are residing with the Operations Task Force (OTF) and that are not on any OTF-approved schedule for FY2009 or FY2010.

In March 2010, and at subsequent ranking meetings, the SPC will normally rank (1) new proposals forwarded by the SSEP, (2) existing proposals residing with the SPC, and (3) the Tier 2 proposals that have been residing with the OTF for two years and that are not on an approved schedule at the time of the SPC meeting.

**17.4. Lifetime of proposals at SPC**

Mori recommended that at its March 2009 meeting, the SPC should discuss the option of deactivating proposals. He said that there are some proposals that perennially rank low, and probably will never rank high. He suggested that proponents should be given this information. Mori stated he did not want to set up a specific set of rules for deactivating proposals, instead the decision would come from discussion.

John mentioned that some of the low-ranked proposals are in the solid earth field. She said there are not many SPC members with solid earth expertise, but perhaps if the composition of the SPC were to change, some of the solid earth proposals would rank higher. Mori said there was probably enough expertise on the committee to recognize if this was a problem. Mori added that for all the recommendations discussed under agenda 17 to work, all SPC members would have to read all proposals.

**Wednesday****27 August 2008****09:00-17:00****18. Expedition 310 (Tahiti Sea Level) review** (see Appendix B)

Gilbert Camoin presented an overview of Expedition 310 (which originated from a component of Proposal 519-Full2), describing the scientific rationale, objectives and methods, drilling sites, and operational and scientific results. He noted that the timing and course of sea-level changes associated with the last deglaciation are essential components to understand: (1) the dynamics of melting of large ice sheets and their effects on the isostasy of the Earth; and (2) the relationships between freshwater fluxes, thermohaline circulation and global climate. Expedition objectives included: (1) reconstructing the last deglacial sea-level rise; (2) improving calibration of the <sup>14</sup>C timescale; (3) analyzing reef responses to sea-level, climatic and environmental changes; (4) defining sea surface temperature (SST) and sea surface salinity (SSS) variations during the last deglacial sea-level rise; and (5) improving paleoceanographic and paleoclimatic proxies. The expedition required forty-two days, with thirty-seven holes drilled at twenty-two sites in water depths ranging from 41 to 117m. Camoin reported a total core length of 632m was recovered with more than 90% recovery of carbonates. He noted that the expedition achieved the first downhole measurements and first petrophysical studies on recent coral reefs. Camoin described several scientific findings. Studies of reef accretion show microbialites form the last stage of encrustation over coral colonies, and represent a major structural and volumetric component of the frameworks. Sea level change studies found that the amplitude of melt-water pulse 1A (MWP-1A) and geophysical modeling suggests a significant Antarctic contribution to MWP-1A; there was no evidence for MWP-1B. Also, two excursions in the composite paleomagnetic secular variation record at ~11.5Ka and 13.5Ka are the youngest ever documented. Reef accretion studies found no evidence for abrupt reef drowning events between 16-10Ka, but evidence does suggest there was accelerated sea-level rise between 14.5-13.9Ka. In addition, there was no evidence for a reef drowning event coinciding with MWP-1B centered at 11.3Ka. Studies of the Paleoclimatic record showed that SST estimates from corals and from foraminifera paint a contrasting picture of tropical Pacific SSTs during the Younger Dryas period (~12.8-11.5Ka), consistent with Mg/Ca results, but inconsistent with large coolings implied by bulk coral analyses. Additionally, important data on older Pleistocene sea-level changes were acquired indicating the initiation of the deglaciation occurred between 139-140Ka. The expedition also provided the first results on geomicrobiology of modern reef slopes, and a new approach for microbiological shipboard work. Camoin noted that, to date, five papers and two data reports have been published or are in press, and twenty-one papers will be submitted by 3 November 2008.

Ohkouchi asked about recent magmatic activity in Tahiti. Camoin replied that the maximum volcanic activity in Tahiti occurred prior to 1 Ma. Ohkouchi asked about the timing of MWP-1A, wondering if it suggested that melting of the European ice sheet was responsible. Camoin replied that the Antarctic was the meltwater source. Nishi asked why MWP-1B does not exist. Camoin replied that all that could be said is that it is not seen in Tahiti. He said this was the same in the onshore cores, and for other Pacific islands. Allan asked if the lack of a MWP-1B signal indicates rapidity in the rise of sea level. Camoin said yes.

### **19. Science Advisory Structure (SAS) roles in the IODP renewal process**

See discussion under agenda 22 (program renewal activities and timelines).

### **20. SPC terms of reference**

Deferred due to lack of time.

### **21. Long-term (pre-renewal) scientific priorities**

#### **21.1. IODP achievements: implications for the next five years**

Hans Christian Larsen reviewed the achievements of IODP Expeditions 301 through 312. He classified each expedition according to the primary ISP theme it addressed. For Theme 1 (deep biosphere and seafloor ocean) Larsen reviewed the achievements of four expeditions. He mentioned that: (1) during Expedition 301 (Juan de Fuca Hydrogeology) a network of three CORK seafloor observatories were established for long term monitoring; (2) Expedition 308 (Gulf of Mexico Hydrogeology) achieved the first (for IODP) vertical profiles of directly measured pore pressure, and successfully performed logging, coring, and downhole measurements in an over-pressured environment using weighted mud; (3) Expedition 307 (Porcupine Basin Carbonate Mounds) characterized growth of Challenger Mound; and (4) results of Expedition 311 (Cascadia Margin Gas Hydrates) challenged the previous view of gas hydrate formation. For Theme 2 (environmental change, processes and effects) Larsen reviewed the achievements of three expeditions. He mentioned that: (1) Expedition 302 (Arctic Coring Expedition; ACEX) recovered the first deep sediment cores from the Arctic Ocean seafloor; and (2) Expeditions 303 and 306 (North Atlantic Climate, Parts 1 and 2) recovered continuous, high-resolution records of the past few million years, allowing millennial scale resolution of Northern Hemisphere ice sheet stability during glacial periods. For Theme 3 (solid earth cycles and geodynamics) Larsen reviewed the achievements of five expeditions. He mentioned that: (1) Expeditions 304 and 305 (Oceanic Core Complex Formation, Atlantis Massif, Parts 1 and 2) recovered a large proportion of gabbroic rocks at Site 1309; (2) Expedition 308 (Gulf of Mexico Hydrogeology) drilled into over-pressured sands; and Expeditions 309 and 312 (Superfast Spreading Rate Crust, Parts 1 and 2) cored and logged 1.5 km into crust formed at a superfast spreading center, recovering for the first time a continuous upper oceanic crustal section, and gabbros from the uppermost lower oceanic crust. Larsen noted that the expeditions have addressed several ISP initiatives: (1) gas hydrates; (2) extreme climates; (3) rapid climate change; (4) 21<sup>st</sup> century Mohole; and (5) seismogenic zone. He also pointed out that some initiatives remain to be addressed: (1) deep biosphere; (2) continental breakup and sedimentary basin formation; and (3) large igneous provinces.

#### **21.2. Discussion**

Ruppel said she appreciated the review and thought it would be useful if an executive summary of the information could be made available. She suggested distributing such a summary with the agenda book for the next meeting. She added that it was good to be reminded of the initiatives that have not yet been addressed. Mori agreed. Larsen commented that the program has done very well with the available resources. He said lots of strong science has been accomplished. Ruppel commented that a lot of good technical things have

also been accomplished. D'Hondt requested that Larsen's presentation be distributed to the committee. Allan noted that Larsen had given the same presentation to the NSF's Assistant Director for Geosciences, Tim Killeen. Allan thanked Larsen, saying this was very important for showing the value of the program.

## 22. Program renewal activities and timelines

Hans Christian Larsen listed the membership of the INVEST (IODP New Ventures in Exploring Scientific Targets) steering committee, noting the INVEST meeting would take place 23-25 September 2009 in Bremen. He presented a timeline for the science planning part of the program renewal process:

INVEST renewal conference	Sept. 2009
Proceedings of INVEST published	early 2010
Transforming INVEST into the science and implementation plan	
New science plan (1st draft)	late 2010
Internal and external review of science plan	
New science plan fully completed	2011
Approval by national science boards (US/JP/EU)	2011/2012
Science/program plan, funding agencies approval	2012

Larsen also presented a rough timeline for other related activities. He noted that the national science planning processes has started; lead agencies will meet in September to discuss planning; the IODP Council will meet in January; and the SAS external committee on hybrid funding is starting now. The SAS external committee, he noted, was formed by the IODP-MI President as charged by the Board of Governors; Filippelli has been asked to participate. Addressing what the SAS can do to assist in the renewal process, Larsen said the SAS could provide input to the INVEST meeting, noting this would be needed urgently. He said the most important contribution would be helping with the review of the new draft science plan.

Howard said that the time to engage smaller players (e.g., Australia) was at the beginning of the process. He pointed out that even the smaller players have to make their cases to their funding agencies. Larsen replied that all the players were represented on the IODP Council, so they should be plugged into what is happening. Ruppel said there are many countries that have no scientific buy-in with IODP (e.g., Brazil). She asked if there was a way the program could reach out to target other communities. Larsen replied that INVEST would be an open meeting, but noted anyone interested would need to obtain funding. Ruppel suggested it would be good if there were \$500 scholarships to assist attendees from other countries. Larsen replied that there was no money in the budget for that, and besides the money could not be spent on non-IODP countries. But, he said, her point was taken and was important. Behrmann commented that the INVEST steering committee may try to identify people in non-IODP countries to approach directly about attending.

## 23. International Continental Scientific Drilling Program (ICDP) report

Deferred due to lack of time.

## 24. Approve new Site Survey Panel (SSP) chair and vice chair

The committee briefly discussed the SSP recommendation of Jin-Oh Park as new chair, and Gilles Lericolais as new vice chair of the SSP. Sawyer noted that Park has previously served a term as member between 2004-2007, and now was back on the panel. With no further discussion the committee approved the two appointments by consensus.

**SPC Consensus 0808-26:** The SPC appoints Jin-Oh Park as chair and Gilles Lericolais as vice chair of the Site Survey Panel, effective immediately.

**25. Approve new Scientific Technology Panel (STP) chair and vice chair**

The committee briefly discussed the STP recommendation of Clive Neal as new chair, and Saneatsu Saito as new vice chair of the STP. Lovell commented “good luck”. With no further discussion the committee approved the two appointments by consensus.

**SPC Consensus 0808-27:** The SPC appoints Clive Neal as chair and Saneatsu Saito as vice chair of the Scientific Technology Panel, effective immediately.

**26. Approve new Environmental Protection and Safety Panel (EPSP) vice chair**

The committee briefly discussed the EPSP recommendation of Manabu Tanahashi as new vice chair of the EPSP. Katz noted that Tanahashi was one of the longest-serving Japanese members of the panel. With no further discussion the committee approved the appointment by consensus.

**SPC Consensus 0808-28:** The SPC appoints Manabu Tanahashi as vice chair of the Environmental Protection and Safety Panel, effective immediately.

**27. Other business***Flexibility in implementation*

Gabe Filippelli presented some ideas on flexibility in the implementation of expeditions. He said the combination of environmental windows, restricted scheduling, and urgency in moving forward rapidly with science after a hiatus and in advance of renewal provides incentive to implement expeditions in a different way than the standard two month proposal-expedition model. Filippelli suggested that more flexible implementation may provide better opportunities to achieve top science objectives while operating under operational realities for the remainder of this program and for renewal. As an example of operational flexibility, he pointed to the top eight proposals with planned drilling in the northern Pacific, and said that, with the current mode of expedition scheduling, three or four of these could be completed in FY2010. This, he said would leave four or five top proposals un-implemented if the ship leaves the Pacific after FY2010. Filippelli said there was nothing magical about the normal two-month operational duration for expeditions, and asked if, for any given ocean basin, it would be possible to “de-scope” some proposals, streamline them, maintain the high priority science objectives, and get them implemented via hybrid legs with flexible expedition length. This, he suggested, would allow more Pacific proposals to be implemented before renewal. Filippelli also presented a set of draft requests to the IOs, funding agencies, and the SSEP, which after further discussion by the committee, and some modification, was accepted by consensus (see SPC Consensus 0808-29, below).

Allan noted that the cobbling together of elements of different proposals has not been done much in the past. He said there would be serious issues associated with port calls and crew rotations that would make combining expeditions difficult. Janecek suggested it was worth looking into the possibilities first before saying yes or no.

Filippelli suggested that proponents could be asked to provide more information on the specific objectives for each site, and their overall importance to the project. Ussler wondered, if multiple proposals were combined, would it be done along thematic lines, or geographic lines with potentially very different scientific objectives. Filippelli said he thought the latter would be cheaper. Howard said that, in the past, there have been legs with both sedimentary and basement sites. Mountain said that, conceptually, the idea was fabulous and long overdue. But, he said, it would be a nightmare procedurally. He also had difficulty imagining proponents reacting positively to having their project cut in half. Mountain added that he strongly endorsed a bottom-up approach so that from now on proposals do not have to fit into



a two month expedition window. He liked the idea of giving proponents the option to propose projects of, for example, two or four weeks duration.

Ruppel said that she strongly supports the idea, but noted issues with contracts and money associated with the timescale issue. She described the situation with the north Pacific proposals an emergency, saying that proponents are so desperate to get their proposal drilled that they will be willing to cut back. She recommended forming a subcommittee to address these issues, and thought it could get answers quickly. Früh-Green agreed, saying proponents are aware of the reality of the situation and would be happy to get at least the most important part of their proposal drilled. Malone said that from a science perspective, the most important part of de-scoping was ensuring that something important was not lost. Mountain said that if proponents are told that without cuts to their proposal it will not be implemented, they would come up with something. But, he suggested, asking for blanket cuts would not work. Feary agreed that it had to be done intelligently.

Filippelli said that if the concept were endorsed as something worth exploring, he would volunteer to form a subcommittee that would formally make the requests listed in SPC Consensus 0808-29. Katz questioned the need to ask the proponents to propose a scaled-back project. He said the SPC is the planning body, and if the proposals are well written, the SPC should be able to cobble together high priority components from what is written. He suggested that going back to the proponents will just continue the cycle of nurturing (of which he said there was already too much). Ruppel replied that proponents had to be treated courteously and be given the opportunity to participate. Katz disagreed with the latter, saying it was unnecessary to constantly go back to the proponents. He said it may be politically correct, but now was not the time for that. Ravelo said that no one on the SPC knows a proposal as well as the proponents. Katz expressed concern that the proponents may suggest something that is operationally impossible. Filippelli said he too would be more comfortable involving the proponents. Howard suggested that it could be done with a very rapid turnaround. Malone said it was done with Porcupine and Cascadia. Sawyer said that proponents will indeed be willing to cut back their proposed drilling; however, he recommended asking the proponents to specify what objectives of the proposal will not be met by cutting pack. Filippelli agreed, suggesting that the proponents should prioritize their sites. Larsen said there was an issue of political correctness; he wondered how many proponents the SPC will approach. Mori sensed general agreement to proceed with the concept outlined by Filippelli. He suggested that Filippelli and a few others be empowered to proceed with investigations. Peterson and Ohkouchi volunteered to assist.

**SPC Consensus 0808-29:** The SPC supports pursuing a more flexible approach to expedition design. The combination of environmental windows, restricted scheduling, and urgency in moving forward rapidly with science after a hiatus and in advance of renewal, provides an incentive to implement expeditions in a different way than the standard expedition model. Further, more flexible implementation may provide better opportunities to achieve top science objectives while operating under operational realities for the remainder of this program and for renewal.

The SPC members on the Operations Task Force (OTF) will initiate the flexibility model by reviewing northern Pacific proposals currently residing with the OTF and under consideration for possible scheduling in FY2010. This review will begin immediately, and will focus on balancing the highest possible scientific outcomes with operational efficiency.

The SPC constitutes a subcommittee (Filippelli, Ohkouchi, Peterson) to explore how to develop a flexibility scheme at the proposal level that ensures maximum science and maximum implementation flexibility. This subcommittee will report on these efforts at the

March 2009 SPC meeting. The subcommittee will pursue a number of lines of inquiry, potentially including:

1. Request that the Implementing Organizations (IOs) provide guidance about expedition flexibility, including ramifications of combining expedition objectives and/or staffing and crew rotation to implement various length expeditions and/or combined science parties and/or short-term port calls for crew and scientist rotation.
2. Request that the funding agencies and Program Member Offices (PMOs) provide information about what financial impact the above flexibility options might have.
3. Request that the Science Steering and Evaluation Panel (SSEP) considers how proposals might include additional information about objectives achieved with respect to the overall proposal objectives with streamlined drilling plans.

## 28. Future meetings

### 28.1. Liaisons to other panels and programs

Deferred due to lack of time. Mori said this would be done by e-mail.

### 28.2. 13<sup>th</sup> and 14<sup>th</sup> SPC meetings

#### 28.2.1. March 2009

Larry Peterson announced that the next SPC meeting would be on 16-19 March 2009 in Miami, USA. Peterson gave a brief presentation, apparently suggesting that Don Johnson and Philip Michael Thomas of *Miami Vice* fame may possibly attend.

#### 28.2.2. August 2009

Mori said that, according to the usual cycle, the following (August 2009) meeting should be in Europe. Jenkyns stated that there had been talk about that meeting being in Australia. Howard said that he could make no promises now, but it was a possibility and he would look into it. Mori said that details will be needed at the next meeting, and requested that two alternate dates need be proposed.

## 29. Review of motions and consensus statements

Tributes to departing SPC members were presented by Hiroaki Sato for departing member Katsumi Marumo, by Carolyn Ruppel for departing member Steve D'Hondt, and by Gabe Filippelli for departing member Greg Mountain. Jim Mori thanked the meeting hosts and organizers: Naokazu Ahagon, Keita Umetsu and Yuki Yoshioka.

**SPC Consensus 0808-30:** We gratefully thank Dr. Katsumi Marumo for his efforts as a SPC member during 2006 through 2008. Dr. Marumo is a specialist in geochemistry and clay mineralogy, including mineral (or metal)-microbe interactions. His experience in applying portable drilling systems in hydrothermal vent systems helped us to understand how the IODP works. Recently, Marumo-san has become interested in terrestrial heavy metal pollution and its removal technologies. Although this does not necessarily imply that he should be designated as a EPSP member, we look forward to seeing his great contributions to the IODP and ocean sciences in the future.

**SPC Consensus 0808-31:** The SPC thanks Steve D'Hondt for his service to SPC and especially for his insight and leadership on issues related to biogeochemistry and the deep biosphere. Steve's influence has been instrumental in educating the SPC and other SAS committees about integrating microbiologists into the IODP community and microbiology into IODP projects.

**SPC Consensus 0808-32:** For his apt colloquialisms, his clarity of presentations, his bravery in stating the unpopular when we need to hear it, and his always careful assessment of the science, we thank Greg Mountain for his able service on SPC. He has been a true advocate for the success of the IODP, providing a combination of high scientific standards and proponent advocacy that is the hallmark of our program. His voice and humor will be sorely missed.

We wish him a platform that doesn't founder, a sea level that varies wildly, and a sequence that is always prograding.

**SPC Consensus 0808-33:** The SPC thanks Naokazu Ahagon of Hokkaido University, Keita Umetsu and Yuki Yoshioka from AESTO for their efforts in hosting and supporting its meeting in the excellent room at the Advanced Center For Universities in Sapporo.

Mori adjourned the meeting at 17:53.

**SPC 0808 Minutes, Appendix A****SPC Recommended Policies for Complementary Project Proposals**

Complementary project proposals (CPPs) are scientifically motivated proposals having a commitment of at least 70% funding for platform operating costs (POCs) from a third-party (e.g., private sector, private foundation) source. The science operating costs (SOCs) and the remaining portion of the POCs are the responsibility of the IODP. CPPs are submitted to IODP-MI and considered by the Science Advisory Structure (SAS) for potential drilling as part of the IODP. CPP submissions follow the same logistical (e.g., length, required formats, required forms) guidelines, observe the same proposal deadlines, and must be linked to Initial Science Plan (ISP) themes just like normal IODP proposals. CPPs must also provide a description of the formal financial commitment from a third-party to support 70% of estimated POCs for the proposed work. The appropriate Implementing Organization (IO) can provide guidance to CPP proponents on estimating POC costs. Any qualified scientist may serve as the lead proponent of a CPP. CPPs may deviate from some normal IODP procedures (e.g., continuous coring) in some cases.

CPPs will receive fast-track consideration by the SAS. At the Science Steering and Evaluation Panel (SSEP) meeting following submission of the CPP, the SSEP will evaluate the proposal based on scientific quality and either forward the CPP to the Science Planning Committee (SPC) with a star grouping or decline the proposal. The SSEP will not iterate with proponents of a CPP, but the SSEP may provide its normal degree of feedback to the proponents regardless of the SSEP's decision on the proposal. If a CPP is declined by the SSEP, the proponents may resubmit it for a future IODP proposal deadline.

A CPP forwarded to the SPC by the SSEP will be considered at the SPC meeting immediately following the SSEP evaluation. At that SPC meeting, the SPC will either forward the CPP to the Operations Task Force (OTF) or decline the CPP.

IODP memoranda regarding designation of co-chief scientists, scientific staffing, data access, provision of site survey data, and other issues will apply to CPP expeditions. All Site Survey Panel (SSP) and Environmental Protection and Safety Panel (EPSP) requirements must be met for a CPP.

The POCs for a CPP expedition will typically increase between the submission of the proposal and eventual drilling. Since CPPs are granted expedited SAS consideration owing to the third-party financial commitment, the CPP will be declined by the SAS and the proposal removed from active status if the 70% POC commitment cannot be fulfilled.

The SPC reserves the right to modify these procedures as necessary.

**SPC 0808 Minutes, Appendix B****SPC Scientific Assessment of IODP Expedition 310****Tahiti Sea Level**

(by SPC members David Feary, Naohiko Ohkouchi, Larry Peterson)

IODP Expedition 310 was conducted as a two-part expedition. Drilling using the mission-specific platform *DP Hunter* occurred in October–November 2005; and the on-shore science party was conducted in Bremen during February–March 2006. Expedition 310 was based on ODP/IODP Proposal 519: “The last deglacial sea-level rise in the South Pacific: offshore drilling in Tahiti and the Australian Great Barrier Reef.” Accordingly, Expedition 310 represents the first element of a two-part strategy to address the scientific goals described in this proposal; the second element will be the Great Barrier Reef drilling program that is at present scheduled for September–December 2009. The overarching scientific goals for Expedition 310 were to establish the course and effects of the last deglaciation in a tropical carbonate reef setting, as an essential element of a broader understanding of the history of sea level and sea-surface temperature (SST) variation.

The Expedition 310 drilling strategy sought to recover a complete record of reef growth during the last deglacial by drilling several reef terraces of various lateral extent that occur at a range of depths (100, 90, 60, and 40–50 m) seaward of the living barrier reef. Thirty-seven holes at twenty-two sites (M0005–M0026), ranging from 41.6 m to 117.5 m water depth, resulted in more than 600 meters of reef core with an exceptional rate of recovery (>90%) and quality. Although the drilling strategy targeted the postglacial carbonate sequence (Unit I), a bonus result was the recovery of an older Pleistocene sequence (Unit II). When compared with the limited recovery during earlier efforts to recover records of reef growth during the Ocean Drilling Program (e.g., Legs 133, 143, 144), the excellent recovery during Expedition 310 confirms the efficacy of using a specialized drilling platform for sampling carbonate reef records.

The preliminary results of Expedition 310 drilling, assessed against the primary scientific objectives, are described below. Because the scientific objectives of Expedition 310 require the use of specialized geochemical techniques, paleomagnetic analyses, and detailed investigation of lithological and biological assemblages, these are necessarily interim results:

A) *To establish the course of postglacial sea level rise during the last deglaciation in order to* 1) establish the minimum sea level during the LGM; 2) assess the validity, timing, and amplitude of meltwater pulses and thereby identify the exact sources of the ice responsible for these rapid sea level steps; 3) prove or disprove models suggesting a saw-tooth pattern of sea level rise; and 4) test predictions based on different ice and rheological models.

Cores were recovered from the postglacial reef sequence from 40 to 121 m below present sea level, representing most or all of the postglacial sequence from the LGM to the present day. An accelerated rise in sea level coeval with the MWP-1A meltwater event was observed at this far-field site. The amplitude of ~20 m is similar to that observed in Barbados. Based on geophysical modeling, this suggests a significant Antarctic contribution to MWP-1A. No evidence of a reef drowning event coinciding with the MWP-1B pulse at about 11.3 ka BP was observed, suggesting that this was a northern hemisphere event that did not affect this part of the southern hemisphere.

B) *To define variations in SSTs and SSSs during the last deglaciation* when solar insolation, sea level, and atmospheric CO<sub>2</sub> levels were different from today. The objectives are to 1) reconstruct interannual-decadal climate variability and seasonality (amplitude and structure) in the South Pacific; 2) reconstruct variability and change in interannual, including El Niño

Southern Oscillation (ENSO), and decadal-interdecadal, including Pacific Decadal Oscillation (PDO)/Interdecadal Pacific Oscillation (IPO) variability; 3) compare the global variation and relative timing of postglacial warming between the tropical Pacific and the mid- and high-, northern and southern latitudes; and 4) determine major changes in tropical sea surface salinity.

Massive coral colonies suitable for paleoclimate studies and spanning most of the postglacial sequence were recovered in the cores, and these have been slab-sampled for paleoclimate studies. Initial SST estimates from corals and SST estimates from foraminifera paint a contrasting picture of tropical Pacific SSTs during the Younger Dryas period (~12.8-11.5 ka BP), with independent estimates in agreement with foraminifera Mg/Ca results but inconsistent with the large coolings implied by bulk coral analyses. Initial results indicate that ENSO variability was stronger and more regular than today at the end of the last glacial.

C) *To analyze the impact of sea level and environmental changes on reef development during the last deglaciation*, with a special emphasis on the comprehensive reconstruction of environmental changes (e.g., nutrient concentrations, variations in pH and alkalinity, paleoproductivity, terrigenous and freshwater fluxes), the evolution of the geometry, biological composition, and growth mode of reef frameworks.

The seven coral assemblages recovered in Unit I represent different stages of the sea-level cycle, and they can be used to identify sea-level position to +/- 5m. The age and distribution of these assemblages indicate that although there was sequential drowning of individual reef ridges during the 16,000-10,000 yr B.P. time span, there was no major break in Unit I reef development because the carbonate system responded to sea-level rise by back stepping, thereby maintaining continuous reef accretion. Reef growth rates were up to 10 mm/yr averaged over thousand-year periods, and up to 20 mm/yr for shorter periods.

Recovery of Unit II material provided important data on older Pleistocene sea-level changes (e.g., MIS 3 and 6) and climate variability. Initial data show that the initiation of the older deglaciation occurred between 139 and 140 ka when northern hemisphere insolation was at a minimum and southern hemisphere insolation at a maximum, suggesting a possible role for the southern hemisphere in the initiation of this deglaciation event.

D) *To investigate geomicrobiology processes on the Tahiti fore-reef slopes to study potential modern counterparts of the microbialites that characterize the last deglacial reef sequence drilled in Papeete* (Camoin and Montaggioni, 1994; Camoin et al., 1999). The objectives are to 1) identify the microbial communities that are involved in their formation and 2) to have a better understanding of the environmental significance of those microbial fabrics.

Expedition 310 recorded some of the first geomicrobiological results from modern reef slope cores, including a new approach for microbiological shipboard work. Cores show that microbialites form the last stage of encrustation over coral colonies or related encrusting organisms, and that microbialites developed in open cavities in the reef framework and in closed to semi-closed microcavities. Microbialites represent a major structural and volumetric component of the framework, growing as the final stage in the drowning sequence.

The overall conclusion from this expedition is that it was a particularly successful endeavor with a range of significant scientific outcomes; that the transect approach to sea-level studies is appropriate for tropical carbonate reef systems and accordingly, that the scientific and

logistical approach planned for the upcoming Great Barrier Reef expedition represents the optimum approach.