

IODP Science Planning and Policy Oversight Committee

4th Meeting, 15-16 June 2005

ANA Hotel Nagasaki Gloverhill
Nagasaki, Japan

Science Planning and Policy Oversight Committee - SPPOC

Michael Bickle	Department of Earth Sciences, University of Cambridge, United Kingdom
Margaret Delaney	Ocean Sciences Department, University of California, Santa Cruz, USA
Yoshio Fukao	Institute for Research on Earth Evolution (IFREE), JAMSTEC, Japan
Susan Humphris	Woods Hole Oceanographic Institution, USA
Gaku Kimura	Department of Earth & Planetary Science, University of Tokyo, Japan
Hermann Kudrass	Bundesanstalt für Geowissenschaften und Rohstoffe, Germany
Roger Larson*	Graduate School of Oceanography, University of Rhode Island, USA
Xavier Le Pichon	Chaire de Géodynamique, Collège de France, France
Larry Mayer	Center for Coastal and Ocean Mapping, University of New Hampshire, USA
Judith McKenzie	Departement Erdwissenschaften, ETH Zürich, Switzerland
Neil Opdyke ^A	Department of Geological Sciences, University of Florida, USA
Nicklas Pisiias (vice-chair)	College of Oceanic & Atmospheric Sciences, Oregon State University, USA
David Rea	Department of Geological Sciences, University of Michigan, USA
Kenji Shuto	Department of Geology, Niigata University, Japan
Eli Silver	Earth Sciences Department, University of California, Santa Cruz, USA
Kensaku Tamaki (chair)	Department of Geosystem Engineering, University of Tokyo, Japan
Yoshiyuki Tatsumi	Institute for Research on Earth Evolution (IFREE), JAMSTEC, Japan
Hidekazu Tokuyama	Ocean Research Institute, University of Tokyo, Japan
Kaoru Tsujii	Research Institute for Electronic Science, Hokkaido University, Japan

*Unable to attend.

^AAlternate for Roger Larson

Liaisons, Observers, and Guests

Jamie Allan	National Science Foundation (NSF), USA
Richard Arculus	Department of Earth & Marine Sciences, Australian National University, Australia
Makoto Arima	Department of Environment & Natural Sciences, Yokohama National University, Japan
Rodey Batiza	National Science Foundation (NSF), USA
Keir Becker (SPC)	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Jonas Björck	Swedish Research Council, Sweden
Steve Bohlen	JOI Alliance, Joint Oceanographic Institutions, Inc. (JOI), USA
Mike Coffin (SPC)	Ocean Research Institute, University of Tokyo, Japan
Nobuhisa Eguchi	IODP Management International, Inc., Sapporo, Japan
Olav Eldholm	Geologisk Institut, University of Bergen, Norway
Dan Evans	ECORD Science Operator, British Geological Survey, United Kingdom
David Falvey	British Geological Survey, United Kingdom
Jeff Fox	JOI Alliance, Texas A&M University, USA
Chris Franklin	Natural Environment Research Council, United Kingdom
Jun Fukitomi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Chris Harrison	Rosenstiel School of Marine & Atmospheric Science, University of Miami, USA
Hitoshi Hotta	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Hisao Ito	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Tom Janecek	IODP Management International, Inc., Washington, D.C., USA
Yoshihisa Kawamura	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Dennis Kent	Department of Geological Sciences, Rutgers University, USA
Kenji Kimura	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Hajimu Kinoshita	Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan
Kazuto Kodama	Kochi Core Center, Kochi University, Japan
Tsuyoshi Kogo	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Gee-Soo Kong	Korea Institute of Geoscience and Mineral Resources, Korea
Pushpendra Kumar	Oil and Natural Gas Corporation Limited, India

Shin'ichi Kuramoto	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Hans Christian Larsen	IODP Management International, Inc., Sapporo, Japan
Young-Joo Lee	Korea Institute of Geoscience and Mineral Resources, Korea
Bruce Malfait	National Science Foundation (NSF), USA
Shigemi Matsuda	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Catherine Mevel	ECORD Managing Agency, Institut de Physique du Globe de Paris, France
Takao Miyazaki	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan
Toshiyasu Nagao	Institute of Oceanic Research and Development, Tokai University, Japan
Hisatake Okada	Department of Earth and Planetary Sciences, Hokkaido University, Japan
Yoshihiko Orita	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Yoichiro Otsuka	IODP Management International, Inc., Washington, D.C., USA
Soo-Chul Park	Oceanography & Ocean Environmental Sciences, Chungnam National University, Korea
Frank Rack	JOI Alliance, Joint Oceanographic Institutions, Inc. (JOI), USA
A. V. Sathe	Directorate General of Hydrocarbons, India
Jeff Schuffert	IODP Management International, Inc., Sapporo, Japan
A. K. Sethi	Oil and Natural Gas Corporation Limited, India
Jianzhong Shen	Ministry of Science and Technology, China
Takafumi Shimizu	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Paul Stoffa	Institute of Geophysics, University of Texas, USA
Masato Sugiyama	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Kiyoshi Suyehiro	Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan
Asahiko Taira	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Kozo Takahashi	Department of Earth and Planetary Sciences, Kyushu University, Japan
Kyoma Takahashi	Center for Deep Earth Exploration (CDEX), JAMSTEC, Japan
Manik Talwani	IODP Management International, Inc., Washington, D.C., USA
Yasuhisa Tanaka	Ministry of Education, Culture, Sports, Science, and Technology (MEXT), Japan

IODP Science Planning and Policy Oversight Committee

4th Meeting, 15-16 June 2005

ANA Hotel Nagasaki Gloverhill
Nagasaki, Japan

Executive Summary (v2.0)

1.4 Approve meeting agenda

SPPOC Consensus 0506-1: The SPPOC approves the revised agenda for its fourth meeting on 15-17 June 2005 in Nagasaki, Japan.

1.5 Item approved since December 2004 meeting

SPPOC Motion 0502-1: The SPPOC receives the final draft report of its own *Ad hoc* Committee 1 for evaluating and modifying the IODP Science Advisory Structure (SAS) and approves the provisional use of the draft SAS terms of reference as contained therein (Appendix IV). We anticipate discussing and approving the final SAS terms of reference at the June 2005 SPPOC meeting.

McKenzie moved, Tatsumi seconded; 16 in favor, 1 absent (Rea), 1 non-voting (Bickle).

1.6 Approve last meeting minutes

SPPOC Consensus 0506-2: The SPPOC approves the minutes of its third meeting on 11-12 December 2004 in San Francisco, California, U.S.A.

9. FY2006 program plan: Conclusion

SPPOC Motion 0506-3: The SPPOC approves the revised FY2006 science plan as presented orally by the IODP-MI at the June 2005 SPPOC meeting. The revised plan includes the following operations:

- Expedition 311 - Cascadia Margin Gas Hydrates (28 Aug. - 29 Oct. 2005),
- Expedition 312 - Superfast Spreading Crust III (29 Oct. - 29 Dec. 2005),
- Expedition 313 - New Jersey Shallow Shelf.

The primary changes from the schedule presented in the FY2006 program plan involve adding approximately sixteen days to Expedition 311 Cascadia Margin Gas Hydrates and approximately fourteen days to Expedition 312 Superfast Spreading Crust III. In addition, Expedition 309 Gulf of Mexico Hydrogeology will receive four extra days in FY2005. The revised schedule has resulted from the necessary but greatly disappointing removal of the Monterey Borehole Observatory expedition from the FY2006 program plan.

Delaney moved, Opdyke seconded; 17 in favor, 1 non-voting (Kudrass).

SPPOC Consensus 0506-4: The FY2006 program plan provided to the SPPOC in May 2005 still included the Monterey Borehole Observatory expedition and thus did not reflect the revised FY2006 science plan presented orally at the June 2005 SPPOC meeting. Although the SPPOC anticipates only relatively minor budget changes, final approval must await receipt of the revised program plan. After the SPPOC chair reviews the revised FY2006 program plan, the committee will vote on approving it by e-mail.

SPPOC Consensus 0506-5: Despite the environmental issues that prompted the removal of the Monterey Borehole Observatory expedition from the FY2006 operations schedule, the SPPOC reaffirms its very strong commitment toward providing a borehole observatory for testing borehole instruments. We hence recommend taking the following steps to facilitate solving this problem: (a) continue efforts by the USIO to obtain approval for drilling at the currently proposed observatory sites, (b) ask the proponents of Proposal 621-Full Monterey Bay Observatory to consider alternative options for a different location, and (c) encourage the submission of proposals for a test facility at sites near other available seafloor cables. The SPPOC also requests that the IODP-MI consider using an alternate platform to accomplish this important objective prior to 2008.

10. SPC report

SPPOC Consensus 0506-6: The SPPOC receives SPC Consensus 0503-8 concerning SciMP Recommendation 0503-2 on disseminating results during expeditions and moratoria. We emphasize two important principles imbedded in these recommendations: (a) during expeditions and the immediate post-expedition intervals, co-chief scientists must be consulted about the content of press releases, and (b) IODP must be credited in all communications with the media.

SPPOC Consensus 0506-7: The SPPOC approves the revised geographic distribution scheme for IODP, ODP, and DSDP cores, as recommended in SPC Consensus 0503-14.

SPPOC Consensus 0506-8: The SPPOC receives SPC Consensus 0503-27 and approves the recommended terms of reference for generic program planning groups (PPGs) and detailed planning groups (DPGs) within the SAS (see Appendix A for final version).

SPPOC Consensus 0506-9: The SPPOC receives SPC Consensus 0503-31 and approves the recommended proposal confidentiality policy for use on an interim basis. The committee recommends that the IODP-MI develop an integrated policy as soon as possible concerning the confidentiality of proposals and site-survey data.

SPPOC Consensus 0506-10: The SPPOC receives SPC Motion 0504-1 and approves the recommended temporary guidelines for the development, deployment, and use of third-party tools in the IODP. The committee anticipates receiving the final third-party tools policy for approval by no later than the January 2006 SPPOC meeting.

11. SPPOC ad hoc committee and working group: summary discussion

SPPOC Motion 0506-11: The SPPOC approves the revised SAS terms of reference as modified during this June 2005 SPPOC meeting (see Appendix A for final version).

McKenzie moved, Humphris seconded; 17 in favor, 1 non-voting (Kudrass).

SPPOC Consensus 0506-12: The SPPOC has the important task of assessing the scientific results of the IODP on a regular basis. These assessments should take a long, multi-year view with regard to addressing the *Initial Science Plan* published in 2001. The SPPOC intends to conduct such reviews annually, perhaps for a moving time window of interest. The end of the first phase of non-riser drilling at the end of 2005 presents a logical time to undertake the first scientific assessment of the program. The SPPOC thus establishes a working group to review the scientific achievements of the IODP and report to the committee and the IODP-MI at the June 2006 SPPOC meeting. The working group will consist of one SPPOC member (David Rea as chair of the group), one SPC member, one external member, and a liaison from the IODP-MI.

14. Summary of SPPOC tasks

SPPOC Consensus 0506-13: The SPPOC will evaluate IODP-MI activities on a regular basis. Items subject to review will include task force activities, the process of producing annual program plans, SAS support, data management, publications, and any other matters suggested by SPPOC members. The SPPOC chair, vice-chair, and other designated SAS members will visit the IODP-MI offices in Washington, D.C., and Sapporo on an annual or bi-annual basis and report their findings to the SPPOC. The SPPOC will then forward recommendations to the IODP-MI and its board of governors.

SPPOC Consensus 0506-14: The SPPOC has the major task of facilitating long-range scientific planning for the IODP. The committee recognizes the importance of the *Initial Science Plan* in defining the scientific priorities of the program. Effective long-range planning requires evaluating the progress in achieving the goals of the *Initial Science Plan* as well as augmenting that plan with new developments in science and engineering. The SPPOC has consequently identified the following seven areas where new developments warrant a renewed look in terms of formulating the long-range scientific objectives of ocean drilling: paleoceanography and paleoclimate, the deep biosphere, geohazards, ocean–continent transects, subsurface fluid flow, deep drilling to the Moho, and borehole observatories (see Appendix B for more details). The committee recommends organizing workshops to address each of these key research topics, with the overall goal of impacting IODP long-range planning by identifying the fundamental contributions of scientific ocean drilling and the major new questions to be addressed, involving new scientific communities in the program, and fostering new drilling proposals. The committee also recognizes and applauds the many workshops sponsored among the international scientific ocean drilling community and encourages IODP members to include the workshops suggested here in their planning, especially during the forthcoming hiatus in non-riser drilling. This suggested list should not exclude other topics. The SPPOC anticipates using the results stemming from workshops held over the next few years to design an IODP conference on scientific drilling in 2007 or 2008.

20. Any other business

SPPOC Consensus 0506-15: The SPPOC thanks Asahiko Taira and the entire CDEX team for their superb efforts in hosting this meeting in historic Nagasaki. We thoroughly enjoyed the delightful reception in the beautiful hilltop gardens of the Glover-en, complete with a very entertaining dragon dance and the able hand of Yoshihisa Kawamura as master of ceremonies. We also appreciate the special opportunity to tour the *Chikyu* as she nears completion and delivery to JAMSTEC.

IODP Science Planning and Policy Oversight Committee

4th Meeting, 15-16 June 2005

ANA Hotel Nagasaki Gloverhill
Nagasaki, Japan

Minutes (v2.1)

Wednesday

15 June

08:30-18:00

1. Introduction

1.1 Opening remarks

Kensaku Tamaki opened the fourth SPPOC meeting promptly at 08:30 and welcomed everyone to Nagasaki.

1.2 Introduction of participants

Tamaki asked the meeting participants to introduce themselves. He noted that more guests would arrive the following day for the joint sessions.

1.3 Welcome and meeting logistics

Asahiko Taira welcomed everyone to Nagasaki and introduced the logistics team. Yoshihisa Kawamura explained the meeting logistics and noted the reception scheduled for the following evening at the Glover-en, plus the tour of the *Chikyu* on Friday morning.

1.4 Approve meeting agenda

Tamaki proposed modifying the agenda slightly to delete the SAS transformation report under Agendum 10 so as not to duplicate the report given under Agendum 13. The committee offered no further comments and approved the revised agenda by consensus.

SPPOC Consensus 0506-1: The SPPOC approves the revised agenda for its fourth meeting on 15-17 June 2005 in Nagasaki, Japan.

1.5 Item approved since December 2004 meeting

Tamaki noted that the SPPOC had approved the provisional terms of reference for the IODP Science Advisory Structure (SAS) by e-mail in February 2005, as recorded in the following motion. He explained that the committee would discuss the final revised SAS terms of reference under Agendum 4 and seek final approval under Agendum 11.

SPPOC Motion 0502-1: The SPPOC receives the final draft report of its own *Ad hoc* Committee 1 for evaluating and modifying the IODP Science Advisory Structure (SAS) and approves the provisional use of the draft SAS terms of reference as contained therein (Appendix IV). We anticipate discussing and approving the final SAS terms of reference at the June 2005 SPPOC meeting.

McKenzie moved, Tatsumi seconded; 16 in favor, 1 absent (Rea), 1 non-voting (Bickle).

1.6 Approve last meeting minutes

Tamaki asked for final comments on the draft minutes of the December 2004 SPPOC meeting as distributed in the agenda book. The committee offered no comments and approved the minutes by consensus.

SPPOC Consensus 0506-2: The SPPOC approves the minutes of its third meeting on 11-12 December 2004 in San Francisco, California, U.S.A.

1.7 Briefing of reports of funding agencies, the IODP-MI, and the IOs

Tamaki asked the representatives of the funding agencies, the IODP-MI, and the implementing organizations if they wished to identify any potentially important points or special issues. He added that they could also comment at any time during the SPPOC discussions. Mével mentioned that ECORD still faced significant uncertainties regarding funding for FY2006, and she would explain the details later.

2. Introduction of FY2006 program plan

Tamaki noted that the committee had received online access to the program plan several weeks before the meeting. He referred to the preface of the plan that explained what needed to occur and asked if the IODP-MI had received any comments in advance on the written report. Talwani replied that the SPPOC members from Japan had submitted questions several days ago. He offered to explain the operational and management aspects of the program plan if necessary or just answer further questions. Tamaki asked to have the outline of the plan presented, with greater focus on the effects of removing the Monterey Borehole Observatory expedition from the schedule, as recently announced.

Janecek reviewed the development of the program plan, noting that the IODP-MI received budget guidance from the lead agencies in January 2005 and asked for input from the IOs by 15 April 2005. He said that an informational copy of the plan went to the lead agencies in mid May 2005 and a draft plan went to the SPPOC by early June 2005. Janecek requested scheduling future SPPOC meetings in July to give more time for preparing the plans. He then highlighted the operations schedule as approved by the SPPOC in December 2004 and explained the reasons for subsequently canceling the Monterey Bay Observatory expedition. Janecek said that it became clear in early May, after discussions with officials of the Monterey Bay National Marine Sanctuary, that the project would require an environmental impact statement, but not enough time remained to do it. He outlined the main scheduling changes of adding four days to the Gulf of Mexico Hydrogeology expedition, adding sixteen days to the Cascadia Margin Gas Hydrates expedition and thus allowing a three-hole approach, and adding fourteen days to the Superfast Spreading Crust III expedition and thus allowing deeper drilling. Janecek briefly reviewed the operational plans for expeditions in FY2006, including Cascadia Margin, Superfast Spreading Crust III, and possibly New Jersey Shallow Shelf, pending funding from ECORD. He also summarized the total FY2006 budget.

Mével reported the good news that the ESO had begun negotiating for the drilling vessel for the Tahiti Sea Level expedition in FY2005, but unfortunately the costs looked much higher than desired, and that would make it very difficult to fund the New Jersey Shallow Shelf expedition in FY2006. Piasias asked if the budget given in the FY2006 program plan reflected the change in operations, or if the SPPOC would have to determine how to approve a program plan that essentially did not exist yet. Janecek replied that the revised plan would involve the same amount of operations but the budget figures would change slightly according to the new schedule. Silver wondered if the SPPOC could approve the plan without knowing the budget details. Talwani expected only minor changes. Allan asked if the USIO could estimate its budget to within a few hundred thousand dollars on a short enough timescale to help the SPPOC. Rack cited the goal of implementing the new changes and staying as close as possible to the current projected budget. Piasias wondered if planning would continue for the Monterey Bay Observatory expedition. Rack confirmed that the environmental planning process would continue.

Humphris asked about the contingency plan for the Superfast Spreading Crust III expedition in case the Superfast Spreading Crust II expedition fails on both aspects. Coffin responded

that the SPC recommended starting a new hole if the original hole fails, though the question remains of how many times to start a new hole. Janecek promised that the IODP-MI would consult with the SPC on what to do if the Superfast Spreading Crust II expedition totally fails. Silver inquired about the type of crust targeted on the Superfast expeditions. Coffin identified the objective of drilling through several magnetic reversals.

Tamaki referred to questions submitted earlier from Japan to the IODP-MI related to developing a long-term monitoring system for NanTroSEIZE, other engineering developments, database issues, and the core distribution scheme. He noted for example that the program plan should specify the appropriate core repository for each expedition because core transport represents a SOC. Talwani replied that the IODP-MI would answer most of those questions in its management report the next day. Janecek expected the project scoping group and the EDP to develop the timelines and requirements for NanTroSEIZE monitoring. He added that the effort would also involve the new engineering task force to start later this year. Janecek noted that the SPC had prioritized three larger development projects and the IODP-MI would now review those priorities and determine how to proceed. He also reported that two smaller projects recommended by the Expedition 301 REVCOM would definitely receive funding. Piasis asked if those projects came with timelines for SAS review. Janecek said not this time but they would in the future. He also promised that program plans would include repository information for budgeting by the IOs. Tatsumi still questioned the timelines for engineering development, noting that the NanTroSEIZE project would need a fairly large budget for monitoring. Janecek responded that the lead agencies had provided some guidance about engineering budgets but only for FY2006.

Delaney commended the IODP-MI and the IOs for preparing a thorough program plan and responding well to previous SPPOC concerns. She recognized the inherent uncertainties associated with the scheduling changes and the hiatus in non-riser drilling and called it a challenging opportunity for the SPPOC to provide input.

3. FY2006 program plan: Discussion

Tamaki opened the discussion of how to approve the FY2006 program plan. Humphris asserted that the committee must consider the overall goals and interests of the program in deciding whether to approve the changes to the science plan and approve the program plan. She proposed discussing the implications of removing the Monterey Borehole Observatory expedition from the schedule and wondered if that expedition could represent a contingency for the Superfast Spreading Crust III expedition. Kimura asked about the exact nature of the environmental issues for the Monterey Borehole Observatory expedition and how the EPSP had handled it. Rack noted that the proposed drilling sites lie within the Monterey Bay National Marine Sanctuary. He explained that the USIO revised the environmental assessment for the first phase of non-riser drilling operations to include the FY2005 and FY2006 expeditions, hoping that that would suffice for getting clearance. Rack reported that the sanctuary officials initially expressed general concern about the timing of the project and still had specific concerns after reviewing the assessment, and eventually they decided that the project required submitting a full environmental impact statement through formal governmental procedures. Rack stated that the USIO had begun investigating ways to mitigate all of the concerns, but it would take time and might require additional surveys. He also referred to the complexity that the Monterey Bay crosses the jurisdiction of U.S. federal and state authorities. Allan clarified that the California Coastal Commission also has jurisdiction. He warned that the program might never get full clearance for drilling in that area and thus should not schedule this project again until certain about receiving clearance.

Bickle wondered whether an MSP could work within this sensitive area and conduct the project before 2008. Rack answered that the same environmental concerns would apply to an MSP, and those concerns precluded doing the project at that location with the *JOIDES Resolution* before the end of Phase 1. Piasias added that it would require input from the IO to propose doing it with an MSP, but he also wondered how the assessment could go forward without knowing the capabilities and specifications of the new non-riser vessel. Piasias cited the proximity to the existing seafloor cable and wondered if the New Jersey Shallow Shelf project would pose similar environmental problems. Rack predicted less trouble with permitting off New Jersey. Kudrass asserted that the program must pay more serious attention to environmental concerns in all areas, even the open ocean, and must prepare to react to various international agencies and organizations. Fox emphasized the need for further advance planning to prepare for these higher threshold environmental concerns in certain areas. He noted that the USIO had also faced last minute clearance issues for the Porcupine Basin Carbonate Mounds and Gulf of Mexico Hydrogeology expeditions.

Tamaki concluded that the program needed a more effective system for handling these issues. He also asked about SPC input regarding the scientific aspects of the Monterey Borehole Observatory expedition. Coffin recounted that Proposal 621 Monterey Bay Observatory passed quickly through the SAS, the SPC excluded it from the normal ranking of scientific proposals, and now it would await scheduling with the OTF and not return to the SPC. He added that the EPSP approved the drilling sites based on the available information and standards, and no one should expect that panel to address the concerns of every national entity. Coffin also remarked that circumstances of timing and available proposals had forced the development of the drilling schedule. Delaney noted that the desire of the IOs and the IODP-MI for longer lead-times and a larger pool of proposals for greater flexibility in planning conflicts with the desire of proponents for a faster and less cumbersome proposal process.

Tamaki suggested continuing the general discussion of the planning process under Agendum 8 and focusing now on the specific task of how to approve the FY2006 program plan. Humphris wanted to consider the scientific priority of the Monterey Bay Observatory proposal in terms of overall program goals. Piasias noted that the proposal already resides with the OTF; hence, the program could proceed with planning the project. Le Pichon worried that postponing the expedition would send a poor message to the scientific community, especially given the hiatus. He therefore suggested emphasizing that the project still represented a foremost objective for the program. Mayer proposed that the SPPOC could express support for conducting the expedition and encourage the IODP-MI to try to make it happen, but since the project depends on that specific location near the seafloor cable, not much else can happen without knowing the available drilling platform. He also wondered if the cable itself posed any unresolved environmental concerns and whether suitable cables might exist elsewhere for conducting a similar project with some other platform. Le Pichon noted one particular location in the Mediterranean Sea and supposed that others probably exist. Rack said that the sanctuary officials requested that the IODP incorporate results of the cable study in its assessment, and he characterized the process as proceeding favorably. He also suggested that the program could certainly move forward on addressing the long-term management and maintenance aspects of the observatory.

Tamaki summarized the consensus that the SPPOC recognized the programmatic importance of the Monterey Borehole Observatory project and that it still resides with the OTF for operational planning. Larsen inquired whether the SPPOC could indicate more specifically whether it supported a comprehensive observatory program or just the boreholes that would

permit such a program. Bickle proposed creating a focused planning group. Le Pichon suggested that the SPPOC might recommend investigating the feasibility of other locations for borehole observatories. Mayer proposed that the observatories task force could expand its mission to look at other locations. Talwani responded that the task force would not begin working until sometime in FY2006 and probably could not produce any results before the next SPPOC meeting. Janecek described the planned mandate of the observatories task force and stressed that it would not take part in generating proposals. Opdyke suggested asking the ORION group to report at the next SPPOC meeting. Mével mentioned the ESONET project. Coffin reported that the SPC already advised the IODP-MI on the need for a task force for this project, but the SPPOC could consider a broader initiative when discussing DPGs and PPGs later under Agendum 10. Piasias believed that the SAS should discuss the general scientific goals of conducting observatory science and encouraging other proposals, while the specific planning and assessment process Monterey Borehole Observatory expedition should continue. Tamaki asked Humphris to draft recommendation for the committee to consider the next morning.

McKenzie reiterated the concern about identifying a contingency for Expedition 312. Larsen stated that the proponents had recently proposed an alternative plan for drilling a series of short holes to map out local heterogeneities. Humphris asked if that comprised part of the original proposal. Coffin said no. Piasias wondered how the concerns about failure differed exactly from any other expedition. Humphris wondered how and when to decide whether to direct the third expedition at some other target entirely. Bickle supposed that enough time might not exist to realize failure and adopt a contingency plan before the third expedition. Janecek said that the OTF would meet again in two weeks and it would help if the SPC could make some statement before then on the importance of leaving that area with an open hole, even if only to a shallow depth.

Tamaki cited the incomplete budget plan and proposed approving the program plan tentatively the next day, including the science plan, and then later seeking final approval once the committee receives the final budget figures. Delaney asked if the SPPOC had received the final science plan in written form. Janecek confirmed that it appeared in the agenda book under the USIO report. Rack added that the USIO had met with the co-chiefs and forwarded the outcome to the IODP-MI. Humphris asked if approving the science plan meant approving the New Jersey Shallow Shelf expedition, even though it might not happen. Mével promised that ECORD would continue working very hard to secure the necessary funding, and she hoped that the SPPOC could approve the science plan. Tatsumi noted that the program plan did not include any workshops for long-range planning, and he thus wondered if the IODP-MI could support such efforts in FY2006. Talwani replied that the IODP-MI could help in a general sense in supporting the planning of such workshops. He also explained that he would have to take this program plan to the board of governors the next day and explain the situation.

4. SAS terms of reference and final report of *Ad hoc* Committee-1

Tamaki noted that the SPPOC had already approved the final report of its own *Ad hoc* Committee-1 and the provisional SAS terms of reference by e-mail (see Agendum 1.5 and SPPOC Motion 0502-1 above). Coffin reported that the SAS panel chairs and program member offices received the provisional terms of reference in late March. He said that the EPSP suggested minor changes to its terms of reference and the ILP offered recommendations concerning the IIS PPG. Coffin noted that the SPPOC agenda book contained the slightly revised versions.

Pisias suggested modifying the SPPOC terms of reference to indicate that the SPPOC approves the SAS terms of reference, and he identified a conflict between that SPPOC responsibility and the SPC ability to establish and terminate SAS panels and planning groups. Pisias also recommended replacing all of the references to OPCOM with the OTF, and he wondered if the SPC mandate should specify doing science planning farther in advance. Opdyke remarked that the program had operated quite well during the initial phase despite the persistent, unusual time pressure. Janecek said that in future the OTF would meet eighteen months prior to the start of each fiscal year and would develop a conceptual science plan for one year further in advance. He doubted that they could plan any further in advance than that for non-riser and MSP operations. Delaney preferred not specifying a timeline in the terms of reference because everyone knows what has to happen.

Silver asked about the progress of implementing the changes to the SAS. Coffin referred to the status report scheduled for the next day under Agendum 13. He briefly noted that the program member offices had received a request to populate the new panel and the new PPG but had not yet completed the task. Tamaki proposed accepting the SPC and panel terms of reference as included in the agenda book and submitting the revised SPPOC terms of reference to the board of governors for approval. He asked McKenzie to present a recommendation the next day for approval under Agendum 11.

5. SPPOC *ad hoc* committee and working group meetings through working lunch

The committee adjourned from 11:40-13:40 for a working lunch involving the *Ad hoc* Committee-1 and several working groups.

6. SPPOC tasks: Reports and discussion

Operations and technology oversight

Tamaki announced that Humphris and Silver had accepted the role of SPPOC observers over operational and technology issues, respectively. Humphris reported that she would join the next OTF meeting in two weeks and had been invited to participate in the operational review of expeditions. Silver asked what the committee expected in terms of his involvement. Tamaki proposed overseeing engineering development and suggested communicating with the IODP-MI task force for engineering development when it begins working. Talwani welcomed SPPOC involvement in any task force as a way of monitoring IODP-MI performance. Pisias wanted to ensure good communications between the IODP-MI and the SAS regarding program plan development. Coffin noted the SAS mandate to develop annual plans for science and engineering and said that the SPC expected to receive recommendations from the EDP on engineering development projects and then send a prioritized list to the IODP-MI. Tamaki asked the IODP-MI to ensure that the SPPOC liaison stays informed about engineering task force activities.

IODP-MI performance evaluation

Kensaku Tamaki outlined a procedure for evaluating the IODP-MI and proposed that the SPPOC chair or vice-chair should visit the IODP-MI offices on an annual or biannual basis. He planned to visit the Washington, D.C., office before the next SPPOC meeting, probably in December 2005, and Pisias planned to visit the Sapporo office in November 2005, early enough to allow time for outlining the structure of the next SPPOC agenda book. Tamaki expected to focus on task force activities, the process for producing the annual program plan, and communications with the IOs, the lead agencies, and the SPPOC, while Pisias would focus on data management, proposal handling, and support of the SPPOC, the SPC, and other SAS activities. Tamaki envisioned asking the SPC chair and vice-chair for input on SAS support and asking the SAS for additional input on data issues.

Talwani welcomed the opportunity to discuss the plan for reviewing the performance of the IODP-MI. Piasias preferred at the moment only to identify what the committee regarded as important concerns. Tamaki noted that the IODP-MI had requested the review process, but he regarded an annual review as too frequent. Le Pichon expressed concern about having only one person, rather than a small committee, conduct such an evaluation. Silver asked if it would amount to a thorough review. Piasias imagined focusing on a few issues each time instead of conducting a thorough review. Tatsumi asked if this effort would represent the only review of IODP-MI performance. Piasias responded that it would not substitute for a more thorough and formal review as contractually obligated. Tamaki proposed discussing the matter further with the IODP-MI representatives at this meeting and agreeing on a recommendation later under Agendum 14.

Scientific program assessment

David Rea reported on behalf of the SPPOC working group for scientific program assessment. He noted that the group included Bickle and Fukao and received significant input from the SPC vice-chair. Rea outlined the various stages of scientific assessment, including the pre-expedition reviews by the SPC, the early post-expedition assessment by the SPC and the IODP-MI vice-president of science planning, primarily through the initial report by the co-chief scientists, and the longer-term project overview conducted by the SPPOC. He identified several issues for the SPPOC to discuss, such as the frequency of reviews and whether single expeditions, dual expeditions, and complex drilling projects (CDPs) required somewhat different approaches. Rea stated that the group recommended forming a scientific assessment panel, comprised of two SPPOC members, two SPC members, and two external members, that would meet annually to consider the past three to four years of expedition results and look ahead at the scheduled projects. He proposed that the panel should assess the results versus the *Initial Science Plan* and report to the SPPOC and the IODP-MI. Rea added that CDPs might require their own separate assessment panel.

Silver asked if the assessment panel would look mainly at documents rather than interview the co-chiefs. Rea confirmed that the panel would primarily consider printed or published results. Mayer asked if the panel would assess individual expeditions. Rea said only as a starting point for judging if any results had begun appearing in the literature. Delaney cautioned against redoing the individual expedition assessments of the SPC and the IODP-MI. Humphris preferred assessing the scientific accomplishments of CDPs together with those of other expeditions, and she asked if the group intended using the assessments to inform the long-range planning process. Rea said yes, but also to prepare for a longer-term performance evaluation. Silver suggested that it could also provide a means for tracking the performance of individual scientists. Kudrass wondered about the measurement standard for the forward-looking component. Rea replied that the panel would examine only scheduled expeditions. Piasias inquired if the panel would always look at the past three to four years or focus on certain topics each time. Rea expected the most difficulty the first time, with the window of interest just shifting for each successive review but still overlapping with previous reviews. Opdyke suggested doing the first assessment at the end of the first phase of non-riser drilling. Fukao hoped to provide feedback to proponents on how to develop better proposals. He also saw a need for assessing engineering developments, perhaps through the EDP. Larsen wanted to clarify that the assessments would represent a SAS activity and not an IODP-MI activity. Piasias said yes. Talwani asked how they would relate to the short-term scientific and operational assessments by the SPC and the IODP-MI. Tamaki recognized the need to account for those activities and asked Rea to draft a recommendation for the committee to consider the next day under Agendum 11.

Interaction with other international scientific programs

Larry Mayer reported on behalf of the working group on interacting with other international scientific programs. He identified a list of programs of decreasing importance relative to their size and degree of overlap with the IODP community. Mayer highlighted the ICDP and observatories in general at the top of list. He cited good progress already with the ICDP, through exchanging liaisons at meetings and conferences and the impending launch of the new jointly published journal. Mayer referred to the many sub-seafloor observatories successfully installed by the ODP and those already planned by the IODP, and he listed some of the recommendations from a U.S.-sponsored workshop on linkages between the IODP and the Ocean Observatories Initiative (OOI). He also reported that the OOI and the Ocean Research Interactive Observatory Networks (ORION) had begun establishing a management and advisory structure, with many features common to the IODP at the technical and data management levels; however, he could not readily identify an appropriate international program for the IODP to interact with on observatories. Mayer noted that the SciMP had recommended forming a working group on observatories and the IODP-MI had discussed forming a task force, and he strongly emphasized the need for something. He suggested following the model established for the ICDP to approach the other programs on the list, and he identified several individuals as possible contacts for establishing an appropriate mechanism of collaboration. Mayer also recommended ensuring a source of support for joint workshops.

Mike Coffin reported on the ICDP planning conference in Potsdam, Germany, that he and several other IODP representatives attended in early 2005. He identified the conference objectives of reviewing and synthesizing the results of the past ten years of scientific continental drilling and discussing the key questions to address with future drilling. Coffin listed the eight scientific themes of specific ICDP working groups and mapped their considerable overlap with the themes and initiatives of the *IODP Initial Science Plan*. He noted that the ICDP has a simpler structure and much smaller budget than the IODP, but many significant analogs exist between the two programs. Coffin listed the membership of the ICDP and outlined various areas for enhancing cooperation through proposal submission, technology, publications, education and outreach, core repositories, and policies and guidelines. He also offered several personal recommendations for broadening the basis of collaboration and perhaps eventually merging the two programs.

Mayer strongly supported the idea of the co-published journal. Delaney asked about the goal and vision for the journal. Larsen called it a program publication of the two programs, with strong editorial review but not peer reviewed at the moment. Mével noted the joint IODP-ICDP town hall meeting at the past EUG meeting in Vienna. Le Pichon could not imagine merging the two programs because of the sharp differences in the structure and funding, though he recognized the philosophically favorable nature of the idea. Kudrass also acknowledged the difficulty of fully merging the programs because of funding differences, but he favored the idea of working jointly through advisory structures and suggested cooperating on amphibious drilling projects. McKenzie recommended sharing tools and instruments as another means of cooperating, without integrating the two programs. Kudrass recalled that it had happened several times in past. Evans noted that the ESO now uses a database model from the ICDP. Fox referred to IODP drillpipe now on loan to the Antarctic drilling project and said that it had established an effective path for such activities in the future.

Talwani stated that the IODP-MI had discussed other possibilities of joint workshops, such as for the SAFOD project and the seismogenic zone. Gaku Kimura wanted to encourage the

development of joint proposals. Tamaki agreed that joint workshops represented a good way to cooperate and foster proposals. He identified the need for a mechanism for interacting with other international programs for organizing workshops and sharing information, probably best done through the IODP-MI.

7. Long-range planning *ad hoc* committee: Report and discussion

Yoshiyuki Tatsumi presented the working group report on long-range planning. He explained that the group considered the questions of what makes the IODP unique, innovative, and compelling and whether the *Initial Science Plan* needed updating. He said that they also considered the challenges associated with the hiatus in non-riser drilling, delivering the new non-riser drilling vessel, and developing science support programs in Japan and Europe. Tatsumi said that the group decided that the IODP must foster proposals for certain innovative scientific targets such as complex drilling projects using multiple platforms. He cited the possibility of soliciting proposals for certain projects, based on input from the *Initial Science Plan*, workshops, and the scientific community. Tatsumi proposed organizing workshops for revising the *Initial Science Plan* and elucidating innovative proposals, with financial support from the IODP-MI and the national programs. He described two basic types of workshop: international for thematic topics such as the deep biosphere, paleoceanography, paleoclimatology, and geohazards; and national workshops for regional topics. Tatsumi recommended requiring a report from each workshop.

Tsujii favored exploring new avenues by soliciting proposals for directed projects. Le Pichon recommended coordinating the planning efforts internationally to avoid having parallel workshops in different nations, though still recognizing the value of nationally sponsored workshops for certain topics. He also argued for embracing a broader community and cited, for example, the current enthusiasm for funding studies of the Sumatran earthquake. Pias suggested that the SPPOC could recommend to the national programs a set of workshops regarded as important and identify the ideal outcomes. Le Pichon stated that workshop participants must believe that the results would have a significant impact on the direction of the program; therefore the workshops must have an international scope. Tamaki relayed a concern about the implementation process and how to rely on the national programs. Humphris suggested looking at specific themes that already have some results to evaluate and determining what questions still needed answering.

Opdyke identified the geohazards theme as a very natural and timely topic that would generate more interest in the program but does not appear explicitly in the *Initial Science Plan*. Silver questioned exactly how the IODP would embrace the theme of geohazards. Pias advised designing a geohazards workshop around concrete goals that would bring in new communities. Bickle cautioned against losing sight of the principle of studying fundamental scientific problems. Gaku Kimura believed that geohazards comprised too broad of a topic. He preferred focusing on more-specific topics related to the long-range plan and combining with the efforts of other programs. Tamaki acknowledged that the term geohazards included many subdisciplines and represented a keyword of definite relevance to society. He concluded the discussion and asked Tatsumi to draft a recommendation for the committee to consider the next day under Agendum 11.

8. Executive session

The committee adjourned its open session at 16:30 and concluded the day by convening in an executive session from 16:40-18:40. They also reconvened in an unscheduled executive session the following morning from 07:30-08:30.

9. FY2006 program plan: Conclusion

Tamaki presented a draft recommendation on approving the revised FY2006 science plan. Malfait asked if they truly meant to refer to canceling the Monterey Borehole Observatory expedition or just its removal from the schedule. Pisia said just its removal. Humphris asked to modify the SAS diagram in the program plan to show a direct link between the SPPOC and the SPC. Talwani agreed.

SPPOC Motion 0506-3: The SPPOC approves the revised FY2006 science plan as presented orally by the IODP-MI at the June 2005 SPPOC meeting. The revised plan includes the following operations:

Expedition 311 - Cascadia Margin Gas Hydrates (28 Aug. - 29 Oct. 2005)

Expedition 312 - Superfast Spreading Crust III (29 Oct. - 29 Dec. 2005)

Expedition 313 - New Jersey Shallow Shelf

The primary changes from the schedule presented in the FY2006 program plan involve adding approximately sixteen days to Expedition 311 Cascadia Margin Gas Hydrates and approximately fourteen days to Expedition 312 Superfast Spreading Crust III. In addition, Expedition 309 Gulf of Mexico Hydrogeology will receive four extra days in FY2005. The revised schedule has resulted from the necessary but greatly disappointing removal of the Monterey Borehole Observatory expedition from the FY2006 program plan.

Delaney moved, Opdyke seconded; 17 in favor, 1 non-voting (Kudrass).

SPPOC Consensus 0506-4: The FY2006 program plan provided to the SPPOC in May 2005 still included the Monterey Borehole Observatory expedition and thus did not reflect the revised FY2006 science plan presented orally at the June 2005 SPPOC meeting. Although the SPPOC anticipates only relatively minor budget changes, final approval must await receipt of the revised program plan. After the SPPOC chair reviews the revised FY2006 program plan, the committee will vote on approving it by e-mail.

Humphris presented a draft recommendation on expressing support for the Monterey Borehole Observatory expedition. Coffin asked how the SPPOC envisioned the SAS encouraging proposals. Humphris preferred letting the SAS determine how to do it. Talwani did not see any role for the IODP-MI in this matter since it could not provide a drilling platform. Rack objected to one particular sentence on obtaining environmental approval as unrealistic because the environmental impact statement must refer to a specific platform. The committee agreed to remove the sentence on obtaining environmental approval.

SPPOC Consensus 0506-5: Despite the environmental issues that prompted the removal of the Monterey Borehole Observatory expedition from the FY2006 operations schedule, the SPPOC reaffirms its very strong commitment toward providing a borehole observatory for testing borehole instruments. We hence recommend taking the following steps to facilitate solving this problem: (a) continue efforts by the USIO to obtain approval for drilling at the currently proposed observatory sites, (b) ask the proponents of Proposal 621-Full Monterey Bay Observatory to consider alternative options for a different location, and (c) encourage the submission of proposals for a test facility at sites near other available seafloor cables. The SPPOC also requests that the IODP-MI consider using an alternate platform to accomplish this important objective prior to 2008.

10. SPC report

Annual proposal ranking exercise results

Mike Coffin showed the results of the March 2005 SPC ranking exercise and identified the fourteen proposals now residing with the OTF for possible scheduling. The committee offered no comments.

Dissemination of scientific results during expeditions and moratoria

Coffin presented SciMP Recommendation 0503-2 and SPC Consensus 0503-8 on press releases and asked the committee to forward these recommendations to the IODP-MI for immediate implementing.

SciMP Recommendation 0502-02: SciMP recommends the following protocols regarding the dissemination of results during expeditions and moratorium periods:

- A. Where shore-based scientists form part of an Expedition Scientific Party, operators should provide daily progress reports to all shore-based expedition scientists.
- B. The full expedition scientific party must be recognized in press releases made during the expedition and scientists must be given the opportunity to review press releases. Press releases made during the expedition should be through IODP-MI.
- C. Co-chiefs are required to summarize the input to press releases from all participating scientists and present the revised version within a reasonable time frame. All critical scientific information pertaining to the expedition should only be conveyed to the press from the co-chiefs. However, this may be a problem because there will be cases where press releases would be made in languages that the co-chiefs are unfamiliar with. Therefore, the co-chiefs should prepare summaries that contain information that the science party can use for dissemination to the press in any language.
- D. The co-chiefs and IODP-MI should be notified of any press release made by any member of the science party during the post expedition moratorium period, as it may be difficult to solicit input from the entire science party for every press release.
- E. During the expedition and moratorium all public dissemination of results must credit IODP specifically. Scientific communications must be co-authored by the full ship and shore based expedition parties (except where they have chosen to opt out). The science party must be given the opportunity to review all papers and abstracts submitted during this time.

SPC Consensus 0503-8: The SPC accepts SciMP Recommendation 0502-2 on disseminating scientific results during expeditions and moratoria and forwards it to the Science Policy and Planning Oversight Committee (SPPOC), the IODP-MI, and the implementing organizations.

Pisias inquired about the real goal of having this level of oversight on press releases, and he wondered about the practicality of the plan. Coffin described these recommendations as guidelines and not a policy and said that no other policy exists to cover the moratorium period. Bickle proposed discussing the matter in executive session. Tamaki agreed and the committee discussed the matter further in a short executive session from 11:50-12:00, just before the lunch break.

Later in the afternoon, Delaney presented a revised recommendation on disseminating results during expeditions and moratoria. Schuffert wondered how to define the immediate post expedition interval and whether the committee regarded it as synonymous with the moratorium. The committee preferred leaving it vague.

SPPOC Consensus 0506-6: The SPPOC receives SPC Consensus 0503-8 concerning SciMP Recommendation 0503-2 on disseminating results during expeditions and moratoria. We emphasize two important principles imbedded in these recommendations: (a) during expeditions and the immediate post-expedition intervals, co-chief scientists must be consulted about the content of press releases, and (b) IODP must be credited in all communications with the media.

Geographic distribution of cores

Coffin presented a slightly revised core distribution model as proposed by the SPC.

SPC Consensus 0503-14: The SPC recommends that the IODP adopt the geographic-based core distribution model for IODP, ODP, and DSDP cores as presented by the IODP-MI at the December 2004 SPPOC meeting (see SPPOC Consensus 0412-3 and SPC Consensus 0406-24), except that the western Pacific boundary should extend along the Aleutian trench instead of along the eastern coast of Kamchatka. The committee further recommends an additional fundamental guideline of storing cores from the same expedition(s) in the same repository. Given that scientific and logistical concerns may occasionally justify deviating from this model, the SPC will provide guidance as appropriate on preferred repositories when forwarding proposals for the Operations Task Force to consider in developing drilling schedule scenarios.

Pisias asked the reason for shifting the boundary in the northern Pacific to along the Aleutian Trench. Coffin explained that the change stemmed originally from recognizing that one proposal now with the OTF involves a study area that crosses the boundary, but the SPC also preferred extending the boundary geographically along the trench boundary.

SPPOC Consensus 0506-7: The SPPOC approves the revised geographic distribution scheme for IODP, ODP, and DSDP cores, as recommended in SPC Consensus 0503-14.

Scientific assessment of expeditions

Keir Becker referred to the SPC working group report on scientific assessment of expeditions, as included in the agenda book. He supposed that the SPPOC working group already might have incorporated the report in their efforts. Becker briefly outlined the framework of the proposed plan, described the recent status of IODP scientific assessment, and presented the recommendations of the working group. He did not know for sure how the prospectus-level assessment process would work for CDPs, and he identified several other implications and details of implementing the assessment plan. Becker also outlined the course of action following the March 2005 SPC meeting and noted the remaining steps of applying the prospectus-level and post-cruise assessment process as soon as possible.

Mayer suggested just letting the former proposal watchdogs do the review regardless of whether they had already rotated off the committee. Fox applauded the idea of reviewing prospectuses but cautioned that it would introduce another step in the process that would preclude the operator from proceeding with procuring equipment.

PPGs and DPGs

Coffin highlighted the proposed terms of reference for generic PPGs and DPGs, as presented in the SPPOC agenda book. Tamaki asked to identify the important changes from the previous versions. Coffin answered that the only significant change involved the membership clause. Humphris proposed approving the terms of reference for generic PPGs and DPGs, and no one objected (see Appendix A for final version).

SPPOC Consensus 0506-8: The SPPOC receives SPC Consensus 0503-27 and approves the recommended terms of reference for generic program planning groups (PPGs) and detailed planning groups (DPGs) within the SAS (see Appendix A for final version).

Proposal confidentiality policy

Coffin delivered an SPC-approved proposal confidentiality policy, as presented in the SPPOC agenda book, and noted the current lack of a formal policy concerning proposals.

SPC Consensus 0503-31: The SPC accepts the slightly modified proposal confidentiality policy and forwards it to the Science Policy and Planning Oversight Committee (SPPOC) for consideration.

Delaney asked about the status of proposal abstracts. Coffin replied that proposal cover sheets, including the abstracts, now appear on the IODP Web site, with the expressed permission of the proponents. Humphris suggested having an overall policy for proposals and site-survey data. Larsen responded that site-survey data reside in the public domain unless requested to remain proprietary. Malfait believed that a confidentiality policy did exist during the time of JOIDES, and he agreed that this must represent an IODP-MI corporate policy. Coffin proposed accepting the confidentiality policy as an interim policy, and the committee agreed.

SPPOC Consensus 0506-9: The SPPOC receives SPC Consensus 0503-31 and approves the recommended proposal confidentiality policy for use on an interim basis. The committee recommends that the IODP-MI develop an integrated policy as soon as possible concerning the confidentiality of proposals and site-survey data.

Third-party tools policy

Keir Becker presented a draft temporary third-party tools policy developed on short notice by the STP from the previous ODP policy. He explained that the STP would continue working on a new policy more specific to the IODP. Becker briefly described the aspects of the policy that still needed modifying, and he sought approval of the temporary policy for use until completing the new policy.

SPC Motion 0504-1: The SPC commends the Scientific Technology Panel (STP) for providing a temporary third-party tools policy in a timely response to SPC Consensus 0503-30. The committee accepts this temporary policy and forwards it to the Science Planning and Policy Oversight Committee (SPPOC) for consideration.

Tokuyama asked if the policy implied that the IODP-MI would fund the development of third-party tools. Talwani answered no. The committee approved the recommended guidelines without further comment.

SPPOC Consensus 0506-10: The SPPOC receives SPC Motion 0504-1 and approves the recommended temporary guidelines for the development, deployment, and use of third-party tools in the IODP. The committee anticipates receiving the final third-party tools policy for approval by no later than the January 2006 SPPOC meeting.

FY2004 SAS conflicts of interest summary

Coffin referred to the summary in the agenda book of how the SAS documented conflicts of interest in FY2004, and he inquired if the committee had any questions or concerns.

Humphris asked if any problems had arisen in implementing the new policy. Coffin replied that the national programs and the IODP-MI had made the necessary adjustments, though

several ancillary project letters submitted just before the last SPC meeting caused some last minute reshuffling of watchdog assignments.

Nomination of SPC vice-chair for 2005-2007

The SPPOC did not receive a nomination for the next SPC vice-chair and thus did not discuss the issue.

Proposal submissions

Coffin discussed the status of proposal submissions by program members. He suggested that the normal length of IODP proposals might inhibit non-U.S. proponents from submitting proposals because it greatly exceeds the typical length of proposals submitted to national funding agencies in most member countries besides the U.S. Piasias noted that the page limits specified in the IODP proposal guidelines represent just an upper limit, and he believed that proponents probably have difficulty staying within that limit for most drilling projects. Bickle asked whether the national balance of proponents differed when considering all proponents rather than just the lead proponents. Schuffert responded that the balance remains about the same either way. Coffin concluded by presenting several imaginative suggestions for expanding the funding opportunities for the program. Tamaki thanked Coffin for presenting his views and offered respect for his service as the first SPC chair.

11. SPPOC ad hoc committee and working group: summary discussion

Kensaku Tamaki reviewed several minor changes to the SPPOC terms of reference, including inserting a statement on involving the SPC in discussions for modifying the SAS, inserting a statement on the SPPOC approving changes of the SAS, and referring throughout to the OTF instead of OPCOM. McKenzie wanted to ensure that the final version now incorporated all of the desired changes. Tanaka inquired what the SPPOC expected to do in terms of fostering new IODP membership. McKenzie responded that the committee could decide later how to do it once it appears in the mandate. Humphris interpreted it as question of whether it should appear in the mandate. Talwani believed that the board of governors would carefully consider the SPPOC mandate the next day and thus suggested leaving it in for now. Humphris proposed that if some other parts of the program have responsibility for that task, then the mandate could just say that the SPPOC would help do it. Malfait suggested that the governors on the SPPOC could answer that question. Allan affirmed that the IODP-MI has a contractual requirement to promote new membership. Humphris concluded then that the SPPOC could only help do it, and the committee agreed. Tamaki looked for a consensus to approve the revised SAS terms of reference. Humphris suggested that perhaps such an important matter should go to a vote. The committee then voted to approve the revised SAS terms of reference (see Appendix A for final version).

<p>SPPOC Motion 0506-11: The SPPOC approves the revised SAS terms of reference as modified during this June 2005 SPPOC meeting (see Appendix A for final version).</p>

McKenzie moved, Humphris seconded; 17 in favor, 1 non-voting (Kudrass).

David Rea presented a recommendation on establishing a three-person working group for scientific program assessment, rather than a six-person panel as discussed earlier under Agendum 6. Tokuyama asked who would choose the external member. Piasias said that the SPPOC would choose. Tamaki sought a consensus for approval and no one objected.

SPPOC Consensus 0506-12: The SPPOC has the important task of assessing the scientific results of the IODP on a regular basis. These assessments should take a long, multi-year view with regard to addressing the *Initial Science Plan* published in 2001. The SPPOC intends to conduct such reviews annually, perhaps for a moving time window of interest. The end of the first phase of non-riser drilling at the end of 2005 presents a logical time to undertake the first scientific assessment of the program. The SPPOC thus establishes a working group to review the scientific achievements of the IODP and report to the committee and the IODP-MI at the June 2006 SPPOC meeting. The working group will consist of one SPPOC member (David Rea as chair of the group), one SPC member, one external member, and a liaison from the IODP-MI.

Tokuyama presented a recommendation on engineering development for long-term observatory monitoring with regard to the NanTroSEIZE CDP. He cited the need to define a schedule for such development and called it a key toward paving the road for new science in the IODP. Tokuyama proposed that the annual program plan should include a feasible schedule for engineering developments on the basis of SAS proposal rankings.

Humphris asked if that meant developing a plan for making boreholes ready for observatories or for the instruments deployed in the holes. Tokuyama clarified that the program should fund the development of the instruments. Piasias referred to the previously discussed workshop on observatories and the need to assess scientifically what the IODP should regard as minimal observatory science and include as part of its program plan. Coffin said that the SPC would delegate that task to the EDP and the STP. Mayer suggested that a broader view from the workshop could feed into the EDP. Becker assured that the EDP could receive the report from the already planned NanTroSEIZE workshop. Delaney worried that the proposed recommendation might not fully follow the established process of the SAS giving advice to the IODP-MI. Silver did not see why the SPPOC should make this recommendation as long as the proponents continued developing the specific instrumentation plans as they should. Tokuyama asserted that the program could not fulfill the scientific objectives of the NanTroSEIZE project without this development.

Le Pichon expressed dismay to hear that all of the special technical requirements remain undeveloped, even though the project already resides with the OTF for scheduling. Coffin recounted that the SPC saw an engineering plan for the first time in March of this year, only after engineering development appeared for the first time in the budget for FY2006, while science plans have passed regularly through the SAS over the last several years. Talwani recognized the extreme importance of long-term monitoring and the rightful concerns about the status of engineering development for the NanTroSEIZE project. Gaku Kimura noted that those concerns included preparing a plan for how to drill the boreholes and install casing. Piasias believed that events happening so far accorded with the proposed recommendation; hence, the committee did not need to do anything other than perhaps support the spirit of the statement. Humphris suggested that the SPPOC could make a statement supporting the recommended goals and refer to the workshop as doing the necessary work. Mayer agreed that the workshop represented the key part of the plan. Tamaki concluded that the SPPOC would have difficulty accepting the proposed recommendation but the minutes would reflect the discussion.

Piasias presented a document describing a strategy for conducting long-term planning through organizing a series of thematic workshops on paleoceanography and paleoclimatology, the deep biosphere, continent–ocean transects, subsurface fluid flow, geohazards, deep drilling, and observatories. He described the preface of the document as providing the context or

vision for relating the individual workshops to a long-range plan. He also explained some of the ideas behind the specific themes and concluded with a statement of the overall goals.

Le Pichon objected that the section on geohazards missed the point of trying to attract new communities, and he again cited the example of the remarkable new results already obtained from the recent Sumatra earthquake. Le Pichon also suggested that the reference to deep drilling would unavoidably raise the question of targeting the Moho. Bickle proposed focusing for now on the general preface statement and not the text pertaining to specific workshops. Tanaka asked if the observatories workshop equated to the one mentioned earlier. Humphris answered that the other workshop focused strictly on the NanTroSEIZE project. Tsujii inquired whether all of the recommended workshops necessarily should occur as international IODP workshops or if some could occur through national or regional efforts. Piasias merely wanted to find a way to advance toward the goal of revising the *Initial Science Plan*. Tatsumi suggested adding the goal of fostering new proposal development. Tamaki recommended revising the wording of the sections on geohazards and deep drilling and revisiting the matter under Agendum 14.

12. Report of SPPOC-approved FY2006 program plan

Janecek outlined the FY2006 program plan and explained its development. He showed the original operations schedule approved in December 2004 and noted that subsequent environmental permitting issues had forced the removal of Monterey Borehole Observatory expedition from the schedule. Janecek described the consequent changes to readjust the schedule and summarized the scientific and operational objectives of the three FY2006 non-riser expeditions and one potential MSP expedition.

Tanaka asked when the lead agencies would receive the final revised program plan from the IODP-MI. Talwani said that it depended on when the USIO would provide the exact new schedule and revised budget. Rack expected to submit it by early July. Tanaka asked about the procedure for approving the revised plan. Talwani replied that it would go immediately to the SPPOC and the Board of Governors for successive approval.

13. Report on SAS transformation

Mike Coffin briefly outlined the ongoing schedule for implementing the revised SAS terms of reference. He highlighted several relevant issues, such as populating the new panel and PPG, the EDP and the IIS PPG, respectively; determining how the STP and the EDP would evaluate proposals; determining how the STP and the EDP would communicate directly with the IODP-MI and the IOs; and instituting the chair and vice-chair system for all panels except the SSEP. Coffin stated that changes had proceeded smoothly so far and should finish by September 2005.

Judy McKenzie described the new science advisory structure as developed through SPPOC and SPC working groups. She explained that the changes involved combining the two SSEPs into a single panel, renaming the SciMP to the STP and allowing them to review proposals, transforming the TAP into the EDP and having them prioritize engineering plans, and transforming the ILP into the IIS PPG for fostering the development of proposals.

14. Summary of SPPOC tasks

Kensaku Tamaki summarized the SPPOC tasks beyond just approving the program plan, including approving the SAS terms of reference, IODP-MI performance evaluation, scientific program assessment, and long-range planning workshops. He outlined the process for evaluating IODP-MI performance, particularly concerning task force activities, the process of producing annual program plans, SAS support, database management, and science deliverables. Tamaki added that he and Piasias had now discussed the plan with Talwani.

Suyehiro questioned the intent and expected outcome of the IODP-MI performance evaluation process. Piasias imagined that a report and recommendations would go to the IODP-MI board of governors. Stoffa suggested that any report could also go to the IODP-MI. Suyehiro still doubted the necessity of the SPPOC undertaking this task given that the SAS and the IODP-MI always engage in dialog at every meeting. Talwani viewed it as a way to improve communication if done on a regular basis. Piasias explained that it would relate mostly to activities involving the work of SPPOC and not how the IODP-MI spends SOC's. He suggested perhaps referring to it as evaluating activities rather than performance. Larsen recommended referring to the management of data and not just databases. He also wondered what the general topic of science deliverables included.

Tamaki later presented under Agendum 19 a revised recommendation on evaluating IODP-MI activities. Humphris recalled an earlier comment that a small group should conduct the reviews, not just the chair and vice chair. Piasias anticipated involving the SPC chair to assess SAS support. Le Pichon recommended that the review group should include at least three people. Piasias agreed that it could include another member from the SAS. Larsen suggested involving an outside member. Piasias preferred keeping it among the SAS. The committee then agreed on the following recommendation by consensus.

SPPOC Consensus 0506-13: The SPPOC will evaluate IODP-MI activities on a regular basis. Items subject to review will include task force activities, the process of producing annual program plans, SAS support, data management, publications, and any other matters suggested by SPPOC members. The SPPOC chair, vice-chair, and other designated SAS members will visit the IODP-MI offices in Washington, D.C., and Sapporo on an annual or bi-annual basis and report their findings to the SPPOC. The SPPOC will then forward recommendations to the IODP-MI and its board of governors.

Becker briefly described the plan for conducting short-term scientific assessments of expedition results, and Rea reviewed the plan agreed upon earlier for conducting longer-term scientific assessment of the program. Piasias then described the proposed process for long-range planning and characterized the various themes for focused planning workshops.

Tamaki later presented under Agendum 19 a revised version of the recommendation for long-range planning. Le Pichon suggested that some of the workshops should happen at an international level. Piasias cited the issue of using program funds for support but believed that the funding agencies would consider the idea. He suggested discussing at the next SPPOC meeting how to identify the workshops that should receive program support and how to craft an appropriately convincing argument for including in the next program plan. The committee then agreed on the following recommendation by consensus. See Appendix B for more details on the recommended workshops.

SPPOC Consensus 0506-14: The SPPOC has the major task of facilitating long-range scientific planning for the IODP. The committee recognizes the importance of the *Initial Science Plan* in defining the scientific priorities of the program. Effective long-range planning requires evaluating the progress in achieving the goals of the *Initial Science Plan* as well as augmenting that plan with new developments in science and engineering. The SPPOC has consequently identified the following seven areas where new developments warrant a renewed look in terms of formulating the long-range scientific objectives of ocean drilling: paleoceanography and paleoclimate, the deep biosphere, geohazards, ocean-continent transects, subsurface fluid flow, deep drilling to the Moho, and borehole observatories (see Appendix B for more details). The committee recommends organizing workshops to address each of these key research topics, with the overall goal of impacting IODP long-range

planning by identifying the fundamental contributions of scientific ocean drilling and the major new questions to be addressed, involving new scientific communities in the program, and fostering new drilling proposals. The committee also recognizes and applauds the many workshops sponsored among the international scientific ocean drilling community and encourages IODP members to include the workshops suggested here in their planning, especially during the forthcoming hiatus in non-riser drilling. This suggested list should not exclude other topics. The SPPOC anticipates using the results stemming from workshops held over the next few years to design an IODP conference on scientific drilling in 2007 or 2008.

Le Pichon requested allowing Suyehiro to give a very brief presentation of recent scientific results from off Sumatra to emphasize the exciting scientific problems that the IODP could address with regard to geohazards. Tamaki agreed, and Suyehiro presented a brief report for informational purposes only.

15. Agency-country reports

15.1 NSF-United States

Bruce Malfait referred to the NSF report in the agenda book and welcomed any questions. He showed a timeline for providing the next non-riser, scientific ocean drilling vessel and indicated the earliest possible delivery of the ship by the third quarter of FY2007, depending on receiving the requested \$58 million in funding for FY2006 and an additional \$42 million for FY2007 to complete the project, totaling \$115 million overall. Malfait explained that the U.S. House of Representatives already had approved the full request for FY2006, but a separate funding bill still remained pending in the U.S. Senate. He also noted that the lead agencies agreed in principle to the proposed core distribution plan, pending detailed estimates of the cost, timing and curation procedures.

15.2 MEXT-Japan

Yasuhisa Tanaka reported briefly on an education and outreach campaign involving museums and universities in Japan. He noted that CDEX would provide the details of *Chikyu* construction and testing in its report.

15.3 EMA-ECORD

Catherine Mével referred to the EMA report in the agenda book. She announced that ECORD now has seventeen member countries, though Ireland had not yet formally signed an MOU. Mével described the planning process for implementing MSP operations, stressing that the ESO must provide a budget estimate to the IODP-MI in June of the preceding fiscal year, before the ECORD Council could approve a budget. She added that the ESO cannot issue tenders without a budget in hand, and she explained that for the Tahiti expedition, for example, the actual cost came out much higher than the predicted budget, and ECORD thus had to bring funds forward from FY2006 to afford the project. Mével mentioned the past town hall meeting at the April 2005 EGU meeting in Vienna and a very successful workshop on high-latitude studies of climate change and ocean circulation that just concluded in early June 2005 in London. She reported that ESSAC discussed additional workshop topics for the near future and has already begun planning one for microbiology. She also announced that the ESSAC office would move from Amsterdam to Cardiff as of October 2005, and Julian Pearce would serve as acting chair for Chris MacLeod while Gilbert Camoin would serve as vice-chair. Mével stated that most ECORD member countries would have to undergo a national review process after the first four years of the IODP. She concluded by saying that ECORD had entered discussions with the European Commission concerning other possible funding options within the 7th Framework program.

15.4 MOST-China

Jianzhong Shen reported for the Ministry of Science and Technology of China. He stated that China contributed \$1.5 million to the IODP in 2004 and \$1 million in 2005. Shen reviewed the outcome of the IODP-China annual meeting in March 2005 in Beijing, where topics of discussion included domestic funding issues, facilitating drilling proposals from China, and attracting more scientists to participate in the program. He noted that the science committee discussed revising the IODP-China science plan, building a deep-sea observation system, organizing a second workshop on drilling in Asian waters, and preparing drilling proposals. Shen referred to a recent site survey cruise in the South China and East China Seas that could form the basis for a drilling proposal, and he identified the six scientists from China participating in the first phase of IODP expeditions. He also showed examples of several promotional posters created for a national scientific meeting and noted that China hosted two SAS panel meetings this year. Shen concluded by inviting the SPPOC to meet in China next year.

16. Program management report by IODP-MI, Inc.

Hans Christian Larsen referred to the full written report in the agenda book and indicated that he would only present the topics of data management, publications, the IODP–industry workshop, and the management forum. He announced that Scripps Institution of Oceanography had signed a contract for the new site survey data bank in May 2005 and would begin receiving new data by mid August 2005. Larsen reported that the new data bank would host the next SSP meeting in September and finish phasing in by early 2006. He added that the data bank would also provide access to all data from Scripps and eventually to data from Woods Hole Oceanographic Institution and the Lamont-Doherty Earth Observatory. Larsen diagrammed the status, feasible options, and preferred model for integrating the three different database systems used by the IOs through a single information portal for end users. Larsen noted that the SPPOC had approved a publications policy in December 2004 allowing for fully electronic program publications and the publishing of scientific results in the open, peer-reviewed literature. He outlined the structure of program publications, including a report series for technical notes, scientific prospectuses, and preliminary reports and a proceedings series for expedition reports, with all other scientific results published in the outside literature. Larsen highlighted the new program journal, *Scientific Drilling*, as published in collaboration with the ICDP. He described it as program edited but not peer reviewed and said that it would appear in print and electronic form, initially published biannually and perhaps more frequently later. Larsen mentioned the IODP–industry workshop held in Houston, Texas in late May. He reported that IODP scientists and industry participants sought to identify common grounds of interest, reached a consensus to form an advisory task force, and characterized the IODP riser drilling plans as very ambitious. He also identified several potential benefits to industry and to the program and cited the fundamental differences in objectives and timelines between the two groups. Larsen listed the participants of the IODP management forum retreat in late May in Frascati, Italy, and identified several topics of advance interest. He highlighted the resulting concerns regarding the existing IODP framework, particularly on its reactive nature in developing science plans exclusively from unsolicited proposals. Larsen reported that the group developed a conceptual framework for improving the proposal process as well as the overall integration of the program and the promotion of its results.

Talwani emphasized that the industry task force would complement the work of the IIS PPG and that industry would ultimately play only a small role in the program. Tanaka asked to clarify how the IODP would benefit from industry involvement. Talwani said by having panel

members supported by industry and in gaining access to industry at higher levels. Tsujii asked if the program would distribute the new journal free of charge. Larsen confirmed that the IODP-MI would distribute the journal free of charge, to the national programs, libraries, the ICDP, and others. He added that the ICDP would share the costs of distribution but not publishing. Kozo Takahashi asked if the journal would include reports on ice drilling. Larsen said that he would not exclude such reports but did not feel ready to include that community as a co-publisher. Mayer asked if the IODP-MI would take responsibility for developing an integrated data portal. Larsen replied yes, though probably through outsourcing. McKenzie inquired about the recommendations from the management forum for becoming less reactive. Larsen replied that the forum had so far yielded only a rough conceptual framework and not detailed prescriptions.

17. Implementing organization reports

17.1 JOI Alliance

Frank Rack referred to the report of the USIO as it appeared in the agenda book and took it as read. He reported that JOI had secured a \$500,000 grant from the U.S. Department of Energy (DOE) for gas hydrate coring tools and installed video conference systems at JOI, TAMU, the LDEO, and on the *JOIDES Resolution*. Rack outlined the organization of the Scientific Ocean Drilling Vessel (SODV) project and identified the conversion design team. He also referred to an online briefing book for the project and welcomed any responses.

Mayer asked if the USIO had consulted with CDEX on the experience of building the *Chikyu*. Rack replied that the design team paid a site visit last month and had a very thorough tour and discussion of the shipboard facilities.

17.2 CDEX

Hisao Ito reported on CDEX activities. He announced that JAMSTEC expected delivery of the *Chikyu* at the end of July 2005, followed by shakedown and training cruises through August 2007 and IODP operations beginning in September 2007. Ito briefly outlined the planned testing and training exercises off northeastern Japan and reviewed the six-year timeline for planning and operations of the first IODP riser drilling expeditions. He also mentioned the SIO₇ data management system under development by CDEX and illustrated some of the details of the system available online. Ito showed several images of the facilities and equipment available at the Kochi Core Center, including for microbiology sampling and storage, and he described the center as nearly ready to migrate legacy data and receive cores from *Chikyu* drilling in 2007. He emphasized the importance of engineering development for the long-term borehole observatory of the NanTroSEIZE CDP and he noted other recent activities such as the first volume of the CDEX technical report series and first issue of the *Chikyu Hakken* magazine published earlier this year.

Humphris asked about the current staffing and operations of the laboratory facilities at the Kochi Core Center. Kodama replied that the center had allowed research by domestic scientists during the last two years. Taira added that it would also open to the international community. Tsujii inquired about the possibility of storing core samples for microbiology in the Kochi facility if collected anywhere in the world. Taira said that the capacity could exist but it would ultimately depend on the sampling scheme and policy developed by the program. Piasias said that it might also depend on the availability of similar facilities at another repository.

Tanaka asked to clarify what CDEX proposed for observatory development in the forthcoming years. Taira responded that CDEX would have to work with the IODP-MI to develop detailed plans. Kudrass wondered if the scientific community could get access to any

cores from the shakedown cruises and test drilling, perhaps to bridge the hiatus and provide opportunity for additional testing of analytical facilities. Taira explained that CDEX had selected the test site for safety reasons, such as distance from typhoons, and proximity to the site of a deep industry hole offering good stratigraphic control, but he acceded the possibility of opening the cores to analysis by the international community if a demand for it existed.

17.3 ESO

Dan Evans reported on ESO activities. He announced that they had received authority for drilling for Expedition 310 Tahiti Sea Level, but clearance remained pending because only the subcontractor could receive it. Evans explained that the ESO had issued ship tenders in January 2005 and identified a preferred contractor in late May 2005 after ECORD agreed to bring forward additional funds from FY2006. He said that they hoped to have the contract signed in the next few weeks and aimed to conduct the offshore operations in September-October 2005. Evans called it a high visibility expedition, with the drill sites lying in very public view, and he briefly outlined some of considerable outreach efforts already planned. He mentioned that the expedition would not include the proposed ancillary project on reef imaging because the proponents of Proposal 650-APL could not obtain the necessary funds to preclude impacting the science of the main proposal. Evans reported that the ESO submitted its FY2006 program plan and budget to the IODP-MI, targeting an expedition for Proposal 564-Full New Jersey Shallow Shelf. He cited the very high cost of the expedition and stated that ECORD required additional funding to cover the full expenses. Evans suggested that the program could realize significant savings by conducting back-to-back MSP operations and taking advantage of available ships, but it would require a larger pool of MSP proposals ready for drilling.

Tokuyama asked if the projected budget shortfall for FY2006 resulted because of the forwarding of funds for the Tahiti expedition. Mével replied that it also reflected the high costs of the Arctic Coring Expedition. Mayer inquired whether the ESO had coordinated its outreach efforts through the IODP-MI. Evans said yes.

Tanaka asked about the core repository for the Tahiti expedition, given that the sampling party would occur in Bremen, whereas the geographic plan called for storing the cores at TAMU. Evans stated that the ESO would transfer the cores to TAMU after the sampling party. Piasias asked why not hold the sampling party at the repository where the cores would reside. Evans characterized the shipping of cores as relatively cheap compared to the administrative costs of the sampling party. Silver imagined that good reasons might arise for not always strictly following the core distribution guidelines in every case. Janecek avowed that the OTF would address the issue for each expedition.

Piasias wondered if the program should have a minimum set of analytical capabilities at all repositories. Fox declared that TAMU had committed \$1.4 million to upgrade the IODP laboratory facilities, though that might not equate with the facilities elsewhere. Taira suggested that cores might reside at one facility through the moratorium period to complete any necessary measurements before moving to the final storage place. Tanaka still worried about the process for deciding where to store cores. Larsen asserted that IODP-MI could make intelligent decisions on where to store cores based on the existing guidelines. He advised that a platform-based scheme would result in a very lopsided distribution of cores, with most ending up in the Gulf Coast repository and few in Bremen or Kochi.

18. SPPOC review of membership rotation

Kensaku Tamaki announced that this would be his last meeting as chair, but he would remain on the committee as a regular member for one more year. He also noted that Shuto and

possibly Le Pichon would rotate off the committee after this meeting. Le Pichon confirmed that he had requested his national program to replace him after this meeting. Delaney announced that either she or Mayer, and possibly Larson, would rotate off the committee after this meeting. Gaku Kimura noted that he would also rotate off after this meeting, and he reported that J-DESC had already selected a nominee for the next SPPOC vice-chair, subject to approval by the board of governors.

19. Review of motions and consensus items

Kensaku Tamaki returned to the three unresolved issues of evaluating IODP-MI activities, long-range planning, and disseminating results during expeditions and moratoria. The committee considered revised versions of the relevant recommendations and briefly discussed the final wording of each one. The full discussions and final recommendations appear above under Agendum 10 and 14.

20. Any other business

Fukao inquired about the possibility of including important engineering developments in the long-term plans, say over a five-year period instead of just year by year in the annual program plan. Piasias responded that nothing in the system would preclude such a long-term project, but the program has only \$500K available for the next fiscal year.

21. Future meetings

Judy McKenzie described the venue for the 17-18 January 2006 SPPOC meeting at the Hotel Banana City in Winterthur, Switzerland, near Zurich. She anticipated a reservation deadline of 19 December 2005.

Nick Piasias offered to host the July 2006 SPPOC meeting in downtown Portland, Oregon, or alternatively at a more isolated lodge in the mountains outside of Portland. The committee preferred the downtown location and decided on the dates of 11-12 July 2006.

The committee also briefly discussed whether to accept the invitation from China to host a SPPOC meeting in January 2007, but they preferred waiting until the next meeting to decide.

Appendix A: IODP Science Advisory Structure Terms of Reference

(approved by SPPOC 16 June 2005)

Science Planning and Policy Oversight Committee (SPPOC)

1. Mandate. SPPOC shall be a committee created by the Integrated Ocean Drilling Program (IODP) Management International (IODP-MI) in accordance with the terms and conditions of IODP-MI's by-laws. This committee shall be the highest-level committee of the IODP Scientific Advisory Structure (SAS), and shall formulate scientific and policy recommendations with respect to the IODP. As the highest-level committee, it shall recommend and ultimately approve changes in the SAS and related terms of references. It shall conduct IODP long-range planning, as well as short- and long-term evaluation and assessment of the program as to its accomplishments and evolution as compared to the scientific goals and objectives, including required engineering developments, of the IODP Initial Science Plan. It shall review IODP-MI performance. It shall bear responsibility for scientific outreach (e.g., publications). It shall foster and promote new IODP memberships. It may be assigned managerial and operational responsibilities for appropriate tasks, and shall foster and promote interactions and linkages with other international/national scientific programs. The IODP-MI Sapporo Office shall support SPPOC's activity.

2. Subcommittees and Working Groups. SPPOC may establish subcommittees and working groups for cognizance of certain components of the IODP. Areas of cognizance and the terms of reference for each subcommittee shall be defined by SPPOC. In particular, a Science Planning Committee (SPC) shall be established. SPPOC shall determine the chair and vice-chair of the SPC based on IODP member nominations. The IODP-MI Board of Governors (IODP-MI BoG) shall approve the SPC chair nomination.

3. Annual IODP Program Plan and Budget. SPPOC shall review and approve the annual IODP program plan and budget prior to forwarding it to the IODP-MI BoG for corporate approval and contractual submission to the IODP lead agencies.

4. Membership. The members of SPPOC shall be representatives from oceanographic and marine research institutions or other organizations, which have a major interest in the study of the sea floor. Members shall be selected based on recommendations from national and consortia committees from member nations and consortia, and have a term of three years. In addition, the IODP-MI BoG shall appoint two of its members to SPPOC, one from Japan and another from the United States. In the event another Lead Agency joins the IODP, the IODP-MI BoG shall appoint three members to SPPOC. The IODP-MI BoG shall approve the membership of SPPOC. The IODP-MI BoG on the recommendation of SPPOC or in the event of a country or consortium ceasing to have a valid memorandum in existence may cancel membership of any member.

5. Decisions. SPPOC shall reach all its decisions by consensus or the affirmative vote of at least two-thirds of all members present and eligible to vote. A quorum shall constitute two-thirds of the committee. If a member of the committee is absent from a duly called meeting of the committee, an alternate may be designated with full authority to act for him/her in his/her absence.

6. Chair and Vice-Chair. The chair and vice-chair of SPPOC shall rotate initially between Japan and the United States each with a term of office of two years. The IODP-MI BoG based on IODP member nominations shall determine the chair and vice-chair of SPPOC.

7. Minutes. The committee, and all subcommittees thereto, shall keep written records of their proceedings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes.

8. Indemnification. Members of this committee, and members of subcommittees duly appointed thereby, while acting within the terms of reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses, costs and expenses arising from acts or omission related to performance as committee members.

9. Ratification. These terms of reference, upon ratification by the IODP-MI BoG, shall supersede all previous terms of reference.

Science Planning Committee (SPC)

1. General Purpose. The Science Planning Committee (SPC) reports to the Science Planning and Policy Oversight Committee (SPPOC) and provides advice to the Integrated Ocean Drilling Program (IODP) Management International (IODP-MI) and, through the IODP-MI, to the implementing organizations (IOs) on annual science and engineering plans based on proposals from the international science community. Such plans shall be designed to optimize the scientific productivity and operational efficiency of the IODP. The SPC shall be specifically responsible for: the custody and initial implementation of the IODP Initial Science Plan (ISP); ranking of mature drilling proposals forwarded from the Science Steering and Evaluation Panel (SSEP) that address the scientific themes and initiatives in the ISP; prioritization of technology and engineering development recommendations forwarded from the Scientific Technology Panel (STP) and Engineering Development Panel (EDP), respectively, needed to address the scientific themes and initiatives in the ISP; advising how drilling proposals and engineering development might be most effectively mapped into a drilling plan based on the IODP multiple platform concept; scientific assessment of expeditions, in conjunction with the IODP-MI Vice-President for Science Planning and Deliverables; carrying out long-term science planning; fostering communications among and between the general community, SAS, IODP-MI, and the IOs.

2. Mandate. The SPC shall encourage the international community to develop and submit drilling proposals for the IODP. The SPC shall undertake detailed planning, and may initiate or terminate committees, panels, and working groups as needed in light of developments in science and technology. The SPC shall review SAS membership with respect to disciplinary balance, and approves the chairs of all SAS committees, panels, and working groups reporting to it. The SPC shall be involved in any discussions concerning changes in the SAS. The SPC chair shall approve meeting agendas, times, and locations for all SAS committees, panels, and groups reporting to it. The SPC, in coordination with the SPPOC, shall identify needs for and sponsor planning conferences and workshops at intervals determined by long-term science plans for the IODP. The SPC shall assign its own watchdogs to proposals that are forwarded from the SSEP. The SPC shall rank the scientific objectives of the proposals into final priority after the SSEP, and other SAS panels as appropriate, evaluate them. The SPC shall prioritize the technology and engineering development needs of the IODP, as recommended by the EDP, the STP, and other SAS panels as appropriate in cooperation with the IODP-MI and the IOs. The SPC shall approve by at least a two-thirds majority annual science and engineering plans based on proposals from the international science community developed in conjunction with the IODP-MI. The SPC shall nominate and prioritize expedition co-chief scientists to the

implementing organizations, who make the final selection. The SPC and the IODP-MI Vice-President for Science Planning and Deliverables shall assess the scientific results of expeditions. Much of the work of the SPC will be carried out by the commissioning of reports from other SAS committees, panels, working groups, *ad hoc* subcommittees of its own membership, and its chair or vice-chair.

3. Structure. The SPC shall be empowered to modify SAS as appropriate to the definition and accomplishment of tasks described in the annual program plan as approved by the SPPOC. Communication with SAS panels and program planning groups (PPGs) shall be maintained by having their chairs meet with the SPC annually and by assigning SPC members as non-voting liaisons to SAS panels and planning groups as necessary. Where counsel and communication are deemed important, other individuals may be asked to meet *ad hoc* with the committee, its panels, or its working groups.

4. Decisions. The SPC shall reach its decisions by consensus or affirmative vote of at least two thirds of all members present and eligible to vote. A quorum shall equal two-thirds of the committee. Voting records shall be retained by the IODP-MI-Sapporo Office and reported in the meeting minutes.

5. Meetings. The SPC shall meet at least biannually, normally in March and September. Robert's Rules of Order shall govern its meetings and those of all of panels reporting to it. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes.

6. Membership. National and consortia membership entitlements for SAS committees are stated in the Memoranda among the IODP funding agencies. The SPC chair shall work with IODP-MI and the national consortia committees to maintain scientific balance and breadth of expertise in the committee's membership, and to ensure regular rotation of membership. All appointees to the SPC shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to IODP planning. Each member shall have a designated alternate to serve in his or her absence. The term of membership shall be three years and at least one third of the members shall rotate off the committee annually, so that the SPC membership shall be replaced every three years. Re-appointment shall be made only in exceptional circumstances. If an SPC member misses two meetings in succession, the SPC chair or vice-chair shall discuss the problem of SAS representation with the appropriate national or consortia representative(s) on SPPOC.

7. Chair and Vice-Chair. The SPC chair and vice-chair shall alternate between Japanese and U.S. institutions, excluding the IOs, as prescribed in the Memoranda among the IODP funding agencies. The vice-chair shall replace the chair every two years, with a new vice-chair appointed.

8. Liaisons. The IODP-MI Vice-President of Science Planning and Deliverables; the directors of the IOs, or nominees thereof; and representatives of the lead agencies shall be permanent, non-voting liaisons. The SPC chair shall be a liaison to SPPOC, the EDP, and the EPSP, with the SPC vice-chair serving as alternate liaison; the SPC chair and vice-chair shall be liaisons to the SSEP; and the SPC shall assign other liaisons to these and other SAS panels and groups. Science coordinators from the IODP-MI Sapporo Office shall attend and record the minutes of each SPC meeting. Representatives from the IODP funding agencies and implementing organizations (IOs) shall be invited to attend the meetings.

Science Steering and Evaluation Panel (SSEP)

1. General Purpose. The Science Steering and Evaluation Panel (SSEP) reports to the Science Planning Committee (SPC). The panel shall interact with proponents (and Program Planning Groups, or PPGs, as necessary) to nurture submitted drilling proposals to maturity, and send mature proposals for external review before forwarding them to the SPC. Within the context of the IODP Initial Science Plan (ISP), important thematic (and initiative) areas of investigation addressed by proposals that shall be considered by these panels include: the deep biosphere and seafloor ocean (deep biosphere; gas hydrates); environmental changes, processes and effects (extreme climates; rapid climate change); solid earth cycles and geodynamics (continental breakup and sedimentary basin formation; large igneous provinces (LIPs); 21st century Mohole; and seismogenic zone); and additional themes (and initiatives) that may arise from future scientific planning and assessment.

2. Mandate. The SSEP shall be responsible for nurturing and evaluating proposals, and for forwarding mature proposals to the SPC after they have been externally reviewed.

2.1 Nurturing. The SSEP shall help proponents develop strong proposals through an iterative process. The panel shall provide proponents and the SPC with written reviews and comments through the IODP-MI Sapporo Office. As part of the nurturing process the SSEP may reject proposals at any stage. As each new proposal is received by the SSEP, the panel shall assess whether or not the proposal would benefit from evaluation by the Scientific Technology Panel (STP) and the Engineering Development Panel (EDP). If so, the SSEP shall request that the IODP-MI Sapporo Office coordinate distribution of proposals to the STP and EDP for evaluation.

2.2 Evaluating. The SSEP shall determine whether proposals address important scientific problems that are related to the scientific themes and initiatives outlined in the ISP, and review the scientific merits of these drilling proposals. The SSEP shall assign its own watchdogs. Taking into account evaluations by the Site Survey Panel (SSP), STP, and EDP, the SSEP shall select proposals for external review, and suggest appropriate reviewers to the IODP-MI Sapporo Office, which handles the external review. The SSEP shall provide the SPC with a summary of these external comments and a written review.

2.3 Forwarding proposals to the SPC. The SSEP shall decide, taking into account evaluations by the SSP, STP, EDP, and external reviewers, when a proposal is ready to be forwarded to the SPC, and provide the SPC with a grouping and a written final review. The final review shall conclude the SSEP nurturing process and shall include both a review of the current version of the proposal and an additional general review including information and recommendations to the SPC.

2.4 The SSEP shall advise the SPC on scientific themes and initiatives that need further development through the formation of PPGs, as necessary.

2.5 The SSEP shall facilitate communications among the SPC, PPGs, and proponents.

3. Decisions. The SSEP shall normally reach decisions by consensus. In cases when a consensus is not possible, decisions shall be decided by a majority of all members present and eligible to vote. A quorum shall consist of at least two-thirds of the voting members. Voting records shall be kept and reported in the meeting minutes. When grouping proposals to be sent to the SPC, all SSEP panel members are required to vote (yes, no, abstain), unless conflicted. A five point (or star) grouping (with five being the highest and using 1 and 5 sparingly) is recommended.

4. Meetings. The SSEP shall convene biannually, generally six to eight weeks after IODP proposal deadlines, and additional electronic meetings may be held as appropriate. In view of the large number of members and wide range of proposal science objectives, thematic breakout sessions are encouraged. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. In view of the breadth of expertise needed to evaluate and nurture proposals, the SSEP shall be composed of twice the general panel membership entitlement for SAS panels stated in the Memoranda among the IODP funding agencies. The SSEP co-chairs shall work with IODP-MI and the national and consortia committees to maintain scientific balance and breadth of expertise in the panel co-chairs and membership, and to ensure regular rotation of its membership. SSEP members shall normally serve for terms of three years. Members of the SSEP shall not be members of any PPG. Guests may be invited to SSEP meetings on an *ad hoc* basis to help with examinations and reviews of proposals. If a SSEP member misses two meetings in succession, the SSEP co-chairs shall discuss the problem of SAS representation with the SPC chair or vice-chair.

6. Chairs. The SSEP co-chairs shall be nominated by the SSEP membership and approved by the SPC. The terms of the SSEP co-chairs shall be two years and are normally staggered. For any given time interval, one co-chair shall be designated as the primary contact for the SSEP. The SSEP co-chairs shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The SSEP co-chairs shall be liaisons to the SPC. The SSEP shall have liaisons from the SPC, including, but not limited to the SPC chair and vice-chair. The SSEP co-chairs shall assign liaisons from SSEP membership to the active PPGs, as appropriate, and receive liaisons from other advisory panels, as appropriate. Science coordinators from the IODP-MI Sapporo Office shall attend each SSEP meeting. PPG chairs shall normally meet with the SSEP at least once per year. Representatives from the implementing organizations (IOs) shall also be invited to attend the meetings.

Site Survey Panel (SSP)

1. General Purpose. The Site Survey Panel (SSP) reports to the Science Planning Committee (SPC). The panel shall advise drilling proponents, the Science Steering and Evaluation Panel (SSEP), and the SPC on the degree of completeness of the drill site characterization data package, and on its assessment of whether or not the scientific objectives of each drill site can be effectively achieved on the basis of the proposal and data package.

2. Mandate. The SSP shall:

- Review site survey data packages submitted by proponents to the IODP Site Survey Data Bank.
- Verify data quality and identify data gaps for each proposal's site survey data package.
- Provide early guidance to proponents and the SSEP regarding necessary site characterization data.
- Make recommendations regarding the degree of completeness of each drill site characterization data package to the proponents, the SSEP, and the SPC.

- Assess, on the basis of the proposal and data package, whether or not the scientific objectives of each drill site can be effectively achieved.
- Examine and encourage opportunities for use of new site survey technologies.
- Foster cooperation and coordination for site survey data acquisition.

3. Classification Decisions. The site characterization completeness for each proposed drill site shall be evaluated by two or three SSP members serving as watchdogs and classified by general consensus of the SSP members during SSP meetings. Modifications of the site classification shall be by consensus of the SSP at a meeting or by e-mail. Site classifications shall be recorded in the meeting minutes. The site characterization completeness for each proposed drill site is assessed by the SSP only on a scientific basis. The SSP's site classification does not preclude drilling.

4. Meetings. The SSP shall convene biannually, generally four to six weeks after IODP Site Survey Data Bank submission deadlines, and additional electronic meetings may be held as appropriate. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. National and consortia membership entitlements for SAS panels are stated in the Memoranda among the IODP funding agencies. The SSP chair shall work with IODP-MI and the national and consortia committees to maintain scientific balance and breadth of expertise in the panel's membership, and to ensure regular rotation of its membership. SSP members shall normally serve for terms of three years. If an SSP member misses two meetings in succession, the SSP chair or vice-chair shall discuss the problem of SAS representation with the SPC chair or vice-chair.

6. Chair and Vice-Chair. The SSP chair and vice-chair shall be nominated by the SSP membership and approved by the SPC. Their terms are two years. The SSP chair shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The SSP chair shall be liaison to the SPC, with the vice-chair as alternate. The SSP shall have liaisons from the SPC. The IODP Site Survey Data Bank Manager and a liaison from the EPSP shall attend each SSP meeting. A science coordinator from the IODP-MI Sapporo Office shall attend each SSP meeting. The SSP shall send liaisons to SSEP meetings. Representatives from the implementing organizations (IOs) shall also be invited to attend the meetings.

Environmental Protection and Safety Panel (EPSP)

1. General Purpose. The Environmental Protection and Safety Panel (EPSP) reports to the Science Planning Committee (SPC). The panel shall provide independent advice to the SPC, IODP Management International (IODP-MI), and the implementing organizations (IOs) with regard to safety and environmental issues that may be associated with general and specific geologic circumstances of proposed drill sites. The EPSP shall also provide advice on appropriate drilling technologies for avoidance of drilling hazards and protecting the environment.

2. Mandate. This panel shall review all prospective drilling in the IODP and advise on safety requirements and appropriate technology needed to meet these requirements. All drilling

operations involve safety and environmental issues. The principal geologic safety and a significant environmental hazard in ocean drilling is the possible release of substantial quantities of high-pressure fluids and volatiles including hydrocarbons from subsurface reservoir strata. IODP riser capability will permit the application of blow out prevention (BOP) technology to mitigate this hazard; for non-riser platforms, careful planning and appropriate site surveys reduce or eliminate the risk of hydrocarbon release. IODP proposal proponents are initially responsible to carefully assess proposed drill sites in terms of safety and environmental protection. The EPSP shall independently examine and review each proposed site, including site survey data and operational plans, to determine if and how drilling operations can be conducted to maximize safety and minimize environmental impact.

3. Decisions. The panel shall recommend among the following options:

1. site approval as proposed, for riser/BOP or non-riser drilling,
2. amendment of a proposed site with respect to location and/or depth of penetration,
3. a specific drilling order for an expedition,
4. a specific drilling platform or well program,
5. acquisition of additional data to complete the safety review, or
6. denying approval.

Approval shall be based on the judgment of the EPSP that a proposed site can be safely drilled in light of the available technology, information, and planning. Recommendations of the panel shall be based on consensus or voting, as decided on a case-by-case basis. Votes shall be decided by a majority of all members present and eligible to vote. A quorum shall consist of at least two-thirds of the voting members. Voting records shall be kept and reported in the meeting minutes.

4. Meetings. The EPSP shall convene biannually, generally approximately mid-way between SPC meetings, and additional electronic meetings may be held as appropriate. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. Members of the EPSP shall be specialists who can provide expert advice on maximizing safety and minimizing environmental impact associated with drilling of proposed sites, including sites in hydrocarbon prone and biologically sensitive areas. Members of the EPSP shall be primarily selected on the basis of this specific expertise. National and consortia membership entitlements for SAS panels are stated in the Memoranda among the IODP funding agencies. The EPSP chair shall work with IODP-MI and the national and consortia committees to maintain scientific balance and breadth of expertise in the panel's membership, and to ensure regular rotation of its membership. EPSP members shall serve for terms of three years, renewable at the discretion of the EPSP chair/vice-chair and the relevant national/consortia program. If an EPSP member misses two meetings in succession, the EPSP chair or vice-chair shall discuss the problem of SAS representation with the SPC chair or vice-chair.

6. Chair and Vice-Chair. The EPSP chair and vice-chair shall be nominated by the EPSP membership and approved by the SPC. Their terms shall be two years, and may be renewed. The EPSP chair shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The EPSP chair shall be liaison to the SPC, with the vice-chair as alternate. The SPC chair shall be a liaison to the EPSP, with the SPC vice-chair as alternate. The EPSP vice-chair shall be a liaison to the Site Survey Panel (SSP), and a designated SSP member shall attend its meetings, as does a representative from the IODP Site Survey Databank. A science coordinator from the IODP-MI Sapporo Office shall attend each EPSP meeting. Representatives from the implementing organizations (IOs) shall also be invited to attend the meetings.

Scientific Technology Panel (STP)

1. General Purpose. The Scientific Technology Panel (STP) reports to the Science Planning Committee (SPC), and may communicate directly with IODP Management International (IODP-MI). The panel shall contribute information and advice with regard to handling of IODP data and information, methods and techniques of IODP measurements (including factors that impact measurements, such as sample handling, curation, etc.), laboratory design, portable laboratory needs, downhole measurements and experiments, and observatories to the SPC; through the SPC, to the Science Planning and Policy Oversight Committee (SPPOC) and IODP-MI; and, through IODP-MI, to the implementing organizations (IOs).

2. Mandate. STP recommendations shall be sent to the SPC. The STP shall provide advice on scientific measurements made onboard IODP platforms, within and around boreholes, and on samples collected by the IODP and associated programs. The STP shall develop guidelines concerning said measurements and shall furnish advice about scientific measurements, equipment, and on certain policies and procedures in the IODP. Specific responsibilities for the panel shall be advice on databases, sample handling, curation, computers, shipboard equipment usage and needs, as well as borehole and observatory measurements, equipment, usage, and needs.

3. Decisions. Decisions shall be made either by consensus or voting, as decided on a case-by-case basis. Votes shall be decided by a majority of all members present and eligible to vote. A quorum shall consist of at least two-thirds of the voting members. Voting records shall be kept and reported in the meeting minutes.

4. Meetings. The panel shall convene biannually, generally approximately mid-way between SPC meetings, and additional electronic meetings may be held as appropriate. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. Members shall have expertise representing the four core areas of the panel mandate covering information handling, downhole measurements, scientific measurements, and observatories. National and consortia membership entitlements for SAS panels are stated in the Memoranda among the IODP funding agencies. The STP chairs shall work with IODP-MI and the national and consortia committees to maintain scientific balance and breadth of expertise in the panel's membership, and to ensure regular rotation of its membership. With SPC approval, the panel may augment the expertise required to address its mandate by setting up *ad hoc* advisory committees whose lifetimes are mandated by the SPC. STP members shall normally serve for terms of three years. If a STP member misses two meetings in succession, the STP chair or vice-chair shall discuss the problem of SAS representation with the SPC chair or vice-chair.

6. Chair and Vice-Chair. The STP chair and vice-chair shall be nominated by the STP membership and approved by the SPC. Their terms shall be two years. The STP chair shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The STP chair shall be liaison to the SPC, with the vice-chair as alternate. The STP shall have liaison(s) from the SPC. Liaisons to SAS panels and working groups may be requested by the SPC. A science coordinator from the IODP-MI Sapporo Office shall attend each STP meeting. Representatives from the IOs shall also be invited to attend the meetings.

Engineering Development Panel (EDP)

1. General Purpose. The Engineering Development Panel (EDP) reports to the Science Planning Committee (SPC), and may communicate directly with IODP Management International (IODP-MI). The panel shall provide advice on matters related to the technological needs and engineering developments necessary to meet the scientific objectives of active IODP proposals and the IODP Initial Science Plan (ISP) to the SPC; through the SPC, to the Science Planning and Policy Oversight Committee (SPPOC) and IODP-MI; and, through IODP-MI, to the implementing organizations (IOs).

2. Mandate. The EDP shall identify long-term (two to five year lead time) technological needs determined from active IODP proposals and the ISP, and recommend priorities for engineering developments to meet those needs. Appropriate topics shall include:

- a. Assessment of commercial, off-the-shelf technology to determine if it can optimally meet identified IODP technological needs or whether research and development is required.
- b. Appropriate modes for pursuing engineering development projects (i.e., through the IODP, universities, industry, or joint ventures).
- c. Performance requirements for specific technological needs.
- d. Procedures to develop and evaluate program contracts in support of technical design and innovation.

As requested by the Science Steering and Evaluation Panel (SSEP) or SPC, the EDP shall review IODP drilling proposals to assess IODP technological readiness to achieve the proposed objectives, and where appropriate, recommend priorities for technological approaches and necessary engineering developments.

3. Decisions. Decisions of EDP shall generally be made by consensus. If voting is required, motions shall be decided by a majority of all members present and eligible to vote. A quorum shall consist of at least two-thirds of the voting members. Voting records shall be kept and reported in the meeting minutes.

4. Meetings. The EDP shall convene biannually, generally approximately mid-way between SPC meetings, and additional electronic meetings may be held as appropriate. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. The EDP shall consist of members who represent the fields of marine platform operations, downhole logging and instrumentation, drilling technology (including mining technology and drilling under extreme conditions), drilling engineering development,

geotechnics and other disciplines as necessary. National and consortia membership entitlements for SAS panels are stated in the Memoranda among the IODP funding agencies. The EDP chair shall work with IODP-MI and the national and consortia committees to maintain breadth of expertise in the panel membership, and to ensure regular rotation of its membership. With SPC approval, the panel augment the expertise required to address its mandate by setting up *ad hoc* advisory committees whose lifetimes are mandated by the SPC. EDP members shall normally serve for terms of three years, with the possibility of renewal. If an EDP member misses two meetings in succession, the EDP chair or vice-chair shall discuss the problem of SAS representation with the SPC chair or vice-chair.

6. Chair and Vice-Chair. The EDP chair and vice-chair shall be nominated by the EDP membership and approved by the SPC. Their terms shall be two years. The EDP chair shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The EDP chair shall be liaison to the SPC, with vice-chair as alternate. The SPC chair shall be a liaison to the EDP, with the SPC vice-chair as alternate. A science coordinator from the IODP-MI Sapporo Office shall attend each EDP meeting. Representatives from the IOs shall also be invited to attend the meetings.

Industry-IODP Science Program Planning Group (IIS PPG)

1. General Purpose. The Industry-IODP Science Program Planning Group (IIS PPG) reports to the Science Planning Committee (SPC). The IIS PPG shall identify subjects of cooperative scientific research between the IODP and selected industries, and promote development of IODP drilling proposals to address these objectives within the context of the IODP Initial Science Plan (ISP). Industrial sectors of interest may include oil and gas and related services, mining, biotechnology, and research and development organizations in these fields.

2. Mandate. The IIS PPG shall:

- Most important, define industrial priority research of joint academic/industry interest within the IODP context using high quality industry datasets, and promote development of IODP drilling proposals to address such objectives within the context of the ISP.
- As appropriate, develop effective links between academic and industry scientists, facilitate communication and cooperative scientific and technical development activities between the IODP and industry, and foster integrated multidisciplinary research projects.
- Engage industry professionals as ambassadors in communication and promoting IODP activities.

3. Decisions. Decisions in the IIS PPG shall be made by consensus.

4. Term and Meetings. The IIS PPG shall have an initial term of three years, renewable after review by the SPC. It shall convene up to biannually, generally approximately mid-way between SPC meetings, and additional electronic meetings may be held as appropriate. Robert's Rules of Order shall govern its meetings. Conflicts of interest shall be declared at each meeting, and treatment thereof shall be recorded in the meeting minutes. The SPC chair shall approve meeting agendas, dates, and locations, and the IODP-MI Vice-President for Science Planning and Deliverables shall authorize the meetings.

5. Membership. The IIS PPG membership shall maintain a reasonable balance of expertise, research interests, and international participation, with an ideal goal of about two thirds of the

members from industry and about one third from academia. Lead agency countries shall be entitled to appoint two members each, and other IODP members shall be entitled to appoint one member each. The remaining membership shall be approved by the SPC. IIS PPG members shall have experience in scientific ocean drilling as well as expertise in research related to industry interests. Members shall be appointed to initial terms of three years, and their terms may be extended on SPC approval of a renewed term of activity for IIS PPG.

6. Chair and Vice-Chair. The IIS PPG chair and vice-chair shall be appointed by the SPC. Their terms shall be three years. The IIS PPG chair shall be responsible for providing the IODP-MI Sapporo Office with meeting minutes within one month of each meeting.

7. Liaisons. The IIS PPG chair shall be liaison to the SPC, with vice-chair as alternate. The SPC may appoint a liaison to the IIS PPG; that liaison will brief the IIS PPG annually on the status of IODP scientific planning.

Program Planning Groups

1. General Purpose. Program Planning Groups (PPG) are small focused planning groups proposed by either the SSEP or the SPC when there is a need to develop drilling programs or technological strategies to achieve the goals of the various planning documents.

2. Mandate. PPGs will advise upon drilling/technology strategies and proposals for major scientific objectives that are not adequately covered by existing drilling strategies or proposals. Drilling proposals arising from PPG meetings must be submitted to the IODP-MI by individual proponents or groups of proponents. PPGs will also foster communication between the IODP and other major geoscience initiatives. PPGs will report to the appropriate panel in the IODP Science Advisory Structure as directed by the SPC. A final written report will be delivered to the SPC chair, reviewed by the SPC, and the final revised version posted on the web.

3. Meetings. These will be on an as-required basis, determined by the SSEP or the SPC and approved by the SPC chair, who will also approve dates, locations, and agendas of meetings. Final approval of meetings will be made by the IODP-MI. Written minutes of meetings will be provided to the SPC chair within one month following each meeting.

4. Membership. Members of PPGs will be focused groups of specialists and proponents, chosen by the SPC through consultation with the SSEP and community programs. Each of the main members of the IODP will have the right to have representation on the PPG as follows: 2 U.S., 2 Japan, 1 ECORD, and 1 China. The remainder of the membership should be based on needed expertise with a maximum total number of 15 members. The number of PPGs will be determined by the SPC's need to fulfill the objectives of various planning documents, subject to budgetary constraints. The normal term length will be three years, but is renewable by the SPC.

5. Chair. The PPG chairs are appointed by the SPC.

6. Liaisons. The SPC establishes liaison with PPGs by the appointment of non-voting liaisons. A liaison from the SSEP may also be established.

Detailed Planning Groups

1. General Purpose. Detailed Planning Groups (DPGs) are short-lived planning groups that may be created by the SPC for more intensive study of certain aspects of planning that may arise.

2. Mandate. DPGs will be suggested by the SAS structure and created by the SPC with individual mandates that may be either scientifically or technologically based. DPGs will provide written reports to the SPC. Example tasks for DPGs include: translating highly-ranked IODP science proposals into concrete drilling plans; advising on regional and site surveys needed for future drilling; preparing drilling prospectuses which synthesize all thematic and site survey input, etc. A final written report will be delivered to the SPC chair, reviewed by the SPC, and the final revised version posted on the web.

3. Meetings. Active DPGs meet at the request of SPC as frequently as required by ship scheduling and routing. Meeting dates, locations and agendas will be approved by the SPC chair. Final approval of meetings will be made by the IODP-MI. Written minutes of meetings will be provided to the SPC chair within one month following each meeting. DPGs will be disbanded once their task is completed.

4. Membership. Members of DPGs will be chosen by the SPC for their expertise and experience with respect to the assigned DPG mandate. Members may be recommended by the SSEP. Each of the main members of the IODP will have the right to have members on the PPG as follows: 2 U.S., 2 Japan, 1 ECORD, and 1 China. The remainder of the membership should be based on needed expertise with a maximum total number of 15 members.

5. Chair. The DPG chair will be appointed by the SPC.

6. Liaisons. The SPC appoints a liaison to each standing DPG.

Appendix B: Long-range Planning Workshops

This appendix provides additional details on the specific planning workshops recommended in SPPOC Consensus 0506-14. For the relevant discussions see Agenda 11 and 14.

Paleoceanography and Paleoclimate

Scientific ocean drilling has accessed the sedimentary samples required for investigating past climate and biogeochemical change, resulting in significant advances in understanding the ocean–atmosphere response on timescales ranging from millennial to tectonic. The opportunities provided by the variety of drilling capabilities available in the IODP make this an opportune time for assessing the priorities defined in the *Initial Science Plan*, with the goal of establishing and affirming the pressing questions to be addressed.

Deep Biosphere

To inform and integrate interested microbiologists, microbial ecologists, and biogeoscientists into the IODP and to encourage the development of deep-biosphere drilling proposals, a series of regional workshops will be held in different locations, such as Europe, Japan, and the United States. The goal of each workshop will be to determine future directions in deep-biosphere research by developing new communities and introducing new perspectives. The product of each workshop will be a report that (1) assesses what has been achieved and learned from recent deep-biosphere drilling projects, (2) considers how new deep-biosphere drilling projects can interact with other international science programs, such as linking continental and marine deep-biosphere objectives, and (3) evaluates new results for updating the *Initial Science Plan*.

Geohazards

The Great Sumatra Earthquake has demonstrated the great impact of geohazards on society and has provided important new discoveries. How do these new discoveries change our strategies for studying these processes? This workshop will identify new drilling strategies to investigate the role of earthquakes, slope stability, and volcanic collapses in the generation of tsunamis.

Scientific opportunities from an integrated transect of continental and ocean drilling

Many scientific goals of the International Continental Scientific Drilling Program (ICDP) overlap with those found in the *IODP Initial Science Plan*. This workshop will examine regions where onshore to offshore transects may resolve long-standing scientific problems, and it will aim to foster integrated projects that would greatly advance our understanding of key Earth processes. There are already groups considering projects in New Zealand, southeastern Alaska, Southeast Asia, and the Yucatan peninsula.

Subsurface Fluid Flow

Considerable progress in understanding seafloor hydrogeology and subsurface fluid flow has been made through installation of CORKs in drill holes in a range of geotectonic settings (e.g. subduction zones, mid-ocean ridges). This workshop will identify the outstanding scientific questions and define the future directions of drilling-related experiments related to fluid flow. In particular, it will focus on the new problems that can be addressed by integrating borehole monitoring and experimentation with seafloor observatories.

Deep Drilling – A Mohole Opportunity?

A goal of scientific ocean drilling since the Mohole Project has been a deep hole and complete crustal penetration. This workshop will examine the new opportunities provided by riser drilling, the integration of deep holes with ocean observatories, and the technological developments necessary to achieve deep drilling in a variety of environments.

Observatories

Scientific ocean drilling has played, and can continue to play, a critical role in the establishment of ocean observatories. This workshop will develop and nurture scientific themes that integrate scientific ocean drilling and observatory science in the context of an international program, and it will build on the recent workshop addressing linkages between the Ocean Observatories Initiative (OOI) and the IODP (Fisher and Brown, 2003), as well as other international efforts.