

**Minutes of the 5<sup>th</sup> Meeting of the  
*Science Steering and Evaluation Panel*  
15-18 November, 2005  
Turtle Bay Resort, Oahu, Hawaii**

**Draft EXECUTIVE SUMMARY (v3.0)**

**1. Joint Session, Reports:**

**1.1. Introduction of panel members, liaisons, and guests.**

**1.2. Opening remarks by local host.**

Greg Ravizza welcomed attendees and summarized logistics.

**1.3. Approval of last SSEPs meeting minutes**

<b>SSEP Consensus 0511-1:</b> The SSEP approves the minutes of their fourth meeting on 16-19 May 2004 in Shanghai, China.
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**1.4. Approval of SSEP meeting agenda**

<b>SSEP Consensus 0511-2:</b> The SSEP approves the revised agenda of their fifth meeting on 15-18 November in Turtle Bay, Hawaii.
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**1.5. Introduction to meeting organization**

Mike Underwood briefly reviewed the meeting agenda and described how the meeting would be organized.

**1.6. SPPOC Report**

Nick Piasias provided a report from the Science Planning and Policy Oversight Committee.

**1.7. SPC Report**

Keir Becker reported on outcomes of the 6<sup>th</sup> meeting of the Science Planning Committee, which was held in Kyoto, Japan (25-28 October 2005).

**1.8. SSP Report**

David Twichell reported on activities of the Site Survey Panel.

**1.9. JOI Alliance Report (US Implementing Organization)**

Carlos Zarikian reported on recent activities at IODP-TAMU, JOI, and LDEO.

**1.10. CDEX Report (Japan Implementing Organization)**

Daniel Curewitz reported on recent activities at CDEX.

**1.11. ESO Report (European Implementing Organization)**

Tim Brewer provided a progress report for the Tahiti Sea Level Expedition 310.

### 1.12. Microbiology Mini-Meeting Report

Ken Takai summarized the activities associated with the mini-meeting on microbiology, which was held at the Turtle Bay Resort on 14 November 2005.

### 1.13. IODP-MI Report

Nobu Eguchi reported on recent activities at IODP-MI.

## 2. Meeting Overview

### 2.1. Reviewing process

Mike Underwood reviewed the SSEP mandate, conflict-of-interest rules, watchdog responsibilities, organization and objectives of breakout sessions, the purpose and content of watchdog reports during general sessions, the content of final reviews for proposals forwarded to SPC, the translation and intent of the 5-star grouping system, and procedures for rejecting (deactivating) proposals. He also provided a preview of the responsibilities assigned to Working Groups.

### 2.2. Breakout Sessions:

A total of 41 proposals (plus one CDP) were reviewed during the meeting. New external reviews were available for 9 proposals (plus two CDPs). Panel members were subdivided into three breakout sessions for detailed discussions of the proposals: BS1: *Ocean History and Paleoclimate* (chaired by R. Stein); BS2: *Igneous Lithosphere and Instrumentation* (chaired by Arai-san); BS3: *Seismogenic Zone, Fluids, Sediment Margins* (chaired by M. Underwood).

The conflict of interest rules and confidentiality requirements were respected during the entire review procedure (breakout sessions, general sessions, and grouping). The course of action regarding each of the 41 proposals (plus two CDPs) reviewed during the Turtle Bay meeting was achieved by consensus of the full panel. The dispositions are as follows:

APL: forward to SPC = 2.  
 APL: request Full Proposal = 1.  
 Pre-Proposal: request Full Proposals = 11.  
 Pre-Proposal: deactivate = 1.  
 Full Proposal: request revision = 13.  
 Full Proposal: send for external review = 3.  
 Full Proposal: forward to SPC = 10.

A qualitative grouping was assigned to the 10 proposals forwarded to the SPC using the 5-star scale. Each grouping was obtained by consensus of the full panel.

### 2.3. Working Groups:

Working Groups were organized to discuss the following subjects: WG1. *Written Reviews and Communication with Proponents* (Leader: Craig Fulthorpe); WG2. *SSEP Role in Implementation of Mission Concept* (Leader: Ryuji Tada); and WG3. *SSEP Role in Long-Range Planning* (Leader: Jürgen Thurow). Group leaders presented summaries of their working group discussions to the full panel for endorsement by consensus.

### 3. Discussions and Recommendations:

#### 3.1. Written Reviews

Working Group 1 discussed four topics: (1) whether recent complaints about SSEP reviews reflect an international concern or a problem that is unique to proponents from the United States; (2) how SSEP should react to recent suggestions from USAC regarding communication between panel watchdogs and proponents, (3) procedures for handling stalled proposals, and (4) possible changes to review guidelines. Several procedural changes will be adopted prior to the next SSEP meeting (May 2006), and Underwood will deliver a report to USAC at their next meeting (January 2006).

#### 3.2. Recommendations for Mission Planning

Working Group 2 neither endorsed nor rejected the “mission team” concept. WG2 started its discussion based on the following assumptions: (1) the mission team concept has been accepted already, and (2) Program Planning Groups and Detailed Planning Groups shall remain in the system even if the concept of mission planning moves forward to implementation. The Working Group did not pick any specific initiatives for possible designation as missions. The following recommendations were adopted by consensus of the entire panel.

**SSEP Recommendation 0511-3:** The SSEP recommends that SPC consider the following operational definition of a “mission.” A mission is an intellectually integrated and coordinated set of drilling programs originating from the scientific community. Each mission shall address a particular scientific initiative of the IODP Initial Science Plan on a global basis over an extended period of the IODP. Each mission merits urgent promotion by the SAS in order to achieve the goals of the ISP.

**SSEP Recommendation 0511-4:** The SSEP recommends that SPC consider the following format guide for writing and evaluating mission proposals. (1) *Scientific Rationale*: fundamental problem to be addressed in Earth and biological science, questions and hypotheses to be addressed, synthesis of prior drilling results, other relevant data, contribution to the ISP; (2) *Justification and Benefits of Mission Status*: identification of the participating segments of the science community, activities (workshops, planning meetings), connection with other international programs; (3) *Needs Planning*: special program-supported requirements (technical, borehole measurements, shipboard measurements), post-expedition scientific needs, personnel (proponents and technical support); (4) *Implementation Strategy*: regional distribution of drilling targets, geologic setting, drilling requirements (platform types, shipboard instrumentation, borehole experiments), strategy for ongoing assessment and program modification, timeline.

**SSEP Recommendation 0511-5:** The SSEP recommends that SPC consider the following characterization of a Mission Team. A Mission Team is responsible for generating a coherent drilling strategy that consists of one or more drilling proposals. The drilling strategy must address the goals of the mission and could include reorganization of pre-existing unsolicited proposals into a coherent program of greater scope. During SAS evaluation, however, such pre-existing proposals could be left as stand-alone entities clearly linked to the mission. During the mission planning process, the Mission Team shall solicit technical assistance from the

Implementing Organizations and, like many unsolicited proposals, from appropriate SAS panels (SSP, STP, EDP, and EPSP). Such technical advice could include formulation of operational strategies, locating drill sites, assembling site survey data, and designing monitoring equipment for borehole observatories. Mission Teams should include an appropriate mix of mission proponents, disinterested scientific and technical experts, and liaison representatives from appropriate IOs. If existing unsolicited proposals are to be incorporated into the mission, then selected proponents from those proposals should be included on the Mission Team.

**SSEP Recommendation 0511-6:** The SSEP recommends that SPC consider the following timeline for mission planning. SPC shall set each timeline to achieve a coherent drilling strategy for the mission when they designate the mission. For cases in which adequate site survey data are known to exist, this timeline could be as short as one year. For cases in which new site survey data need to be generated, the timeline will probably be significantly longer. Throughout this phase of planning, the Mission Team and its progress will be reviewed annually by SPC.

**SSEP Recommendation 0511-7:** The SSEP recommends that SPC consider the following if Program Planning Groups (PPGs) are incorporated into the mission-planning concept. Mission Teams (MTs) are small focused planning groups, formed by the SPC when there is a perceived need to help scientists achieve the goals of the IODP Initial Science Plan. Calls for the establishment of missions may arise from either the SSEP or the SPC membership. Mission Teams advise upon drilling strategies and help foster proposals for major scientific objectives that appear to be inadequately covered by existing drilling strategies or proposals. Drilling proposals arising from MT meetings must be submitted to the IODP-MI Sapporo Office. MT members shall consist of a focused group of specialists and proponents chosen by the SPC through consultation with the SSEP.

**SSEP Recommendation 0511-8:** The SSEP recommends that SPC consider the following if Detailed Planning Groups (DPGs) are incorporated into the mission-planning concept. Tasks for Mission Teams may include those previously assigned to a DPG: advising the SAS on specific technological issues; translating mature IODP science proposals into concrete drilling plans; advising on regional and site surveys needed for future drilling; and preparing drilling prospectuses that synthesize all thematic and site-survey input.

### 3.3. Recommendations for PPGs, DPGs, and Workshops

Working Group 3 discussed long-range planning, including recommendations for the establishment of new Program Planning Groups and Detailed Planning Groups. Other tasks included an evaluation of topics for workshops and an assessment of the perception by some that proposal pressure for some scientific themes and platforms (MSP and riser) may not be high enough to achieve the goals of the Initial Science Plan. The following recommendations were adopted by consensus of the entire panel.

**SSEP Recommendation 0511-9:** The SSEP recommends that SPC consider forming a Program Planning Group that will be responsible for stimulating proposal pressure within the general theme of high-latitude extreme climate. Several germane proposals are currently under review by the SAS, and several drilling expeditions have met with success over the recent history of ODP and IODP. To maximize the potential for achieving the goals of the Initial Science Plan,

however, the SSEP encourages up-to-date synthesis of those scientific achievements, organization and collaboration of proponents, and coordination of future drilling targets. The SSEP will provide SPC with a mandate for the PPG before the next SPC meeting.

**SSEP Recommendation 0511-10:** The SSEP recommends that SPC consider forming a Program Planning Group that will be responsible for stimulating proposal pressure around the general theme of ultra-high resolution of paleoclimate. The SSEP will provide SPC with a mandate for the PPG before the next SPC meeting.

**SSEP Recommendation 0511-11:** The SSEP recommends that SPC consider forming a Detailed Planning Group that will be responsible for organizing existing, and possibly forthcoming, proposals dealing with hot spot traces. The SSEP will provide SPC with a mandate for the DPG before the next SPC meeting.

**SSEP Recommendation 0511-12:** The SSEP recommends that SPC consider endorsing an international workshop to focus on the subject of geohazards, to be sponsored or co-sponsored by IODP-MI.

### 3.4. Nomination of Co-Chair

Yujiro Ogawa nominated Ryuji Tada to serve as the next Co-Chair of SSEP, replacing Shoji Arai. The nomination of Tada was approved by vote using paper ballots (26 in favor, 1 abstain, 11 absent).

**SSEP Recommendation 0511-14:** The SSEP recommends that SPC consider Ryuji Tada for appointment as the next Co-Chair of SSEP.

### 4. Resolutions for outgoing SSEP members:

Resolutions were presented thanking (and roasting) outgoing SSEP Co-Chair Shoji Arai and outgoing SSEP members Pierre Henry, Wolfgang Bach, Yujiro Ogawa, and Susumu Umino.

### 5. Next SSEP meetings:

Jörg Erzinger and Rüdiger Stein announced that the 6<sup>th</sup> SSEP meeting has been scheduled in Potsdam, Germany (pending approval by IODP-MI). Tentative dates are 29 May to 01 June 2006. Ryuji Tada kindly extended an invitation for the 7<sup>th</sup> SSEP meeting to be held in Sapporo, Japan. Tentative dates are 13-17 November 2006.

### 6. Conclusion:

The Co-Chairs Shoji Arai, Mike Underwood, and Rüdiger Stein thanked again the host Greg Ravizza (in absentia) for his excellent logistical arrangements and warm hospitality throughout the meeting. The Co-Chairs thanked all of the panel members who remained until the end of the meeting for their dedication and hard work, and for sustaining the quorum required to continue official panel business. Watchdogs submitted drafts of all proposal reviews to the IODP-MI Science Coordinators (Jeff Schuffert and Nobu Eguchi) before the meeting ended.

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Science Steering and Evaluation Panel  
15-18 November, 2005  
Turtle Bay Resort, Oahu, Hawaii**

**Draft MINUTES (v1.0)**

**1. Joint Session, Reports:**

**1.1. Introduction of panel members, liaisons, and guests.**

The complete list of participants in the fifth meeting of SSEP is provided as **Attachment 1**.

**1.2. Opening remarks by local host.**

Greg Ravizza welcomed attendees and summarized logistics.

**1.3. Approval of last SSEPs meeting minutes**

**SSEP Consensus 0511-1:** The SSEP approves the minutes of their fourth meeting on 16-19 May 2004 in Shanghai, China.

**1.4. Approval of SSEP meeting agenda**

**SSEP Consensus 0511-2:** The SSEP approves the revised agenda of their fifth meeting on 15-18 November in Turtle Bay, Hawaii.

The agenda for the fifth meeting of SSEP is provided as **Attachment 2**.

**1.5. Introduction to meeting organization**

Mike Underwood briefly reviewed the meeting agenda and described how the meeting would be organized.

**1.6. SPPOC Report**

Nick Piasias provided a report from the Science Planning and Policy Oversight Committee. His presentation focused mostly on long-range planning. Items of particular interest included workshops sponsored by IODP-MI, the Frascati Report, and the concept of mission planning.

**1.7. SPC Report**

Keir Becker reported on outcomes of the 6<sup>th</sup> meeting of the Science Planning Committee, which was held in Kyoto, Japan (25-28 October 2005). Topics of interest included their selection of a multi-platform schedule for FY07/08, with projections extending into FY09, discussion of previous SSEP recommendations for PPGs and DPGs, responses by SAS, J-DESC, and USAC to the Frascati Report, and a SPC consensus statement on mission planning that solicits specific items for guidance by SSEP.

### **1.8. SSP Report**

David Twichell reported on activities of the Site Survey Panel. He summarized the status of proposals reviewed during the last SSP meeting (San Diego, Calif., 12-14 September 2005), shared their discussion of the Frascati Report and concerns about mission planning, and offered ideas for improving liaison interactions between SSP and SSEP.

### **1.9. JOI Alliance Report (US Implementing Organization)**

Carlos Zarikian reported on recent activities at IODP-TAMU, JOI, and LDEO, including the final group of Phase 1 operations: Expeditions 307 (Porcupine Basin), 308 (Gulf of Mexico), 309 and 311 (Superfast), and 311 (Cascadia). He provided updates on permitting issues for Monterey Bay, education and outreach, IT and database development, SODV status, and staff changes.

### **1.10. CDEX Report (Japan Implementing Organization)**

Daniel Curewitz reported on recent activities at CDEX, including the operations timeline for Chikyu during 2005-2007, status of laboratories, information management, J-CORES development, publications, outreach activities, and the upcoming schedule for shakedown cruises.

### **1.11. ESO Report (European Implementing Organization)**

Tim Brewer provided a progress report for the Tahiti Sea Level Expedition 310, which has been drilling successfully with a mission specific platform. Cores will be split and sampled in Bremen during the onshore party, which begins 13 February 2006.

### **1.12. Microbiology Mini-Meeting Report**

Ken Takai summarized the activities associated with the mini-meeting on microbiology, which was held at the Turtle Bay Resort on 14 November 2005. The meeting was organized to craft a White Paper on Microbiology.

### **1.13. IODP-MI Report**

Nobu Eguchi reported on recent activities at IODP-MI. Topics of interest included: the SAS meeting schedule; SSEP member rotations; status of active proposals throughout SAS; distribution of proposals by the nationality of lead proponent, scientific theme, and types of platform; categories and options for SSEP recommendations when reviewing proposals; status of the Site Survey Data Bank; and the *Scientific Drilling* journal (co-published with ICDP).

## **2. Meeting Overview**

### **2.1. Reviewing process**

Mike Underwood reviewed the SSEP mandate, conflict-of-interest rules, watchdog responsibilities, organization and objectives of breakout sessions, the purpose and content of watchdog reports during general sessions, the content of final reviews for proposals forwarded to SPC, the translation and intent of the 5-star grouping system, and procedures for rejecting (deactivating) proposals. He also provided a preview of the responsibilities assigned to Working Groups.

## 2.2. Breakout Sessions:

A total of 41 proposals (plus one CDP) were reviewed during the meeting. New external reviews were available for 9 proposals (plus two CDPs). Panel members were subdivided into three breakout sessions for detailed discussions of the proposals: BS1: *Ocean History and Paleoclimate* (chaired by R. Stein); BS2: *Igneous Lithosphere and Instrumentation* (chaired by Arai-san); BS3: *Seismogenic Zone, Fluids, Sediment Margins* (chaired by M. Underwood).

<b>BREAKOUT SESSION 1: OCEAN HISTORY AND PALEOCLIMATE (CHAIR: R. STEIN)</b>							
Proposal Number	Short Title	Lead Proponent	Lead Watchdog	Watchdog	Watchdog	Watchdog	Watchdog
515-Full2	Black + Marmara Seas	Flood	Eynaud	Joye	K-Madsen	Edwards	Ohkouchi
549-Full6	Northern Arabian Monsoon	Lueckge	Thurow	Ravizza	Tada	Irino	Eynaud
556-Full3	Malvinas Confluence	Wefer	Flower	Henry	Ito	Lohmann	Eynaud
567-Full2	South Pacific Paleogene	Rea	Thurow	Takai	Erba	Fujiwara	Flower
593-Full2	Gulf of Mex. Neogene Climate	Flower	Ito	Ohkouchi	Naraoka	Wilson	Li
605-Full2	Asian Monsoon	Tada	Ravizza	Eynaud	Irino	Ogawa	Chen
611-Full	Pacific Warm Pool	Stott	Lohmann	Ito	Flower	Erba	Ohkouchi
615-Full	NW Pacific Coral Reefs	Matsuda	Li	Lohmann	Takai	K-Madsen	Edwards
625-Pre2	Pleistocene Southern Ocean	Gersonde	Ito	Lohmann	Irino	Flower	Erba
638-APL2	Adelie Drift	Dunbar	Ohkouchi	Ravizza	Ohara	Eynaud	Takai
645-Full	North Atlantic Gateway	Jokat	Tada	Erba	Ohkouchi	Ravizza	K-Matsen
661-Full2	Newfoundland Sediment Drifts	Norris	Erba	Thurow	Naraoka	Gee	Chen
680-Pre	Bering Strait Climate	Fowell	Irino	Ito	Lohmann	Eynaud	Edwards
682-Pre	SW Pacific Paleogene	Norris	Naraoka	Li	K-Madsen	Erba	Ravizza
684-Pre	Southern Indian Quaternary	Mazaud	Ravizza	Joye	Lohmann	Ohkouchi	Gee

<b>BREAKOUT SESSION 2: IGNEOUS LITHOSPHERE AND INSTRUMENTATION (CHAIR: S. ARAI)</b>							
Proposal Number	Short Title	Lead Proponent	Lead Watchdog	Watchdog	Watchdog	Watchdog	Watchdog
535-Full5	735B Deep	Dick	Gee	Umino	Hayashida	Bach	Ohara
623-Full3	Ontong Java Plateau	Neal	Umino	John	Ohara	Yamazaki	Bach
630-Full	Magellan-Manihiki Plateaus	Erba	Fujiwara	Tada	Yamazaki	Umino	Thurow
654-Full2	Shatsky Rise Origin	Sager	Bach	Erzinger	Fujiwara	Hayashida	Gee
658-Full	North Atlantic Volcanism	Planke	Yamazaki	Flower	Bach	John	Tada
677-Full	Mid-Atlantic Ridge Microbiol	Edwards	Takai	Joye	Naraoka	Saffer	John
679-Pre	Montserrat Volcanic Evolution	Palmer	Ohara	Hayashida	John	Fujiwara	Morgan
681-Pre	Lesser Antilles Volcanic slides	Le Friant	Morgan	John	Umino	Gee	Yamazaki
569-Full2	CO2 Sequestration	Goldberg	Hayashida	Summa	Bach	Yamazaki	John
666-APL2	SCIMPI Tool Development	Paull	Wilson	Joye	Edwards	Henry	Fujiwara
685-Pre	Ligurian Borehole Observatory	Henry	Joye	Edwards	Saffer	Hirono	Erzinger

**BREAKOUT SESSION 3: SEISMOGENIC ZONE, FLUIDS, SEDIMENT MARGINS (CHAIR: M. UNDERWOOD)**

Proposal Number	Short Title	Lead Proponent	Lead Watchdog	Watchdog	Watchdog	Watchdog	Watchdog
537A-Full4	CRISP Phase A	Vannucchi	Saffer	Henry	Hirono	Ogawa	Pinheiro
537B-Full3	CRISP Phase B	Ranero	Hirono	Morgan	Erzinger	Chen	Henry
537-CDP6	CRISP Overview	von Huene					
633-Full2	Costa Rica Mud Mounds	Brueckmann	Pinheiro	Summa	Wilson	Naraoka	Joye
603D-Full2	NanTroSEIZE Observatories	Screaton	Fulthorpe	Wilson	Hirono	Ogawa	Summa
647-Pre2	Lisbon SEIZE	Gutscher	Henry	Pinheiro	Saffer	Erzinger	Hirono
637-Full2	New England Shelf Hydro	Person	Saffer	Edwards	Summa	Irino	Wilson
673-Pre2	Morocco Margin Mud Mound	Henriet	Edwards	Takai	Summa	Wilson	Naraoka
613-Full	NW Pacific Margin Transect	Hoyanagi	Ogawa	Morgan	Pinheiro	Hirono	Irino
644-Full	Mediterranean Outflow	Molina	K-Madsen	Erzinger	Li	Ogawa	Pinheiro
656-Full2	Belize Margin Paleo/Tectonics	Droxler	Erzinger	Fulthorpe	Chen	Flower	Li
664-APL2	Brazos-Trinity S2S	Droxler	Summa	Fulthorpe	Li	Ogawa	Saffer
667-Full	NW Australian Shelf Eustasy	Fulthorpe	Summa	Thurrow	Li	K-Matsen	Irino
683-Pre	East Asia Topo/Monsoon	Wang	Chen	Ito	Morgan	Fulthorpe	Gee
686-Pre	Southern Alaska Margin 1	Jaeger	Fulthorpe	Morgan	Pinheiro	Tada	Chen
687-Pre	Southern Alaska Margin 2	Mix	Tada	Fulthorpe	Hayashida	Thurrow	Ogawa

The conflict of interest rules and confidentiality requirements were respected during the entire review procedure (breakout sessions, general sessions, and grouping). The table below lists the conflicted SSEP members, liaisons and guests who left the room during the review of the relevant proposals. In all but one case, the conflicts arose because the member/liaison was a proponent on the given proposal and/or CDP. In the one exception, a proponent was the immediate supervisor of the conflicted member/liaison. Potential institutional conflicts were also declared for four proposals, but in the judgment of Co-Chairs were not regarded as true conflicts.

Proposal Number	Short Title	Lead Proponent	Conflict of Interest			
535-Full5	735B Deep	Dick	Miller			
537A-Full4	CRISP Phase A	Vannucchi	Fulthorpe			
537B-Full3	CRISP Phase B	Ranero	Fulthorpe			
537-CDP6	CRISP Overview	von Huene	Fulthorpe			
569-Full2	CO2 Sequestration	Goldberg	Iturrino			
593-Full2	Gulf of Mex. Neogene Climate	Flower	Flower			
603D-Full2	NanTroSEIZE Observatories	Screaton	Underwood	Saffer	Morgan	Henry
605-Full2	Asian Monsoon	Tada	Tada			
623-Full3	Ontong Java Plateau	Neal	Ravizza	Ohkouchi		
625-Pre2	Pleistocene Southern Ocean	Gersonde	Stein			
630-Full	Magellan-Manihiki Plateaus	Erba	Erba			
633-Full2	Costa Rica Mud Mounds	Brueckmann	Takai			
644-Full	Mediterranean Outflow	Molina	Eynaud			
645-Full	North Atlantic Gateway	Jokat	Stein			
647-Pre2	Lisbon SEIZE	Gutscher	Gutscher			
656-Full2	Belize Margin Paleo/Tectonics	Droxler	(Morgan)	(institutional)		
664-APL	Brazos-Trinity S2S	Droxler	(Morgan)	(institutional)		
667-Full	NW Australian Shelf Eustasy	Fulthorpe	Fulthorpe			
673-Pre2	Morocco Margin Mud Mound	Henriet	Joye	Pinheiro		
677-Full	Mid-Atlantic Ridge Microbiol	Edwards	Edwards	Bach		
685-Pre	Ligurian Borehole Observatory	Henry	Henry			
686-Pre	Southern Alaska Margin 1	Jaeger	(Fulthorpe)	Pisias	(institutional)	
687-Pre	Southern Alaska Margin 2	Mix	(Fulthorpe)	Pisias	(institutional)	

The course of action regarding each of the 41 proposals (plus two CDPs) reviewed during the Turtle Bay meeting was achieved by consensus of the full panel. The dispositions by general category are as follows:

APL: forward to SPC = 2.  
APL: request Full Proposal = 1.  
Pre-Proposal: request Full Proposals = 11.  
Pre-Proposal: deactivate = 1.  
Full Proposal: request revision = 13.  
Full Proposal: send for external review = 3.  
Full Proposal: forward to SPC = 10.

The specific dispositions for each proposal are as follows:

Proposal	Short Name	Proponent	Lead WD	Watchdog	Watchdog	Watchdog	Watchdog	Comment
<u>APLs</u>								
638-APL2	Adelie Drift	Dunbar	Ohkouchi	Ravizza	Ohara	Eynaud	Takai	to SPC
664-APL2	Brazos-Trinity S2S	Droxler	Summa	Fulthorpe	Li	Ogawa	Saffer	invite full
666-APL2	SCIMPI Tool Development	Paul	Wilson	Joye	Edwards	Henry	Fujiwara	to SPC
<u>Pre-Proposals: Deactivate</u>								
647-Pre2	Lisbon SEIZE	Gutscher	Henry	Pinheiro	Saffer	Erzinger	Hirono	
<u>Pre-Proposals: Request Full Proposal</u>								
625-Pre2	Pleistocene Southern Ocean	Gersonde	Ito	Lohmann	Irino	Flower	Erba	
673-Pre2	Morocco Margin Mud Mound	Henriet	Edwards	Takai	Summa	Wilson	Naraoka	
679-Pre	Montserrat Volcanic Evolution	Palmer	Ohara	Hayashida	John	Fujiwara	Morgan	merge
680-Pre	Bering Strait Climate	Fowell	Irino	Ito	Lohmann	Eynaud	Edwards	
681-Pre	Lesser Antilles Volcanic slides	Le Friant	Morgan	John	Umino	Gee	Yamazaki	merge
682-Pre	SW Pacific Paleogene	Norris	Naraoka	Li	K-Madsen	Erba	Ravizza	
683-Pre	East Asia Topo/Monsoon	Wang	Chen	Ito	Morgan	Fulthorpe	Gee	
684-Pre	Southern Indian Quaternary	Mazaud	Ravizza	Joye	Lohmann	Ohkouchi	Gee	
685-Pre	Ligurian Borehole Observatory	Henry	Joye	Edwards	Saffer	Hirono	Erzinger	
686-Pre	Southern Alaska Margin 1	Jaeger	Fulthorpe	Morgan	Pinheiro	Tada	Chen	
687-Pre	Southern Alaska Margin 2	Mix	Tada	Fulthorpe	Hayashida	Thurrow	Ogawa	
<u>Full Proposals: Request Revision</u>								
515-Full2	Black + Marmara Seas	Flood	Eynaud	Joye	K-Madsen	Edwards	Ohkouchi	
556-Full3	Malvinas Confluence	Wefer	Flower	Henry	Ito	Lohmann	Eynaud	
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611-Full	Pacific Warm Pool	Stott	Lohmann	Ito	Flower	Erba	Ohkouchi	
613-Full	NW Pacific Margin Transect	Hoyanagi	Ogawa	Morgan	Pinheiro	Hirono	Irino	
615-Full	NW Pacific Coral Reefs	Matsuda	Li	Lohmann	Takai	K-Madsen	Edwards	
623-Full3	Ontong Java Plateau	Neal	Umino	John	Ohara	Yamazaki	Bach	
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645-Full	North Atlantic Gateway	Jokat	Tada	Erba	Ohkouchi	Ravizza	K-Madsen	
656-Full2	Belize Margin Paleo/Tectonics	Droxler	Erzinger	Fulthorpe	Chen	Flower	Li	
658-Full	North Atlantic Volcanism	Planke	Yamazaki	Flower	Bach	John	Tada	
<u>Full Proposals: Obtain External Reviews</u>								
633-Full2	Costa Rica Mud Mounds	Brueckmann	Pinheiro	Summa	Wilson	Naraoka	Joye	
644-Full	Mediterranean Outflow	Molina	K-Madsen	Erzinger	Li	Ogawa	Pinheiro	
661-Full2	Newfoundland Sediment Drifts	Norris	Erba	Thurrow	Naraoka	Gee	Chen	
<u>Full Proposals: Forward to SPC</u>								
535-Full5	735B Deep	Dick	Gee	Umino	Hayashida	Bach	Ohara	
537A-Full4	CRISP Phase A	Vannucchi	Saffer	Henry	Hirono	Ogawa	Pinheiro	
537B-Full3	CRISP Phase B	Ranero	Hirono	Morgan	Erzinger	Chen	Henry	
549-Full6	Northern Arabian Monsoon	Lueckge	Thurrow	Ravizza	Tada	Irino	Eynaud	
603D-Full2	NanTroSEIZE Observatories	Screaton	Fulthorpe	Wilson	Hirono	Ogawa	Summa	
605-Full2	Asian Monsoon	Tada	Ravizza	Eynaud	Irino	Ogawa	Chen	
637-Full2	New England Shelf Hydro	Person	Saffer	Edwards	Summa	Irino	Wilson	
654-Full2	Shatsky Rise Origin	Sager	Bach	Erzinger	Fujiwara	Hayashida	Gee	
667-Full	NW Australian Shelf Eustasy	Fulthorpe	Summa	Thurrow	Li	K-Madsen	Irino	
677-Full	Mid-Atlantic Ridge Microbiol	Edwards	Takai	Joye	Naraoka	Saffer	John	

A qualitative grouping was assigned to the 10 proposals forwarded to the SPC using the 5-star scale. Each grouping was obtained by consensus of the full panel.

### 2.3. Working Groups:

Working Groups were organized to discuss the following subjects: WG1. *Written Reviews and Communication with Proponents* (Leader: Craig Fulthorpe); WG2. *SSEP Role in Implementation of Mission Concept* (Leader: Ryuji Tada); and WG3. *SSEP Role in Long-Range Planning* (Leader: Jürgen Thurow). Group leaders presented summaries of their working group discussions to the full panel for endorsement by consensus.

## 3. Discussions and Recommendations:

### 3.1. WG1 Recommendations for Written Reviews

Working Group 1 discussed four topics: (1) whether recent complaints about SSEP reviews reflect an international concern or a problem that is unique to proponents from the United States; (2) how SSEP should react to recent suggestions from USAC regarding communication between panel watchdogs and proponents, (3) procedures for handling stalled proposals, and (4) possible changes to review guidelines. Evidently, the perceived problem is unique to a small number of proponents from the United States. Nevertheless, several procedural changes will be adopted prior to the next SSEP meeting (May 2006), and Underwood will deliver a report to USAC at their next meeting (January 2006). Recommendations include: (a) crafting a cover letter to proponents explaining in more detail how proposals are reviewed and what role watchdogs play in the review process; (b) writing reviews in a more consistent way that focuses more specifically on the guidelines posted on the IODP web site. Draft versions of a cover letter from SSEP Co-Chairs and the revised proposal review form are provided as **Attachment 3** and **Attachment 4**. The Working Group also discussed making changes to the existing 5-star grouping system but decided to maintain the *status quo*.

### 3.2. WG2 Recommendations for Mission Planning

Working Group 2 neither endorsed nor rejected the “mission team” concept. WG2 started its discussion based on the following assumptions: (1) the mission team concept has been accepted already, and (2) Program Planning Groups and Detailed Planning Groups shall remain in the system even if the concept of mission planning moves forward to implementation. The Working Group did not pick any specific initiatives for possible designation as missions. The following recommendations were adopted by consensus of the entire panel.

**SSEP Recommendation 0511-3:** The SSEP recommends that SPC consider the following operational definition of a “mission.” A mission is an intellectually integrated and coordinated set of drilling programs originating from the scientific community. Each mission shall address a particular scientific initiative of the IODP Initial Science Plan on a global basis over an extended period of the IODP. Each mission merits urgent promotion by the SAS in order to achieve the goals of the ISP.

**SSEP Recommendation 0511-4:** The SSEP recommends that SPC consider the following format guide for writing and evaluating mission proposals. (1) *Scientific Rationale*: fundamental problem to be addressed in Earth and biological science, questions and hypotheses to be addressed, synthesis of prior drilling results, other relevant data, contribution to the ISP; (2) *Justification and Benefits of Mission Status*: identification of the participating segments of the

science community, activities (workshops, planning meetings), connection with other international programs; (3) *Needs Planning*: special program-supported requirements (technical, borehole measurements, shipboard measurements), post-expedition scientific needs, personnel (proponents and technical support); (4) *Implementation Strategy*: regional distribution of drilling targets, geologic setting, drilling requirements (platform types, shipboard instrumentation, borehole experiments), strategy for ongoing assessment and program modification, timeline.

**SSEP Recommendation 0511-5:** The SSEP recommends that SPC consider the following characterization of a Mission Team. A Mission Team is responsible for generating a coherent drilling strategy that consists of one or more drilling proposals. The drilling strategy must address the goals of the mission and could include reorganization of pre-existing unsolicited proposals into a coherent program of greater scope. During SAS evaluation, however, such pre-existing proposals could be left as stand-alone entities clearly linked to the mission. During the mission planning process, the Mission Team shall solicit technical assistance from the Implementing Organizations and, like many unsolicited proposals, from appropriate SAS panels (SSP, STP, EDP, and EPSP). Such technical advice could include formulation of operational strategies, locating drill sites, assembling site survey data, and designing monitoring equipment for borehole observatories. Mission Teams should include an appropriate mix of mission proponents, disinterested scientific and technical experts, and liaison representatives from appropriate IOs. If existing unsolicited proposals are to be incorporated into the mission, then selected proponents from those proposals should be included on the Mission Team.

**SSEP Recommendation 0511-6:** The SSEP recommends that SPC consider the following timeline for mission planning. SPC shall set each timeline to achieve a coherent drilling strategy for the mission when they designate the mission. For cases in which adequate site survey data are known to exist, this timeline could be as short as one year. For cases in which new site survey data need to be generated, the timeline will probably be significantly longer. Throughout this phase of planning, the Mission Team and its progress will be reviewed annually by SPC.

**SSEP Recommendation 0511-7:** The SSEP recommends that SPC consider the following if Program Planning Groups (PPGs) are incorporated into the mission-planning concept. Mission Teams (MTs) are small focused planning groups, formed by the SPC when there is a perceived need to help scientists achieve the goals of the IODP Initial Science Plan. Calls for the establishment of missions may arise from either the SSEP or the SPC membership. Mission Teams advise upon drilling strategies and help foster proposals for major scientific objectives that appear to be inadequately covered by existing drilling strategies or proposals. Drilling proposals arising from MT meetings must be submitted to the IODP-MI Sapporo Office. MT members shall consist of a focused group of specialists and proponents chosen by the SPC through consultation with the SSEP.

**SSEP Recommendation 0511-8:** The SSEP recommends that SPC consider the following if Detailed Planning Groups (DPGs) are incorporated into the mission-planning concept. Tasks for Mission Teams may include those previously assigned to a DPG: advising the SAS on specific technological issues; translating mature IODP science proposals into concrete drilling plans; advising on regional and site surveys needed for future drilling; and preparing drilling prospectuses that synthesize all thematic and site-survey input.

### 3.3. WG3 Recommendations for PPGs, DPGs, and Workshops

Working Group 3 discussed long-range planning, including recommendations for the establishment of new Program Planning Groups and Detailed Planning Groups. Other tasks included an evaluation of topics for workshops and an assessment of the perception by some that proposal pressure for some scientific themes and platforms (MSP and riser) may not be high enough to achieve the goals of the Initial Science Plan. The following recommendations were adopted by consensus of the entire panel.

**SSEP Recommendation 0511-9:** The SSEP recommends that SPC consider forming a Program Planning Group that will be responsible for stimulating proposal pressure within the general theme of high-latitude extreme climate. Several germane proposals are currently under review by the SAS, and several drilling expeditions have met with success over the recent history of ODP and IODP. To maximize the potential for achieving the goals of the Initial Science Plan, however, the SSEP encourages up-to-date synthesis of those scientific achievements, organization and collaboration of proponents, and coordination of future drilling targets. The SSEP will provide SPC with a mandate for the PPG before the next SPC meeting.

The proposal for a PPG on high-latitude extreme climate is included as **Attachment 5**.

**SSEP Recommendation 0511-10:** The SSEP recommends that SPC consider forming a Program Planning Group that will be responsible for stimulating proposal pressure around the general theme of ultra-high resolution of paleoclimate. The SSEP will provide SPC with a mandate for the PPG before the next SPC meeting.

A proposal for a PPG on ultra-high resolution paleoclimate was not written.

**SSEP Recommendation 0511-11:** The SSEP recommends that SPC consider forming a Detailed Planning Group that will be responsible for organizing existing, and possibly forthcoming, proposals dealing with hot spot traces. The SSEP will provide SPC with a mandate for the DPG before the next SPC meeting.

The proposal for a DPG on hot spot traces is included as **Attachment 6**.

**SSEP Recommendation 0511-12:** The SSEP recommends that SPC consider endorsing an international workshop to focus on the subject of geohazards, to be sponsored or co-sponsored by IODP-MI.

The proposal for a workshop on geohazards is included as **Attachment 7**.

### 3.4. Nomination of Co-Chair

Yujiro Ogawa nominated Ryuji Tada to serve as the next Co-Chair of SSEP, replacing Shoji Arai. The nomination of Tada was approved by vote using paper ballots (26 in favor, 1 abstain, 11 absent).

**SSEP Recommendation 0511-14:** The SSEP recommends that SPC consider Ryuji Tada for appointment as the next Co-Chair of SSEP.

**4. Resolutions for outgoing SSEP members:**

Resolutions were presented thanking (and roasting) outgoing SSEP Co-Chair Shoji Arai and outgoing SSEP members Pierre Henry, Wolfgang Bach, Yujiro Ogawa, and Susumu Umino.

**5. Next SSEP meetings:**

Jörg Erzinger and Rüdiger Stein announced that the 6<sup>th</sup> SSEP meeting has been scheduled in Potsdam, Germany (pending approval by IODP-MI). Tentative dates are 29 May to 01 June 2006. Ryuji Tada kindly extended an invitation for the 7<sup>th</sup> SSEP meeting to be held in Sapporo, Japan. Tentative dates are 13-17 November 2006.

**6. Conclusion:**

The Co-Chairs Shoji Arai, Mike Underwood, and Rüdiger Stein thanked again the host Greg Ravizza (in absentia) for his excellent logistical arrangements and warm hospitality throughout the meeting. The Co-Chairs thanked all of the panel members who remained until the end of the meeting for their dedication and hard work, and for sustaining the quorum required to continue official panel business. Watchdogs submitted drafts of all proposal reviews to the IODP-MI Science Coordinators (Jeff Schuffert and Nobu Eguchi) before the meeting ended.

**ATTACHMENT 1.**

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Takai, Ken	kent@jamstec.go.jp	SSEP Microbio meeting
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<b>Name (*co-chair)</b>	<b>E-mail</b>	<b>Affiliation</b>	<b>Notes</b>
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**ATTACHMENT 2.**

Revised Agenda  
**5<sup>th</sup> Meeting of the IODP Scientific Steering and Evaluation Panel**  
 November 15-18, 2005  
 Turtle Bay Resort, Oahu, Hawaii

**Monday, November 14 (8:30-17:00)**

Microbiology Mini-Meeting

Room: **Kahuku 1**

Breakfast and Lunch: on your own

Field Trip Participant : Meet in lobby at 9:30

**Tuesday, November 15 (8:30-17:30)***Continental Breakfast 8:00-8:30 Kuilima 3 Room**Lunch 12:00-13:00 Hawaii Room***1. Joint Session, Reports - **Kuilima 3****

- 1.1. Introduction of attendees to SSEP (Underwood)
- 1.2. Opening Remarks by Host (Greg Ravizza)
- 1.3. Approval of the agenda (Underwood)
- 1.4. Approval of minutes from Shanghai meeting (May, 2005) (Underwood)
- 1.5. Introduction to the meeting, organization (Underwood)
- 1.6. IODP-MI Report (Larsen, Schuffert, Eguchi)
- 1.7. SPPOC Report (Pisias)
  - Introduction to long-range planning, mission planning, Frascati Report
- 1.8. SPC Report (Becker)
  - Summary of October meeting, new assignments for SSEP
- 1.9. SSP report (Twitchell)
- 1.10. STP Report (Lovell) - canceled
- 1.11. JOI Alliance (Miller, Iturrino)
- 1.12. CDEX report (Curewitz)
- 1.13. ESO Report (Brewer, Delius)
- 1.14. Microbiology mini-meeting (Takai-san, Edwards)

**2. Meeting Overview (Underwood) - **Kuilima 3****

- 2.1. Review of SSEP Mandate and panel responsibilities
- 2.2. Conflict of interest rules and declarations
- 2.3. Proposal review process
- 2.4. Organization of breakout sessions
- 2.5. Introduction to working group assignments

Breakout sessions

Proposal reviews:

1. Ocean history and climate (Stein) – **Kuilima 3**
2. Igneous lithosphere and instrumentation (Arai-san) – **Molokai Room**
3. Sedimentary margins and SEIZE (Underwood) – **Oahu Room**

**Wednesday, November 16***Continental Breakfast 8:00-8:30 Kuilima 3 Room**Lunch 12:00-13:00 Hawaii Room*

Breakout sessions continued (8:30-12:00)

Proposal reviews:

1. Ocean history and climate (Stein) - **Kuilima 3**
2. Igneous lithosphere and instrumentation (Arai) - **Molokai Room**
3. Sedimentary margins and SEIZE (Underwood) - **Oahu Room**

Working groups (13:30-17:30)

Objectives and assignments (Underwood, Pisias, Becker, Larsen) - **Kuilima 3**

1. Written reviews, communication with proponents (Fulthorpe) – **Molokai Room**
2. SSEP role in implementation of mission concept (Tada) – **Kuilima 3**
3. SSEP role in long-range planning (Thurrow) – **Oahu Room**

**Thursday, November 17***Continental Breakfast 8:00-8:30 Kuilima 3 Room**Lunch 12:00-13:00 Hawaii Room*

Breakout sessions continued (8:30-12:00)

Proposal reviews:

1. Ocean history and climate (Stein) – **Kuilima 3**
2. Igneous lithosphere and instrumentation (Arai-san) – **Molokai Room**
3. Sedimentary margins and SEIZE (Underwood) – **Oahu Room**

Joint SSEP session (13:30-17:30) – **Kuilima 3**Working group reports and general discussion:

1. Improving written reviews, communication with proponents (Fulthorpe)
2. SSEP role in implementation of mission concept (Tada-san)
3. SSEP role in long-range planning (Thurow)

Proposal review summaries and dispositions:

1. Ocean history and climate (Stein)
2. Igneous lithosphere and instrumentation (Arai-san)
3. Sedimentary margins and SEIZE (Underwood)

**Friday, November 18***Continental Breakfast 8:00-8:30 Kuilima 3 Room**Lunch 12:00-13:00 Hawaii Room*Joint SSEP session (8:30-14:00 in **Kuilima 3**; 14:00-17:00 in **Hawaii Room**)

Unfinished business from working groups (if needed)

Proposal review summaries and dispositions (continued)

1. Ocean history and climate (Stein)
2. Igneous lithosphere and instrumentation (Arai)
3. Sedimentary margins and SEIZE (Underwood)

Finish writing watchdog comments

3. Discussions and Recommendations

- 3.1. SSEP recommendations to SPC from working groups
- 3.2. Recommendation for new Co-Chair (replacing Arai-san)

4. Resolutions for outgoing SSEP members

5. Announcements on upcoming SSEPs Meetings

5.1. May 2006

5.2. November 2006

6. Conclusion

### ATTACHMENT 3.



Dear Proponents:

As Co-Chairs of the Science Steering and Evaluation Panel of IODP, we thank you for submitting your drilling proposal and would like to take this opportunity to explain how your proposal was evaluated.

We had a total of 42 proposals to review during the last SSEP meeting. The Co-Chairs assigned each proposal to five so-called watchdogs. For each proposal, the lead “watchdog” is responsible for leading the panel discussion. Substantive discussions take place within thematic breakout sessions. Lead watchdogs organize Powerpoint presentations to summarize the scientific background and science plan. Perceived strengths and weaknesses are identified. For proposals sent to external review, those reviews are summarized and critiqued. All of the other watchdogs are given opportunities to voice their own opinions, as are other panel members in attendance. The discussions typically last about 30-40 minutes each and lead to consensus opinion regarding a recommended course of action (e.g., revise full proposal, send to external review, etc.). The final course of action requires consensus approval by the full panel, meeting in general session. That decision occurs after a shorter summary report by the lead watchdog. Lead watchdogs then write the panel review comments, with input from the other four watchdogs.

It is important to understand that competition among proposals does not occur at the SSEP level of the Science Advisory Structure. Our goal is for every proposal to succeed. The role of the watchdog is actually to serve as an advocate for the proponents. As defined by our panel mandate, the SSEP is responsible for “nurturing” proposals to maturity before they are forwarded to the Science Planning Committee for global ranking. To accomplish that goal, the watchdogs usually offer proponents constructive criticism. Through this process, the watchdogs hope to create competitive advantage for the proponents.

We believe that the nurturing process works best when watchdogs and proponents communicate with one another. For that reason, we identify all of the watchdogs at the bottom of the review form and provide you with their e-mail addresses. One challenge is for watchdogs to distill more than 30-minutes worth of discussion into a relatively brief written review. After you read the review comments, we invite you to contact the watchdogs for clarification and/or elaboration. When doing so, you should also Cc the panel Co-Chairs and IODP-MI Science Coordinators <science@iodp-mi-sapporo.org> on your e-mail exchanges. Finally, the IODP-MI Science Coordinators in Sapporo are always available to answer questions and provide advice on how to navigate successfully through the Science Advisory Structure. Please don’t hesitate to take advantage of their wisdom and experience.

Michael Underwood  
University of Missouri  
USA

Rüdiger Stein  
Alfred Wegner Institute  
Germany

Shoji Arai  
Kanazawa University  
Japan

## ATTACHMENT 4.

## IODP PROPOSAL EVALUATION FORM

<b>Proposal no.</b>	
<b>Proposal title</b>	
<b>Contact proponent</b>	
<b>Watchdogs</b>	
<b>Date of review</b>	
<b>Recommendation</b>	
<b>Suggested drilling platform(s)</b>	
<b>Relevance to IODP Initial Science Plan</b>	
<b>Links to other global research programs</b>	

 Review by EDP

 Review by STP

### Science Steering and Evaluation Panel Comments

For all proposals:

- 1. Importance of scientific objectives and relevance to IODP Initial Science Plan**
- 2. Justification of need for drilling to accomplish scientific objectives**
- 3. Strategy for addressing scientific objectives through drilling, logging, and/or other borehole measurements**
- 4. Characterization of proposed drilling sites**
- 5. Relation of proposed study to other international programs**
- 6. Specific panel requests if revisions or full proposal are recommended (major vs. minor)**

For full proposals:

- 7. Validity of time estimates for drilling, logging, and other borehole measurements**

- 8. Description of site survey data and/or plans for acquiring new data**
- 9. Special logistical requirements, non-standard technology, potential hazards**
- 10. Proponent description of expected scientific outcome**
- 11. SSEP assessment of expected scientific outcome**
- 12. Specific panel requests, if revisions are recommended (major vs. minor)**

For revised full proposals:

- 13. Effectiveness of proponent response to previous SSEP comments**
- 14. Specific panel requests, if additional revisions are recommended (major vs. minor)**

External Reviews:

- 15. SSEP assessment of reviewers' comments**
- 16. SSEP assessment of proponent response to external reviews in PRL**

Proponents may contact the IODP-MI science coordinators <science@iodp-mi-sapporo.org>, SSEP co-chairs Shoji Arai <ultrasa@kenroku.kanazawa-u.ac.jp>, Rüdiger Stein <rstein@awi-bremerhaven.de>, and Michael Underwood <underwoodm@missouri.edu>, or SSEP watchdogs.

## ATTACHMENT 5.

### **A proposal to establish a new Program Planning Group on “Dynamics of the Earth System during extreme climates of the Cretaceous and Paleogene”**

#### **Background**

In April 1997, SCICOM established the “Extreme Climate and Environments of the Paleogene and Cretaceous” PPG to develop drilling plans to investigate past warm climate intervals of the middle Cretaceous to Paleogene and the biotic response to these unusual climates. The PPG met three times and developed drilling plans to recover sediments with evidence of periods characterized by long-term and transient events of exceptional global warmth, most likely forced by greenhouse gases. Five new drilling proposals targeting extreme climate intervals were submitted, three of which were prepared by working group members: 1) Walvis Ridge; 2) Demerara Rise and 3) J-Anomaly Ridge. The success of the PPG is further evidenced by high impact publications and contributions to several sessions at international meetings as well as specific workshops.

Based on the success of this previous effort, and the opportunity to address important new scientific questions related to this topic, the SSEP recommends that a new PPG be initiated to foster the development of new drilling proposals targeting this general area.

#### **Overall Goal of the proposed PPG**

To achieve, improve and revise the goals of the “Extreme climates Initiative” as described in the IODP Initial Science Plan, by coordinating and developing drilling plans to investigate the dynamics of the ocean/atmosphere system and paleobiological processes during past extreme climates. While recent legs have provided crucial data (partly still preliminary), and there are a number of current proposals (at different stages of the nurturing process) in the IODP system, unresolved scientific questions posed by ISP and the previous PPG remain. The need to address these questions and the opportunity propose important new lines of investigation not developed in the ISP strongly suggest a new PPG be established to develop a revised /expanded strategy.

The PPG should also coordinate with other appropriate international science initiatives to:

- (a) coordinate active proposals;
- (b) develop new drilling proposals addressed to completion of strategies designed by the previous PPG
- (c) develop new drilling proposals arising from PPG meetings for major scientific objectives that are not adequately covered by existing proposals;
- (d) propose implementations to the IODP Initial Science Plan

Many of the phenomena recognized have societal relevance; all test our ability to understand fundamental aspects of Earth's climate, the carbon cycle, and marine ecosystems.

Open questions include:

- a) The role of the biosphere
  - a. geological causes and consequences of biological evolution (originations, extinctions)
  - b. geosphere-biosphere-hydrosphere-atmosphere interactions,
  - c. positive and negative feedbacks of biosphere adaptations, reactions and evolution
  - d. nutrient supply and excess primary productivity as CO<sub>2</sub> sink and climate change trigger
  - e. biogenic carbonate production, the carbonate system and the C cycle
- b) Climate variability during extreme episodes:
  - a. Cooling episodes and putative glaciation DURING greenhouse climates
  - b. Causes of climate variability
  - c. Abrupt and/or transient changes
  - d. Millennial, orbital, tectonic timescale
  - e. Termination of greenhouse climates
- c) Ocean-atmosphere dynamics at short and long term time scale
- d) Role of gateways and reorganization of oceanic circulation
- e) Oceanic anoxia and OAEs in shallow water settings (carbonate platforms)
- f)
- g) The role of pCO<sub>2</sub> and methane
- h) Oceans as recorder of atmosphere changes; the potential for quantitative reconstructions of atmospheric pCO<sub>2</sub> levels back into the Cretaceous at sufficiently high temporal resolution to contrast carbon cycle behavior to the Quaternary and Neogene.
- i) Improved high resolution correlation between terrestrial, marginal marine and pelagic records of extreme climate events.

**Areas/settings where drilling is needed:**

HIGH LATITUDES  
 MID LATITUDES  
 PACIFIC OCEAN  
 SHALLOW WATER CARBONATES  
 CONTINENTAL MARGINS

**Timeline:**

The PPG will meet for a maximum of three years, during which time it will report to SSEPs on a regular basis. A final written report will be forwarded to SSEPs and SPC.

**Potential Members:**

A goal of the proposed PPG is to involve into the project the young generation of researchers and part of the scientific community focused on land geology. Therefore, the PPG should be formed by experienced scientists and young scientists as well as Earth scientists working on terrestrial (eco)systems and modellers.

Suggested names:

Antony Cohen, Open University (UK)  
 Robert Duncan, Oregon State Univ. (USA)  
 Brian Huber, Smithsonian National Museum of Natural History, Washington D.C. (USA)  
 Christian Bjerrum, University of Copenhagen (Denmark)  
 Dick Kroon, Vrije University Amsterdam (The Netherlands)  
 Hiroshi Nishi, Hokkaido University (Japan)  
 Hugh Jenkyns, University of Oxford (UK)  
 Jens Herrle, University of Liverpool (UK)  
 Jochen Erbacher, Bundesanstalt für Geowiss. und Rohstoffe (Germany)  
 Mark Leckie, University of Massachusetts (USA)  
 James Zachos, University of California (USA)  
 Timothy Bralower, Penn State University (USA)  
 Kunio Kaiho, Tohoku University (Japan)  
 Paul Wilson, University of Cambridge (UK)  
 Helmut Weissert, ETH Zurich (Switzerland)  
 Marcel Kuypers, Max-Planck-Institute for Marine Microbiology, Bremen (Germany)  
 Paul Wilson, SOI Southampton (UK)  
 Peter Skelton, Open University (UK)  
 Thomas Steuber, Buchum University (Germany)  
 Ulrich Heimhofer, University of Oxford (UK)  
 Mariarose Petrizzo, University of Milan (Italy)  
 Morten Smelror, Geological Survey of Norway, Trondheim (Norway)  
 Wilfried Jokat, Alfred Wegener Inst. for Polar and Marine Sciences, Bremerhaven (Germany)  
 Steve Meyers, Yale University, (soon to take faculty position at UNC) (USA)  
 Isabel P. Montañez, UC Davis (USA)  
 Kirk Johnson (Denver Museum) (USA)  
 Mark Pagani, Yale University (USA)  
 Karen Bice WHOI (USA)  
 German Mora Iowa State (USA)  
 Greg Retallack U of Oregon (USA)  
 Tim Lyons UC Riverside (USA)  
 Brad Sagemann Northwestern U. (USA)  
 Tracy Frank University of Nebraska, (USA)

## ATTACHMENT 6.

### Detailed Planning Group (DPG) on Hotspot Geodynamics

Volcanic chains associated with deep-seated mantle plumes potentially provide valuable information on mantle geochemistry and geodynamics, in particular in establishing the existence and magnitude of true polar wander. Three current IODP proposals (620-Full3, 636-Full2, 669-Pre) are focused on drilling hotspot chains to address themes related to hotspot-generated volcanic lineaments, including hotspot motion, the temporal evolution of hotspot mantle sources, plate motion reference frames, and mantle plume models. A detailed planning group is proposed to review current approaches and to develop an optimal plan (including drilling, logging and postcruise science) for addressing the above objectives. In particular, the DPG should address:

1. What are the minimal/optimal paleomagnetic observations necessary to distinguish TPW versus hotspot drift? How many sites are necessary within an ocean basin? In how many ocean basins must seamount chains be drilled? What is the most appropriate order of drilling?
2. What geochemical tests are available for discriminating between deep plumes vs. shallow plumes or no plumes? How well can geochemical data be used to estimate mantle potential temperatures? What is the best strategy for assessing the geochemical evolution of seamounts by drilling?
3. What independent data are provided by mantle flow models? How can seamount paleolatitudes be incorporated to improve these models?
4. What is the best strategy to obtain robust paleolatitude estimates from a single seamount? What depth of penetration and how many flows are needed to average secular variation?
5. How can independent types of paleolatitude information (e.g., sediment paleoequator, seamount paleopoles) be better used to test true polar wander?

**Duration: 1 year**

**Potential members:**

Active Proponents: William Sager, Gary Acton, Anthony Koppers, John Mahoney, Bernhard Steinberger

Potential chairs: Rob Van der Voo, Dennis Kent, Vincent Courtillot, Yoshiyuki Tatsumi

Other members: Yasushi Harada, John Chen, Karsten Haase, Yaoling Niu, Don DePaolo, Jason Phipps Morgan, Mark Richards, John Tarduno, Toshi Yamazaki, Tetsu Kogiso, Masayuki Torii, Al Hofmann, Takashi Sano, G. Nolet, Takeshi Hanyu, Paul Asimov, Bob Duncan, Paul Wessel, Richard Gordon, Steve Cande, Mike Gurnis, Ulrich Achauer, Marge Wilson, Joann Stock

Geochemistry/petrology: Mahoney, Tatsumi, Haase, Niu, DePaolo, Kogiso, Hofmann, Sano, Asimov, Hanyu, Wilson

Geodynamics/seismology: Harada, Chen, Phipps Morgan, Richards, Nolet, Wessel, Gordon, Cande, Gurnis, Steinberger, Stock, Achauer

Geochronology: Koppers, Duncan

Paleomagnetism: Sager, Acton, Van der Voo, Kent, Courtillot, Tarduno, Yamazaki, Torii

## ATTACHMENT 7.

### SSEP Recommendation for IODP Workshop: *How Can Ocean Drilling Contribute to Geohazard Investigations?*

#### **Introduction**

The occurrence, causes, and consequences of hazardous geologic events can be difficult to study effectively in terrestrial settings because erosion, non-deposition, and deformation can disrupt or destroy the geologic record. A detailed history of discrete, sudden geologic events, however, is often preserved in marine sediments. Additionally, submarine processes are responsible for some of the most severe coastal hazards. Ocean drilling provides several unexploited opportunities to extract and read this geologic record. With rapid advances in observatory technology, it is also possible to monitor changes in material properties associated with dangerous geologic phenomena. The relevance of such research to societal well-being is obvious, as is the need to develop sophisticated and tractable science plans. Thus, the SSEP recommends that a workshop be organized by IODP-MI to address this theme and stimulate proposal pressure.

#### **Objectives of Workshop**

Despite their intellectual merits, investigations of geohazards through scientific ocean drilling still face many obstacles (e.g., how to design realistic science plans that will actually answer specific unresolved questions, limitations of available instruments). A workshop on this topic will bring together a wide range of investigators who are working in the general area of geohazards. The goals of the meeting should be to define outstanding questions, establish scientific priorities, identify potential drilling targets, and formulate strategies to overcome some of the anticipated scientific and engineering challenges. The workshop will enhance international collaborations and stimulate teams of proponents, who will then be expected to develop competitive IODP proposals.

#### **Thematic Scope**

*Earthquakes.* Drilling can provide specific information about timing, frequency, and spatial extent of submarine-slide deposits and turbidites triggered by earthquakes, as well as characteristics of the materials involved. Seismogenic faults can be sampled and instrumented to constrain their geomechanical properties, in-situ stress, and pore pressure variability. Outstanding questions include how to correlate the older marine record with pre-Holocene earthquake activity, and how to extrapolate such information into the timeframe of present-day hazard mitigation. Integration of on-land and submarine geodetic data can be used to pinpoint focus areas for offshore drilling.

*Oceanic and Continental Volcanoes.* Eruptive products (ash, lahars) are frequently dispersed over great expanses of seafloor, creating a detailed stratigraphy of global volcanic activity. Locally, landslides, debris avalanches and flows can result from associated sector failures of the volcano flanks, also generating damaging tsunamis. Targeted drilling and coring of these deposits allows identification of specific volcanic sources, frequency and timing of eruptive activity, and histories of slope failure. Physical and geomechanical properties can inform us about the processes and mechanisms of mass wasting, transport, and deposition. Problematic issues include inadequate core recovery in chaotic deposits, interpretation of ambiguous physical observations, and a lack of reliable criteria to assess tsunamigenic and seismogenic potential. New techniques may need development to distinguish and correlate deposits from multiple volcanic sources, particularly if they have undergone significant alteration.

*Slope Instability.* Several additional processes can also trigger submarine slides (e.g., disequilibrium sedimentation, fluid overpressurization, material weakening). Ocean drilling can aid in the identification and characterization of potentially unstable slopes. Direct measurements using borehole observatories can constrain the stress and pore pressure state, and material strength distribution, as well as evidence for diagenesis, methanogenesis, and dissociation of hydrocarbons and gas hydrate. Coring of slide deposits helps document their structure, composition, fabric, and age, from which inferences can be made about source area, mode of detachment, transport mechanics, and emplacement history. Scientific challenges include ambiguities about the triggers that lead to instability and failure, and precise dating of individual landslide events.

*Tsunamis.* All of the above processes can generate damaging tsunami. However, the identification and characterization of tsunami deposits remains a controversial area of research. In particular, how can these materials be distinguished from other geologic deposits (e.g., turbidites), and how can they be correlated with source type, location, and magnitude?

**Deliverables**

Because of the broad scope of the workshop theme, it will be important for participants to deliver some very focused products in a workshop report: (1) list of fundamental scientific questions; (2) prioritization of scientific objectives; (3) prioritization of potential drilling targets; (4) clear strategy for achieving each objective through scientific ocean drilling; (5) anticipated technical difficulties in obtaining vital types of data; and (6) recommendations for development of new instruments and/or deployment strategies.

**Prospective Members of Steering Committee:**

Eli Silver (UC Santa Cruz)  
Michelle Coombs (USGS, Alaska Volcano Observatory)  
Kenji Satake (Geological Survey of Japan)  
O. Fujiwara (Geological Survey of Japan)  
Chris Goldfinger (Oregon State University)  
Brian Atwater (U. Washington)  
Dave Tappin (British Geological Survey)  
Lisa McNeill (NOC, U. Southampton)  
Doug Masson (U. Southampton)  
Ann Le-Friant (CNRS, France)  
Gerard Fryer (U. Hawaii)  
Uri ten Brink (USGS, Woods Hole)  
Peter Flemings (Penn State)  
Kelin Wang (Geological Survey of Canada)  
Julia Morgan (Rice University)