

IODP Science Advisory Structure Executive Committee
1st Meeting, 11-12 July 2006
IODP-MI offices
Washington, DC, U.S.A.

Science Advisory Structure Executive Committee - SASEC

Keir Becker	RSMAS, University of Miami, USA
Michael Bickle	Department of Earth Sciences, University of Cambridge, United Kingdom
Yoshio Fukao ¹	Earthquake Research Institute, University of Tokyo, Japan
John Hayes	Woods Hole Oceanographic Institution, USA
Susan Humphris (chair)	Woods Hole Oceanographic Institution, USA
Gaku Kimura	Department of Earth and Planetary Sciences, University of Tokyo, Japan
Masaru Kono	Okayama University, Japan
Young-Joo Lee*	Korea Institute of Geoscience and Mineral Resources, Korea
Kenneth Miller	Department of Geological Sciences, Rutgers University, USA
Toshiyasu Nagao*	Earthquake Prediction Research Center, Tokai University, Japan
Eli Silver	Earth Sciences Department, University of California, Santa Cruz, USA
Jianshong Shen	Ministry of Science and Technology, China
Manik Talwani	IODP Management International, Inc.
Yoshiyuki Tatsumi (vice-chair)	Institute for Research on Earth Evolution, JAMSTEC, Japan
Gerald Wefer	Center for Marine Environmental Studies, University of Bremen, Germany

¹ Alternate for Toshiyasu Nagao.

* Unable to attend.

Liaisons, observers, and guests

Jamie Allan	National Science Foundation, USA
Rodey Batiza	National Science Foundation, USA
Steve Bohlen	JOI Alliance, Joint Oceanographic Institutions, Inc., USA
David Divins	JOI Alliance, Joint Oceanographic Institutions, Inc., USA
Dan Evans	ECORD Science Operator, British Geological Survey, United Kingdom
Chris Franklin	Natural Environment Research Council, United Kingdom
Yoshihisa Kawamura	Center for Deep Earth Exploration, JAMSTEC, Japan
Kelly Kryc	IODP Management International, Inc.
Marcel Kullin	Swiss National Science Foundation, Switzerland
Hans Christian Larsen	IODP Management International, Inc.
Catherine Mevel	ECORD Managing Agency, Institut de Physique du Globe de Paris, France
Takao Miyazaki	Ministry of Education, Culture, Sports, Science, and Technology, Japan
Julie Morris	National Science Foundation, USA
Toshi Oshima	Ministry of Education, Culture, Sports, Science, and Technology, Japan
Yoichiro Otsuka	IODP Management International, Inc.
Ram K. Sharma	Department of Ocean Development, India
Masato Sugiyama	Ministry of Education, Culture, Sports, Science, and Technology, Japan
Kiyoshi Suyehiro	Japan Marine Science and Technology Center, Japan
Yasuhisa Tanaka	Ministry of Education, Culture, Sports, Science, and Technology, Japan
John Walter	National Science Foundation, USA

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Executive Summary

1. Introduction

SASEC Motion 0607-01: SASEC adopts the simplified version of the Conflict of Interest policy and acknowledges its adherence to the longer version when appropriate.

Hayes moved. Miller seconded. 10 in favor, 0 abstained, 0 against.

2. Approval of the Agenda

SASEC Consensus 0607-2: SASEC approves the agenda for its first meeting on 11-12 July 2006 in Washington, DC, U.S.A.

3. Review of the Terms of Reference

SASEC Motion 0607-03: SASEC adopts the Terms of Reference with the Mandate modified as follows (in bold):

2. Mandate

SASEC shall be the highest-level committee of the IODP SAS.

This committee;

- a. conducts IODP long-range planning, as well as evaluation and assessment of the program,
- b. reviews and approves the annual IODP program plan and budget prior to forwarding it to the IODP-MI Board of Governors (IODP-MI BoG) for corporate approval and contractual submission to the IODP lead agencies, and
- c. **foster integration and linkage with** other geo-science programs.

Kono moved. Bickle seconded. 10 in favor, 0 abstained, 0 against.

5. Approval of the FY2007 Annual Program Plan

SASEC Motion 0607-04: SASEC approves the FY2007 Annual Program Plan as presented, including anticipated changes in SODV scheduling as recommended by the Operations Task Force.

Silver moved. Kono seconded. 8 in favor, 2 abstained (Kimura and Miller), 0 against.

6. Review of IODP Science

SASEC Consensus 0607-05: SASEC thanks SPC for implementing the short-term scientific evaluation (1-2 years) and assessment of drilling expeditions. We request that SPC continue this process, and that the SPC Chair draw SASEC's attention to any issues that might need action.

SASEC Consensus 0607-06: Longer-term evaluation of the scientific impact of IODP drilling expeditions will be conducted on a thematic basis. Over the next three years, there will be one review each year to evaluate the first two years of IODP drilling. The review committee will include 2-4 experts external to IODP, 1 SASEC member, 1 SPC member, 1 IODP-MI representative, and 1 former member of the SAS who was involved in nurturing of the expedition(s) under review. The SPC Chair will recommend this individual. IODP-MI will provide logistical and management support for this activity. SASEC anticipates that such reviews may be coupled with thematic symposia.

7. Review of Science Advisory Structure

SASEC Consensus 0607-07: SASEC appoints a subcommittee consisting of Yoshi Kawamura (non-voting), Mike Bickle, Keir Becker, Jim Mori, David Divins (non-voting), and Hans Christian Larsen (non-voting) to review the Science Advisory Structure and recommend any changes to optimally configure its activities as IODP enters Phase II. The subcommittee should also recommend any changes in structure necessary to integrate missions into the IODP proposal review process. The subcommittee should submit its recommendation to SASEC at its spring 2007 meeting. The committee should select a chair at or before its first meeting.

8. Mission Implementation

SASEC Action Item 0607-08: SASEC charges the Mission Implementation group to develop a plan that formulates the best way to integrate missions into the call for proposals for scientific ocean drilling, how missions should be designated, the structure of a mission team, and the review and approval process within the IODP Science Advisory Structure. It should also include recommendations to the committee reviewing the Science Advisory Structure regarding changes that may be needed in proposal flow and review within SAS.

SASEC accepts the recommendation within the Mission document approved by IODP-MI BoG that the committee consist of four people representing the SSEP, SPC, SASEC and IODP-MI. SASEC designates Yoshi Tatsumi as its member to be part of the Mission Implementation group.

The Mission Implementation group is expected to present its plan to the SPC meeting in August, with approval by SASEC to follow at their next meeting in order for the concept of mission to be included in the 2007 request for proposals.

9. IODP Long-range Planning

SASEC Consensus 0607-09: The committee recognizes the importance of Large Igneous Provinces for the understanding of mantle processes, melt formation and movement as well as for their potential environmental impacts. The significance of their study is recognized in the IODP Initial Science Plan. However the study of Large Igneous Provinces is frustrated by their predominantly marine setting, size and thickness. For these reasons the committee recognizes the value of a workshop aimed at planning further study and especially planning effective drilling strategies.

Before funding such a workshop the committee would like to see some more detail on how the proponents envisage the workshop will advance the planning of drilling Large Igneous Provinces. Specifically, with ten LIP-related proposals already under consideration, what new approaches will the workshop be able to develop? The revised proposal should 1) be more specific about the scientific problems for which a drilling solution is sought, 2) outline potential drilling strategies and their technological requirements and 3) bring together representatives of all aspects of the wide scientific community which studies Large Igneous Provinces.

A major problem posed in drilling Large Igneous Provinces is that they extend over 1000's of km with thicknesses up to 20 km. Even with riser drilling it is only possible to penetrate the upper few km. How will drilling answer questions about eruption rates and magma compositions over the whole evolution of a Large Igneous Province? Indeed, which questions are expected to be soluble by drilling? Large Igneous Provinces are thought to relate to plumes. How will the workshop consider this relationship? Are there questions about hot spots that should be tackled by drilling and which will be relevant to understanding Large Igneous Provinces?

The potential members of the workshop steering committee includes many excellent scientists with extensive experience. The committee thinks that it will be important also to include scientists whose expertise encompasses the study of mantle convection, seismic imaging of the mantle, theoretical study of mantle melting processes and observational study of melting processes in other environments. Finally study of the possible environmental consequences of Large Igneous Provinces will involve expertise in the integration of ocean/atmosphere processes and records and a drilling strategy, which is largely distinct from the direct study of the igneous processes.

SASEC Consensus 0607-10: SASEC recommends that IODP-MI fund the proposed IODP Workshop, 'Addressing Geologic Hazards through Ocean Drilling' in 2007.

Charge to the Steering Committee Addressing Ocean Geologic Hazards Through the Integrated Ocean Drilling Program from the IODP Science Advisory Structure Executive Committee (SASEC)

Study of ocean geologic hazards is an important scientific theme and societal issue that is underrepresented in the Initial Science Plan of IODP. The proponents propose a 3-day international workshop to begin to put in place a program for studying the ocean record of hazardous landslides and causes of deformation that generates tsunamis. SASEC recommends that IODP-MI fund an oceanic geologic hazards workshop in 2007. SASEC suggests that the proposed steering committee be broadened by the addition/substitution of members as outlined below. The proponents restrict their proposed workshop to hazardous landslides and deformation that generates tsunamis, though the proposal touches on many other aspects of oceanic geologic hazards. SASEC recommends that the workshop outline the broad themes of oceanic geologic hazards that can be addressed by ocean drilling and then focus on hazardous landslides and deformation that generates tsunamis.

Deliverables: We anticipate that publishable documents be produced, including an EOS summary and a longer, publishable white paper. One primary goal is to provide information to update the ISP.

We suggest broadening the Steering Committee of 7 persons and recommend that the following be considered:

1. David Applegate, USGS
2. Kenji Satake, GSJ
3. Someone from GEOMAR

Plus at least one representative from industry:

1. Petter Bryn, Norsk Hydro
2. Bruce Clark, Leighton & Associated
3. Lloyd Cluff, Pacific Gas & Electric

SASEC Consensus 0607-11: SASEC, as the executive authority of SAS, plans to update the Initial Science Plan by the end of 2008. Workshops and symposia to be held in 2006 and 2007 will provide input to this process, and community input will be solicited through the national committees, an article in the Scientific Drilling journal, an EOS advertisement, and at the AGU Town Meetings. A subcommittee of editors will be appointed by SASEC at their spring 2007 meeting and will be expected to deliver a final manuscript by summer 2008. SASEC will evaluate the final draft at its summer 2008 meeting. Evaluation may consist solely of SASEC review or may require external evaluation by summer 2008.

10. Communications/outreach to the Scientific Community

SASEC Action Item 0607-12: SASEC requests that Kimura and Miller, with assistance from Kryc, develop a plan for the Distinguished Scientist Program to present to SASEC within the next month.

SASEC Consensus 0607-13: SASEC adopts ‘North Atlantic and Arctic climate variability’ as the topic for the inaugural IODP Topical Symposium in 2007 and assigns Gerald Wefer as the SASEC liaison to this task.

11. Communications/Outreach to Other Geoscience Initiatives

SASEC Action Item 0607-13: SASEC nominates Becker to organize a joint ICDP-IODP meeting.

SASEC Action Item 0607-14: SASEC nominates Nagao and Humphris to liaise with the IODP Observatory Taskforce and national observatory initiatives including, but not limited to, ORION, ESONet, and DONET.

13. Communications to SAS and IODP-MI Committees

SASEC Action Item 0607-15: SASEC nominates the following SASEC members as liaisons to each of IODP-MI’s task forces:

QAQC Taskforce: Hayes

Observatory Taskforce: Humphris

Operations Review Taskforce: Miller

Operations Taskforce: Becker

Education and Outreach Taskforce: Tatsumi

Data Management Taskforce: Kono

Engineering Development Taskforce: Kimura

Curatorial Advisory Board: Miller

14. Member Rotation Schedule of SASEC

SASEC Consensus Statement 0607-16: SASEC adopts the guidance provided by the national program offices and agrees to the following member rotation schedule:

Japan: Kono – 1 year, Kimura – 2 years, and Tatsumi – 3 years

U.S.A.: Miller – 1 year, Humphris – 2 years, and Hayes – 3 years

ECORD: Bickle – 2 years, Wefer – 3 years

SASEC Action Item 0607-17: SASEC assigns Becker to request that USAC nominate a vice-chair to replace Tatsumi when he becomes chair next year.

SASEC Action Item 0607-18: SASEC assigns Humphris and Tatsumi to request that USAC and J-DESC respectively assign alternates to SASEC.

16. Future Meetings

SASEC Consensus Statement 0607-19: SASEC agrees to hold its next meeting November 1-2, 2006 in a to be determined location in Japan.

SASEC Consensus 0607-2: SASEC approves the agenda for its first meeting on 11-12 July 2006 in Washington, DC, U.S.A.

3. Review of the Terms of Reference

Humphris opened the discussion by suggesting a change to the wording referencing outreach to other geoscience programs. Committee members agreed that the words “conduct” and “outreach” were not appropriate in this context. Julie Morris suggested changing the text to read, “Foster integration and linkages with other programs,” which was modified slightly and adopted as a revision to the final version of the SASEC Terms of Reference (Appendix C). The revised Terms of Reference were approved by consensus.

SASEC Motion 0607-03: SASEC adopts the Terms of Reference with the Mandate modified as follows (in bold):

2. Mandate

SASEC shall be the highest-level committee of the IODP SAS.

This committee;

- a. conducts IODP long-range planning, as well as evaluation and assessment of the program,
- b. reviews and approves the annual IODP program plan and budget prior to forwarding it to the IODP-MI Board of Governors (IODP-MI BoG) for corporate approval and contractual submission to the IODP lead agencies, and
- c. ***foster integration and linkage with*** other geo-science programs.

Kono moved. Bickle seconded. 10 in favor, 0 abstained, 0 against.

4. Agency, IODP-MI & Implementing Organization (IO) Reports

The Lead Agencies, IOs and IODP-MI provided reports that the committee members were asked to read prior to the meeting. Twenty minutes were provided to allow the committee members to ask questions of the representatives attending the meeting. Committee members asked questions of NSF and the USIO regarding the on-time delivery of the Scientific Ocean Drilling Vessel (SODV). NSF reported that shipyard availability is an issue due to the change in industry business climate and that, due to higher-than-anticipated costs, SODV may require additional funds. The current information is that SODV will be delivered in late Fall (November) 2007, however there are still many unknowns. The USIO will revise the USIO FY2007 Annual Program Plan to reflect the SODV change and will submit it at a later date for a revised IODP FY2007 Annual Program Plan.

Committee members requested that EMA provide more information about the ECORD evaluation. Mevel explained that many of the ECORD member countries are scheduled to evaluate their contribution to IODP prior to operations in 2007-2008. The Participation unit will increase from \$3.5M to \$5.6M and the ECORD Council has agreed to conduct an evaluation of the benefits to countries participating in the consortium, which will be

presented to the Council in November 2006. Questions to EMA also focused on the proposal writing workshop, which scientists reported as successful. Humphris commented that the current IODP Proposal submittal process is intimidating and that holding proposal writing workshops may be a good way to encourage younger scientists to participate in the program. Dan Evans reported that ESO would conduct a New Jersey Margin contract meeting for potential drilling contractors the week of July 17.

Miller asked CDEX if *Chikyu* would operate in FY2007 and Kawamura confirmed that it would. No further questions were addressed to MEXT or CDEX.

5. Approval of FY2007 Program Plan

Kimura and Miller were permitted to stay in the room and participate in the discussion since it was of a general scheduling nature and there were other aspects of the Program Plan beyond cruises that needed to be discussed. However, due to earlier established conflicts of interest, they were required to abstain from voting.

The SPC ranking process was described by Becker and discussed by SASEC.

Humphris opened the discussion by asking if there were questions or comments about the IODP FY2007 Annual Program Plan. Hayes asked a question about the logistics of drilling 6 holes in 45 days for NanTroSEIZE and it was clarified that this was possible because there would be no coring, just logging while drilling.

Miller asked about the core redistribution timeline and Talwani responded that the funding issues had been resolved. Wefer confirmed that the cores are currently being moved.

Tatsumi asked why SASEC is supported by the IODP-MI Washington, DC office rather than the Sapporo office. Talwani clarified that the ongoing SASEC activities, such as long-range planning, workshops, and the new activities proposed for FY2007 (i.e. International Distinguished Scientist program and topical symposia) were launched by the Washington office and are implemented by Kelly Kryc, and that it was logical that support to SASEC be provided by the Washington office.

Humphris announced that SASEC must decide upon their approval process given that the FY2007 Annual Program Plan will be revised to include the new SODV schedule. The committee discussed the caveats of this and ultimately decided to approve the plan as presented with the anticipated SODV-related changes. The committee also requested if there are additional changes that they be consulted.

<p>SASEC Motion 0607-04: SASEC approves the FY2007 Annual Program Plan as presented, including anticipated changes in SODV scheduling as recommended by the Operations Task Force.</p>

Silver moved. Kono seconded. 8 in favor, 2 abstained (Kimura and Miller), 0 against.

6. Review of IODP Science

Becker described the elements of SPC's review of IODP science. SPC handles an expedition-by-expedition scientific assessment based on proposal evaluations, prospectus evaluations and post-expedition science reviews in 2 phases (1 yr and 3-4 yrs). The real issue is that it takes years to publish the full science output from a given expedition and the question facing SASEC is, what does SASEC want from the SPC expedition science assessments and at what point post-cruise should these assessments be made?

Larsen pointed out that self-assessments by the expedition co-chiefs have been fairly honest about their scientific successes and he concurred with Becker that assessments should be made 18-24 months post-expedition.

Miller requested clarification of the function of the Operations Review Task Force and wondered if SASEC might be duplicating some of their efforts. Talwani stated that the Review Task Force was only concerned with operations and that they did not conduct any scientific reviews.

Humphris suggested that SASEC focus their discussions on 2 questions: 1) is the SPC process sufficient and is the timeline appropriate? And 2) what role does SASEC need to have in short-term or long-term evaluations? She expressed concern that the current system doesn't have as much depth as it perhaps should and that the reviews might not be critical enough to reflect whether or not the scientific objectives were met. Bickle thought that it was unnecessary to duplicate the SPC review and that SASEC should focus on the science as it applies to the overall success of the program. Humphris recommended that SASEC reviews be conducted in conjunction with IODP Topical Symposia. Hayes suggested that the co-chiefs answer a frank question about whether or not the scientific objectives were met. Becker pointed out that operational shortcomings are often behind the failure to meet scientific objectives.

Humphris suggested a review that considered both operational and scientific outcomes, however the committee decided to keep the reviews separate.

Mével suggested that SASEC should address the long-term impact of the science. Kimura added that SASEC should assess the scientific achievements within the context of the Initial Science Plan (ISP). Humphris suggested conducting the SPC review 2 years post-expedition. Becker agreed and thought it might be a good idea to conduct the assessment at the 2nd post-expedition meeting when the entire science party is there. Hayes supported this idea and suggested that, beyond 3 years, assessments should no longer be conducted at the expedition-by-expedition level.

Humphris recommended a scientific review at the 2nd post-cruise meeting that includes the scientific party, an SPC member, a SASEC member, and external members to evaluate the scientific impact of the expedition. For longer-term evaluations, SASEC should look at it within the context of other things like the ISP and topical symposia. Talwani suggested that Larsen chair the scientific assessment committee. Humphris identified the need for logistical support for this activity and suggested that IODP-MI

manage the process rather than SPC. Allan said that there would be a total of 11 post-cruise meetings a year once all the platforms are operating and suggested that the responsibility of attending all these meetings rotate amongst the committee members. He also wondered who would be fiscally responsible for this activity.

Miller commented that he liked the SPC reports due to their timeliness and recommended that SASEC consider not reviewing every expedition, but to instead conduct thematic assessments (i.e. Core Complex or Sea Level) on a 2-3 year timeframe. The committee generally agreed that it would be better to do only 4 per year rather than 11.

Humphris summarized that the current review process is missing an external check that the science is having an impact and that there is value in conducting thematic reviews. SPC should continue to do short-term reviews (1-2 yrs) and SASEC will set up a thematic review process on a 3-year post-expedition timeline. The committee concurred that this was the way forward.

SASEC Consensus 0607-05: SASEC thanks SPC for implementing the short-term scientific evaluation (1-2 years) and assessment of drilling expeditions. We request that SPC continue this process, and that the SPC Chair draw SASEC's attention to any issues that might need action.

SASEC Consensus 0607-06: Longer-term evaluation of the scientific impact of IODP drilling expeditions will be conducted on a thematic basis. Over the next three years, there will be one review each year to evaluate the first two years of IODP drilling. The review committee will include 2-4 experts external to IODP, 1 SASEC member, 1 SPC member, 1 IODP-MI representative, and 1 former member of the SAS who was involved in nurturing of the expedition(s) under review. The SPC Chair will recommend this individual. IODP-MI will provide logistical and management support for this activity. SASEC anticipates that such reviews may be coupled with thematic symposia.

7. Review of the Science Advisory Structure (SAS)

Humphris opened this discussion by stating that a number of changes were made to SAS at the beginning of IODP and then 2 years ago by SPPOC. Due to impending multiple platform operations, it might be worthwhile to reconsider the SAS. She recommended establishing a small group to look at the SAS, and that they recommend any changes to optimize SAS for a multiple platform program at the November 2006 SASEC meeting. Potential members might include Keir Becker, Jim Mori, or Mike Bickle. Hayes suggested that those on the small group be familiar with both SAS and the mission concept. The committee discussed including representatives from the IOs (Divins and Kawamura) and IODP-MI.

General discussion followed. Humphris brought up the idea of having a technology development committee. Silver mentioned that SSEP is doing well, but that they are overwhelmed and also thought there was enough overlap between STP and EDP that it might be possible to merge those two panels. He also thought that both SSP and EPSP

both look at data and that there might be some overlaps there. Humphris questioned how to bring EPSP into the process sooner and Silver recommended that EPSP be brought in at the same time as SSEP. Humphris also commented that there should be better communication between SSEP and SSP because sometimes highly ranked proposals are lacking the necessary site survey data. Science validity and the required site survey data should be more closely aligned before proposals make it all the way to the top.

Talwani introduced the mission concept and thought that if missions become a large part of the proposal submission process, the SAS will need to accommodate those. The committee considered Nankai as a model for the more unusual mission demands that the system will need to accommodate. A consensus statement was drafted and approved.

SASEC Consensus 0607-07: SASEC appoints a subcommittee consisting of Yoshi Kawamura (non-voting), Mike Bickle, Keir Becker, Jim Mori, David Divins (non-voting), and Hans Christian Larsen (non-voting) to review the Science Advisory Structure and recommend any changes to optimally configure its activities as IODP enters Phase II. The subcommittee should also recommend any changes in structure necessary to integrate missions into the IODP proposal review process. The subcommittee should submit its recommendation to SASEC at its spring 2007 meeting. The committee should select a chair at or before its first meeting.

8. Mission Implementation

Humphris presented the history of the mission concept, which originated in the IODP Management Forum and has since gone through several iterations. She suggested establishing a small committee comprised of representatives from SSEP, SPC, SASEC, and IODP-MI to work on details of implementation. It was also suggested that someone from the external community (i.e. ORION, ESONet, or NASA) might be on the subcommittee.

Bickle mentioned that the missions should only be used as required and that the program is much more flexible without missions. Humphris clarified that money and resources would limit the number of missions that could happen simultaneously. The committee discussed the potential of a continental-to-ocean transect which would require collaboration with ICDP.

Tatsumi asked what the difference was between a Complex Drilling Project (CDP) and a mission. Humphris thought that missions could include multiple CDPs. For example, Nankai could be a part of a Mission of seismogenic zone drilling that would also include CRISP. Mevel thought that Nankai is a mission, but that the term didn't exist when Nankai was scheduled. Tatsumi recommended that the IOs be involved early in the mission planning process.

The committee then discussed how mission proposal and single expedition proposals would be considered in the SAS structure. Morris suggested that given the financial and

time commitment it will be important to have guiding principles that prioritize mission proposals.

The committee drafted a charge to the small committee to design an implementation plan in time for the August 2006 SPC meeting.

SASEC Action Item 0607-08: SASEC charges the Mission Implementation group to develop a plan that formulates the best way to integrate missions into the call for proposals for scientific ocean drilling, how missions should be designated, the structure of a mission team, and the review and approval process within the IODP Science Advisory Structure. It should also include recommendations to the committee reviewing the Science Advisory Structure regarding changes that may be needed in proposal flow and review within SAS.

SASEC accepts the recommendation within the Mission document approved by IODP-MI BoG that the committee consist of four people representing the SSEP, SPC, SASEC and IODP-MI. SASEC designates Yoshi Tatsumi as its member to be part of the Mission Implementation group.

The Mission Implementation group is expected to present its plan to the SPC meeting in August, with approval by SASEC to follow at their next meeting in order for the concept of mission to be included in the 2007 request for proposals.

9. IODP Long Range Planning

Humphris opened the discussion by stating that SASEC should set up a long-range planning effort that is a mechanism through which they get input from the community that will contribute to revising the ISP. IODP-MI started this through a series of workshops in FY2006. Kryc provided an overview of the 4 workshops. The committee agreed that the workshops are a good forum to bring people together to discuss missions. The four 2006 workshops covered many of the ISP initiatives. Talwani reminded SASEC that there may not be funds for workshops every year and that SASEC is not required to initiate any of them. He requested that SASEC identify a process for soliciting workshop proposals in future years. The committee then considered each of the workshop proposals received for 2007 workshops. Silver was excused from the discussions due to a conflict of interest as a proponent of the Geohazards workshop proposal.

Marine Impacts Workshop

The committee decided that the workshop proposal was too specific and regionally focused and that a broader workshop dedicated to impacts would be more acceptable. The committee decided not to fund this proposal.

Large Igneous Provinces (LIPs)

The committee thought that the proposal was broad and it addressed potential drilling targets, although the workshop proponents did not discuss how ocean drilling will advance the subject nor did they address the challenge of drilling in LIPs. The topic is an initiative in the ISP and although there are 10 drilling proposals in the system, they are

not moving forward, which is good justification for potentially funding this workshop (the last workshop was in 1990). SASEC agreed that they are enthusiastic about approving a LIPs workshop, but that the current proposal needed to be revised. A consensus statement requesting that the proponents revise their proposal and resubmit it for consideration at the November 2006 SASEC meeting was drafted and approved.

SASEC Consensus 0607-09: The committee recognizes the importance of Large Igneous Provinces for the understanding of mantle processes, melt formation and movement as well as for their potential environmental impacts. The significance of their study is recognized in the IODP Initial Science Plan. However the study of Large Igneous Provinces is frustrated by their predominantly marine setting, size and thickness. For these reasons the committee recognizes the value of a workshop aimed at planning further study and especially planning effective drilling strategies.

Before funding such a workshop the committee would like to see some more detail on how the proponents envisage the workshop will advance the planning of drilling Large Igneous Provinces. Specifically, with ten LIP-related proposals already under consideration, what new approaches will the workshop be able to develop? The revised proposal should 1) be more specific about the scientific problems for which a drilling solution is sought, 2) outline potential drilling strategies and their technological requirements and 3) bring together representatives of all aspects of the wide scientific community which studies Large Igneous Provinces.

A major problem posed in drilling Large Igneous Provinces is that they extend over 1000's of km with thicknesses up to 20 km. Even with riser drilling it is only possible to penetrate the upper few km. How will drilling answer questions about eruption rates and magma compositions over the whole evolution of a Large Igneous Province? Indeed, which questions are expected to be soluble by drilling? Large Igneous Provinces are thought to relate to plumes. How will the workshop consider this relationship? Are there questions about hot spots that should be tackled by drilling and which will be relevant to understanding Large Igneous Provinces?

The potential members of the workshop steering committee includes many excellent scientists with extensive experience. The committee thinks that it will be important also to include scientists whose expertise encompasses the study of mantle convection, seismic imaging of the mantle, theoretical study of mantle melting processes and observational study of melting processes in other environments. Finally study of the possible environmental consequences of Large Igneous Provinces will involve expertise in the integration of ocean/atmosphere processes and records and a drilling strategy, which is largely distinct from the direct study of the igneous processes.

Volcanic Hazards at Continental Margins and Island Arcs

The committee discussed this proposal and agreed that it was not a broad enough topic and was too regionally focused for an IODP workshop and that the proponents should reorganize and integrate with ICDP. The committee decided not to fund this proposal.

Geohazards

The committee thought that this workshop addressed a broader community and that it would bring something new to the program. The topic of geohazards is underrepresented in the ISP although there is considerable interest due to recent events. The committee agreed that the workshop steering committee was too narrow and named several individuals to consider adding to the steering committee. SASEC agreed to support this proposal in 2007 and wrote a charge that included suggestions for additional steering committee members and recommended deliverables. SASEC also agreed that if one or more of the scheduled ECORD geohazards workshops moves forward that the two groups coordinate their efforts.

SASEC Consensus 0607-10: SASEC recommends that IODP-MI fund the proposed IODP Workshop, ‘Addressing Geologic Hazards through Ocean Drilling’ in 2007.

Charge to the Steering Committee Addressing Ocean Geologic Hazards Through the Integrated Ocean Drilling Program from the IODP Science Advisory Structure Executive Committee (SASEC)

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Deliverables: We anticipate that publishable documents be produced, including an EOS summary and a longer, publishable white paper. One primary goal is to provide information to update the ISP.

We suggest broadening the Steering Committee of 7 persons and recommend that the following be considered:

1. David Applegate, USGS
2. Kenji Satake, GSJ
3. Someone from GEOMAR

Plus at least one representative from industry:

1. Petter Bryn, Norsk Hydro
2. Bruce Clark, Leighton & Associated
3. Lloyd Cluff, Pacific Gas & Electric

After deciding about the 4 workshop proposals, the committee discussed how best to use the workshops to provide information to SASEC about the long-range plan. In addition, the committee discussed the ISP initiatives that have not had a workshop. Bickle highlighted the lack of a climate-related workshop proposal. Miller explained that the climate community is generally self-starting and that there is already good proposal pressure. A better idea might be to have a meeting instead of a workshop. A meeting could bring together 100-200 experts to discuss all the issues and should include climate modelers, physical oceanographers, and the ice and terrestrial community. Talwani suggested that something of this scale not be developed in isolation, but that we should collaborate with the national programs. SASEC agreed that they need to identify the best way to solicit workshop proposals and that there should be some guidance to the community about what makes a good proposal.

Becker identified ocean-continental transects, subsurface fluid flow, and borehole observatories as ISP topics not yet addressed by workshops. With respect to ocean-continental transects, the committee agreed to appoint a liaison to attend ICDP meetings and visa versa, and that perhaps in the future there should be some joint planning meetings. The committee decided to keep a watch on subsurface fluid flow and observatories to see if they require a workshop in the future.

Humphris asked the committee how they could do a better job soliciting workshop proposals. Bickle suggested that SASEC could identify specific topics in advance, which might make the process more competitive. He added that longer lead-time might be advantageous. Talwani reminded the committee that IODP-MI needs to receive the workshop proposals in enough time to request funds in the Annual Program Plan. Humphris suggested that SASEC solicit proposals in the fall to discuss at their March meeting, which would leave enough time for inclusion in the APP.

Other long-range planning and assessment activities

Humphris asked the committee how SASEC could initiate a revision of the ISP that included community input. She suggested that they evaluate the program every 3 years on a thematic basis and that SASEC needed to create a review committee and decide how to manage the process. The committee discussed whether to have a full review once every three years or to do one thematic review a year. Bickle thought that there were three good themes from Phase 1 operations: Climate, Gulf/Cascadia, and hard rock. Humphris said that SASEC needed to form the committees soon to start reviews in 2007. She thought that the reviews could be conducted in conjunction with topical symposia with a meeting of key individuals afterward. It was suggested that these individuals should include 1-2 externals, 1 SASEC member according to topic, 1 SPC member according to topic, and 1 IODP-MI representative. SASEC agreed to finalize the details the next day.

Even though it is not specified in the Memorandum of Understanding, Humphris thought that it would be good idea to revisit the ISP. Silver commented that a subcommittee might be able to make some initial suggestions on how applicable the ISP is to IODP objectives. There are sections of the ISP that are vague or missing entirely. Wefer thought that the 2006-2007 workshops could provide some insight and perhaps even write some

sections for the revised ISP. Allan reminded SASEC that IODP hasn't been running a full operation yet and that SASEC might want to do this after something has been learned from riser drilling. SASEC generally agreed that the ISP needed a mid-course adjustment, but that there also needs to be thought about how best to prepare for program renewal in 2013. SASEC also discussed the need for community awareness and input. Humphris suggested writing an article in Scientific Drilling with a vision for long-range planning and an outline of the revised ISP requesting input from the scientific community. She also identified two different steps in the process. The first is to complete a mid-program revision of the ISP that should be completed by 2008. The second is a large rewrite to use in conjunction with renewal of the program. The committee was tasked with looking at the ISP and reporting back the next day any missing topics and those initiatives requiring more details.

SASEC adjourned the meeting at 0500.

Wednesday	12 July	0830
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SASEC convened at 0830, reviewed action items and worked to revise and finalize relevant consensus statement wording from the previous day. SASEC then continued discussing topics germane to IODP Long Range Planning within the context of finalizing the consensus statements.

9. IODP Long Range Planning (cont.)

Initial Science Plan

SASEC continued discussing the specifics regarding revising the ISP by the end of 2008. They agreed that the subcommittee should have a year to collect input, produce the volume and still have time to print and distribute it. Humphris emphasized that the ISP is a living document and that it is part of SASEC's long range mandate. The topic of requiring external reviews was introduced and it was determined that, if there are new sections added, there should be an external review.

<p>SASEC Consensus 0607-11: SASEC, as the executive authority of SAS, plans to update the Initial Science Plan by the end of 2008. Workshops and symposia to be held in 2006 and 2007 will provide input to this process, and community input will be solicited through the national committees, an article in the Scientific Drilling journal, an EOS advertisement, and at the AGU Town Meetings. A subcommittee of editors will be appointed by SASEC at their spring 2007 meeting and will be expected to deliver a final manuscript by summer 2008. SASEC will evaluate the final draft at its summer 2008 meeting. Evaluation may consist solely of SASEC review or may require external evaluation by summer 2008.</p>
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SASEC moved on to discuss the specifics of the ISP. They agreed that the topic of geohazards was an obvious omission. Becker pointed out that the implementation plan is obsolete and must be rewritten. Hayes suggested that there could be stronger linkages

between the deep biosphere (now referred to as subseafloor life) and environmental change. Silver added that there could be more mention of broader collaborations with other disciplines and marine geoscience programs. Bickle suggested adding a section on carbon sequestration, but thought that overall the original plan was still very strong. The committee thought that there should be a strong statement (perhaps a bulleted list) at the beginning of the plan describing IODP and its accomplishments and contributions to science. This led to a general discussion of the value of providing short written statements to people that describe the program in 20-30 seconds, as well as a small flyer about IODP for the public.

SASEC reconfiguration

SASEC revisited this topic to refine the consensus statement and to discuss the logistics of supporting subcommittees. Action will be taken by IODP-MI to negotiate with the Program Management Offices to ensure that the required support is available so that SASEC can accomplish its goals through the use of subcommittees in a short time frame.

10. Communications/outreach to the Scientific Community

IODP Distinguished Scientist Lecture Program

SASEC briefly discussed the various national programs before discussing the specifics of a new program unique to IODP-MI. SASEC emphasized that it is important not to duplicate the efforts of the national programs. The IODP-MI program should have an international component and should also consider outreach to potential new member countries. In addition, the program should include wider audiences of non-scientists and it may be necessary to provide a general audience program in the national language. SASEC tasked Miller, Kimura, and Kryc with developing a plan for SASEC to consider.

SASEC Action Item 0607-12: SASEC requests that Kimura and Miller, with assistance from Kryc, develop a plan for the Distinguished Scientist Program to present to SASEC within the next month.

Topical Symposia

SASEC focused their deliberations of this topic from the previous day and agreed to do 1 topical symposium in 2007. Miller thought that paleoceanography needed to be represented since there are no workshops on the topic. Bickle recommended a thematic session to encourage outside community members to attend. Humphris mentioned that the idea of the symposia is to highlight IODP science and wondered if SASEC should choose the topics. The committee agreed that SASEC should not only designate the topic, but should name the steering committee as well. North Atlantic and Arctic climate variability as a potential first theme were offered by Miller. Humphris concurred because the theme also included two different platforms – hence would highlight that aspect of the new IODP. The committee concurred with this suggestion and asked Wefer to serve as the SASEC liaison to this task. Miller recommended Europe as a potential location. Kono suggested planning these types of things further in advance in the future. The committee agreed that 15-18 months lead-time is appropriate. They also agreed that the symposium

should last approximately 2 days and that a short report describing the future direction of this field would be an appropriate deliverable.

SASEC Consensus 0607-13: SASEC adopts ‘North Atlantic and Arctic climate variability’ as the topic for the inaugural IODP Topical Symposium in 2007 and assigns Gerald Wefer as the SASEC liaison to this task.

11. Communications/Outreach to other Geoscience Initiatives

Humphris opened this topic by stating that IODP must think about other national and international programs to integrate with. The committee focused on ICDP and suggested that a group of people from both organizations should have a one-day meeting once year to have high level discussions about the common themes of the two programs and ways to integrate planning. SASEC named Becker as the SASEC liaison to organize a joint IODP-ICDP meeting.

SASEC Action Item 0607-13: SASEC nominates Becker to organize a joint ICDP-IODP meeting.

The committee members also suggested fostering relationships with ESONet, ORION, and DONET and thought that using breakfast sessions as AGU might serve as a model for organizing these efforts. SASEC identified Becker, Nagao, and Humphris as members interested in pursuing linkages with the observatory community.

SASEC Action Item 0607-14: SASEC nominates Nagao and Humphris to liaise with the IODP Observatory Taskforce and national observatory initiatives including, but not limited to, ORION, ESONet, and DONET.

Prior to lunch, SASEC entered Executive Session to discuss how the meeting was progressing from the member’s point of view.

12. Joint Meeting with IODP Council

SASEC agreed to add a 4th item to the joint meeting agenda to discuss their future meetings.

12.1 Report of SASEC approved FY07 Program Plan

Becker gave a brief presentation summarizing SASEC’s FY2007 APP discussions on July 11, 2006 and Humphris reported that SASEC voted to approve the plan.

12.2 Report of decision of mission approach by SASEC and other SPPOC/SASEC activities

The Mission Implementation Team action item was presented to IODP Council members, and Humphris presented other consensus statements, motions, and action items that had arisen during the SASEC meeting.

12.3 Reports on program management and scientific and technical achievements

Talwani delivered an overview presentation of the germane topics. Afterwards, the IODP Council had questions regarding the upcoming IODP review, core redistribution, and the FY2006 APP amendment. Regarding the IODP review, IODP-MI received preliminary guidance from the lead agencies that the IODP BoG would conduct a review this year. The other topics were addressed in materials provided to NSF/MEXT members for their meeting earlier that week. Sharma (guest from India) indicated that if India joined IODP they would expect to drill sites off of India shortly thereafter and how would IODP handle this issue. Talwani responded that Indian scientists can propose drill sites without being a member of IODP and that drill sites are determined solely on the basis of scientific merit. Allan added that joining IODP is a win-win scenario and that from a proposal driven standpoint, there is great interest in gas hydrates, which would likely result in future drill sites. There were also some brief clarifications provided to council members about the stretching of the SODV and also about the circulation of Scientific Drilling.

12.4 Future meetings

Humphris stated that SASEC is mandated to meet 3 times per year including once with SPC, another time to approve the APP, and again at their discretion. Becker asked if SASEC was required to approve the science operations plan, which Humphris felt was unnecessary. SASEC then determined that it wasn't entirely necessary to meet with SPC since the SPC Chair is a non-voting member of SASEC and that they would communicate to IODP-MI BoG that they would like to do this differently.

SASEC agreed to a meeting in Bremerhaven in June 2007 around the same time as the IODP-MI BoG to approve the APP. IODP Council also wanted to overlap with SASEC and IODP-MI BoG. Everyone tentatively agreed on the following schedule:

June 25-26: SASEC
June 27: IODP Council
June 28: IODP members/IODP day
June 29: IODP-MI BoG

The joint meeting finished and IODP Council members left to reconvene elsewhere. SASEC continued discussing the schedule for their meetings in November 2006 and sometime in the spring. Humphris proposed a face-to-face meeting November 1-2, 2006 somewhere in Japan and a trial video conference call meeting with 2 sessions starting at 0700 (US EST) on March 22-23, 2007.

13. Communications to SAS and IODP-MI Committees

SASEC determined that it would be a useful activity to have committee members liaise with the IODP task forces and assigned people to each one.

SASEC Action Item 0607-15: SASEC nominates the following SASEC members as liaisons to each of IODP-MI's task forces:

QAQC Taskforce: Hayes

Observatory Taskforce: Humphris

Operations Review Taskforce: Miller

Operations Taskforce: Becker

Education and Outreach Taskforce: Tatsumi

Data Management Taskforce: Kono

Engineering Development Taskforce: Kimura

14. Member Rotation Schedule of SASEC

Humphris noted that, because SASEC is a new committee, all of the members started at the same time and that they needed to determine an appropriate rotation schedule. Both J-DESC and USAC provided guidance. SASEC requested Becker to ask USAC to nominate a vice chair to replace Tatsumi when he becomes chair. Humphris clarified that as new members come onto the committee that they will be appointed for 2 years with a possible 2-year extension.

SASEC Consensus Statement 0607-16: SASEC adopts the guidance provided by the national program offices and agrees to the following member rotation schedule:

Japan: Kono – 1 year, Kimura – 2 years, and Tatsumi – 3 years

U.S.A.: Miller – 1 year, Humphris – 2 years, and Hayes – 3 years

ECORD: Bickle – 2 years, Wefer – 3 years

SASEC Action Item 0607-17: SASEC assigns Becker to request that USAC nominate a vice-chair to replace Tatsumi when he becomes chair next year.

Humphris also noted that there were no assigned alternates for the Japanese and American members.

SASEC Action Item 0607-18: SASEC assigns Humphris and Tatsumi to request that USAC and J-DESC respectively assign alternates to SASEC.

15. Review of Action Items/Motions/Consensus Statements from the Meeting

Humphris and Kryc agreed to send the executive summary out within a week and to send minutes out within 2 weeks.

16. Future Meetings

SASEC Consensus Statement 0607-19: SASEC agrees to hold its next meeting November 1-2, 2006 in a to be determined location in Japan.

17. Closing Remarks

Humphris thanked Talwani, Kryc, and the IODP-MI staff who helped plan the meeting. Talwani thanked Humphris and the meeting was adjourned

**APPENDIX A:
PowerPoint Presentation
Manik Talwani**



IODP-MI

INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

WELCOME SASEC



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

From the perspective of the Central Management Organization, we would like SASEC to undertake some tasks.



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

COORDINATION WITH OTHER SCIENTIFIC PROGRAMS

The ultimate objective of the drilling program is to solve scientific problems



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

SAS REORGANIZATION

Implications of Mission Concept

EDP and STP

SSP, ESPS and SSEPs

***Do we need a Technology
Planning Committee***



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

SCIENCE OVERSIGHT

Is the planned science being accomplished?



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

LONG TERM PLANNING WORKSHOPS

Workshops are needed to spawn missions, to fulfill objectives of the ISP, and to extend science beyond the ISP



IODP-MI

INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

TOPICAL SYMPOSIA

***To disseminate and discuss IODP
findings***



IODP-MI
INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

DISTINGUISHED SCIENTIST PROGRAM

How do we setup a visiting distinguished scientist program aimed at attracting other scientists to the program?



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INTEGRATED OCEAN DRILLING PROGRAM
MANAGEMENT INTERNATIONAL

TASK FORCE MEETINGS

We invite SASEC members to attend IODP-MI Task Force meetings with a view to assisting us and providing guidance to us



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MANAGEMENT INTERNATIONAL

**KELLY KRYC, EXECUTIVE
PROGRAM ASSOCIATE AT
IODP-MI WILL PROVIDE
ASSISTANCE TO SASEC IN
CARRYING OUT ITS TASKS**

APPENDIX B:
SASEC Conflict-of-Interest Policy
(Draft July 3, 2006)

A. INTRODUCTION

General statement:

The goal of the conflict-of-interest (COI) policy for the Science Advisory Structure Executive Committee (SASEC) of the Integrated Ocean Drilling Program (IODP) is to manage conflict of interest effectively and efficiently, and to minimize both real and perceived conflicts of interest while maintaining the fullest possible involvement of knowledgeable scientists in acting as the executive authority of the Science Advisory Structure.

Definition:

A conflict of interest is a situation in which the interests (for example: personal, familial, professional, or commercial) of an IODP SASEC member or designated alternate have a real or perceived impact, either positive or negative, on SASEC's ability to act under its Terms of Reference. Conflict of interest depends on the situation, not the character or actions of the individual.

B. COI POLICY

- Conflicts of interest are unavoidable. If any SASEC member, alternate, or any other attendee of a SASEC meeting, has any direct interest that might be affected by, or might reasonably be perceived to be affected by, any action under consideration by the Committee, that member or attendee is required to make a public declaration of the existence of such interest to the Chair.
- SASEC members or other meeting attendees determined as having a conflict of interest regarding IODP-related financial or commercial enterprises will not be present during discussions relevant to such financial or commercial enterprises.
- The possible existence of a conflict of interest may also be proposed to the Chair by a member or attendee other than the member having the interest.
- All potential conflicts of interest will be declared to or by the Chair at the start of every meeting or at an otherwise appropriate time during the meeting, and will be recorded in the minutes.
- The Chair (in consultation with the Vice-Chair and/or other members of SASEC) will make a determination regarding whether the circumstances constitute a conflict of interest. Any action taken to eliminate conflict of interest (including exclusion from discussion and/or from voting) will be recorded in the minutes.

**APPENDIX C:
Terms of Reference
IODP SAS Executive Committee (SASEC)**

1. Introduction

The IODP Scientific Advisory Structure (SAS) Executive Committee (SASEC) 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 succeeds the IODP Science Planning and Policy Oversight Committee (SPPOC), which was established in September 2003.

2. Mandate

SASEC shall be the highest-level committee of the IODP SAS.

This committee;

- a. conducts IODP long-range planning, as well as evaluation and assessment of the program,
- b. reviews and approves the annual IODP program plan and budget prior to forwarding it to the IODP-MI Board of Governors (IODP-MI BoG) for corporate approval and contractual submission to the IODP lead agencies, and
- c. fosters integration and linkage with other geoscience programs.

3. Subcommittees

SASEC 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 SASEC. In particular, a Science Planning Committee (SPC) shall be established. SASEC shall determine the chair and vice-chair of the SPC based on IODP member nominations. The IODP-MI BoG shall approve the SPC chair nomination.

4. Membership

The members of SASEC 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 two years. Members shall not be appointed more than two terms. In addition, the IODP-MI BoG shall appoint two of its members to SASEC, 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 SASEC. The IODP-MI BoG shall approve the membership of SASEC. The IODP-MI BoG on the recommendation of SASEC 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

SASEC 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 SASEC 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 SASEC.

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.