6th Meeting of the
Science Steering and Evaluation Panel
May 29 to June 01, 2006
Potsdam, Germany

EXECUTIVE SUMMARY (v2.0)

1. Joint Session, Reports

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

1.2. Opening remarks by local host.
Jörg Erzinger welcomed attendees and summarized logistics.

1.3. Approval of last SSEPs meeting minutes

SSEP Consensus 0605-1: The SSEP approves the minutes of their 5th SSEP meeting on 15-18 November 2005, Turtle Bay, Oahu, Hawaii.

1.4. Approval of SSEP meeting agenda

SSEP Consensus 0605-2: The SSEP approves the revised agenda of their 6th meeting on May 29 to June 01, 2006, Potsdam, Germany.

1.5. Introduction to meeting organization
Ruediger Stein briefly reviewed the meeting agenda and described how the meeting would be organized.

1.6. IODP-MI Report
Barry Zelt reported on recent activities at IODP-MI.

1.7. SPC Report
Keir Becker reported on outcomes of the 7th meeting of the Science Planning Committee, which was held in St. Petersburg, Florida (March 06-09, 2006).

1.8. STP Report
Heiner Villinger reported on activities of the Science and Technology Panel.

1.9. JOI Alliance Report (US Implementing Organization)
Mitch Malone reported on recent activities at IODP-TAMU, JOI, and LDEO.

1.10. CDEX Report (Japan Implementing Organization)
Kan Aoike reported on recent activities at CDEX.

1.11. ESO Report (European Implementing Organization)
Tim Brewer provided a report of the Tahiti Sea Level Expedition 310 and the stage of planning of the New Jersey Margin Drilling.

1.12. SSP Report
Dale Sawyer reported on activities of the Site Survey Panel.

1.13 JOI Partnership with the MS PHD'S Program
Amy Castner reported on JOI's partnership with the Minorities Striving and Pursuing Higher Degrees of Success in the Earth System Sciences (MSPHD'S) Professional Development Program, as a mechanism to encourage minority students to explore and pursue careers in the oceans sciences.

2. Meeting Overview

Ruediger Stein 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, and procedures for rejecting (deactivating) proposals. Mike Underwood gave an introduction to the proposed revision of the SSEP review form, the proposed revision of the 5stars-grouping system, as well as an update on the criteria for designation of Complex Drilling Project (CDP).

3. Breakout Sessions

A total of 27 proposals were reviewed during the meeting (Proposal 690-APL was withdrawn shortly before the meeting). New external reviews were available for 3 proposals. Panel members were subdivided into three breakout sessions for detailed discussions of the proposals: BS1: *Deep Biosphere and Sub-seafloor Ocean* (chaired by Mike Underwood); BS2: *Ocean History and Paleoclimate* (chaired by Ruediger Stein); BS3: *Solid Earth* (chaired by Ryuji Tada).

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 27 proposals reviewed during the Potsdam meeting was achieved by consensus of the full panel. The dispositions are as follows:

APL: forward to SPC = 1.
Pre-Proposal: request Pre2 Proposal = 3.
Pre-Proposal: request Full Proposals = 9.
Pre-Proposal: request APL or Full = 1.
Pre-Proposal: deactivate = 1.
Full Proposal: request revision = 8.
Full Proposal: send for external review = 1.
Full Proposal: forward to SPC = 3.

A qualitative grouping was assigned to the 3 proposals forwarded to the SPC using the revised 5-star scale. Each grouping was obtained by consensus of the full panel.

4. Discussion on Mission Concept

Keir Becker gave a short summary of the "IODP Mission Designation and Implementation Plan" and outlined what is needed from SSEP now. As outlined in the document, SSEP is charged to recommend to SPC themes for possible missions and a list of potential mission team members for the first year missions, based on current proposals and the ISP. As result of a joint discussion, SSEP identified two possible themes for first year missions, Theme 1 related to seismogenic zones and Theme 2 related to global climate change. Two small working groups were formed to discuss the outline and potential team members in more detail, and present the discussion results at the last day of the meeting (Theme 1: Mike Underwood, John Chen, Tetsuro Hirono, and Julia Morgan; Theme 2: Gerald Dickens, Steven Clemens, John Jaeger, Ruediger Stein, and Ryuji Tada).

5. Discussions and Recommendations

5.1. Workshops vs. PPG on "Ultra-high resolution of Paleoclimate"

SSEP continued the discussion (started during the November 2005 SSEP meeting) related to a PPG or workshop on "Ultra-high resolution of Paleoclimate", introduced by Jürgen Thurow.

SSEP Consensus 0605-3: SSEP agrees to recommend a workshop related to "Ultra-high resolution of Paleoclimate". Jürgen Thurow will prepare an outline of workshop proposal including mandate/goals and names of potential members of the steering committee. A draft of the workshop proposal will be distributed for comments to the other panel members. Members of the steering committee will submit funding proposals to their funding agencies (J-DESC, ECORD/ESF, USAC).

SSEP Recommendation 0605-1: SSEP recommends that SPC consider endorsing an international workshop to focus on "Ultra-high resolution of Paleoclimate".

5.2. Workshops vs. PPG on "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene"

At the November 2005 SSEP meeting, SSEP recommended 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. SSEP´s recommendation has been discussed

during the SPC meeting (St. Petersburg/Florida, March 2006), and SPC decided, instead, to recommend convening a synthesis workshop before creating another PPG on this topic.

SSEP Consensus 0605-4: SSEP agrees to recommend a workshop related to "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene". Greg Ravizza (in cooperation with Elisabettta Erba and Ruediger Stein) will prepare an outline of workshop proposal including mandate/goals and names of potential members of the steering committee. A draft of the workshop proposal will be distributed for comments to the other panel members. Members of the steering committee will submit funding proposals to their funding agencies (J-DESC, ECORD/ESF, USAC).

SSEP Recommendation 0605-2: SSEP recommends that SPC consider endorsing an international workshop to focus on "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene".

5.3. Recommendations for Mission Themes and Mission Team members

Following a discussion of mission themes, in general, Mike Underwood and Ruediger Stein presented draft outlines and rationale for two first year missions, together with lists of potential mission team members. The proposed mission themes are seismogenic zones and global climate change, respectively.

SSEP Recommendation 0605-3: Based on its assessment of current proposals, the ISP, and plans for forthcoming workshops sponsored by IODP-MI, SSEP recommends that SPC consider the following two major themes for possible missions (first year):
(1) "Seismogenic Zones"
(2) "Global climate change and carbon cycling: testing and constraining predictions of future climate change".
SSEP will provide SPC with the outlines and lists of potential mission team members before the next SPC meeting.

5.4. SeisCORK

SSEP discussed the ramifications of having Proposal 690-APL withdrawn and considered ways to convey the importance of this type of tool development. Although not yet available for use, several active drilling proposals already include deployment of such a combined tool, in particular, along the Nankai, Ligurian, and Costa Rica margins. Many other settings would also benefit from availability of this technology (e.g., unstable slopes, volcano flanks mid-ocean ridge flanks). This tool would allow for continuous co-located high-quality seismic, hydrogeologic, geochemical, and microbiological observations, that could be accessed or retrieved by autonomous vehicle or cabled observatory system.

SSEP Recommendation 0605-4: SSEP recommends that SPC encourage the immediate development of a borehole tool that would deploy seismometers as part of a dedicated subseafloor observatory. Borehole seismometers offer significant advantages over ocean bottom seismometers (improved coupling, reduced background noise, proximity to seismic sources), thereby allowing detection of very small earthquakes indicative of fluid flow and incipient rock deformation. Access to this tool would enhance the ability of future proposals and drilling operations to achieve the ISP objectives of integrating long-term observatory science into IODP operations.

5.5. Update of criteria for CDPs

SSEP discussed the criteria for designation of a complex drilling project (CDP).

SSEP Consensus 0605-5: SSEP agrees by consensus to the updated criteria of a CDP. These criteria are included to the minutes (Attachment xx).

5.6. Deactivation of full proposals

SSEP discussed their internal guidelines for deactivating proposals. According to the panel's mandate, deactivation is possible at any time, but the desire to nurture proposals has resulted in an expectation that deactivation not occur without benefit of external review.

SSEP Consensus 0605-6: SSEP agrees by consensus that an initial submission, whether written as a pre-proposal, full proposal, or APL, can be deactivated without sending the proposal out for external review.

5.7. Revised five-stars grouping system

SSEP discussed revision of its 5-star grouping system, particularly the translation from « stars » to « words ». This discussion was prompted by a desire to make final reviews more credible and consistent with the assignment of stars when proposals are forwarded to SPC.

SSEP Consensus 0605-7: SSEP agrees by consensus to a revised translation for its five-stars grouping system, as included to the minutes as Attachment xx.

5.8. Revised proposal review form

SSEP discussed the pros and cons of revising its proposal review form. Polling of the panel members revealed that opinions were split almost 50:50 over individual preference for the old (open format) versus new (compartmentalized format) form.

SSEP Consensus 0605-8: SSEP agrees by consensus to retain the old form (open format) but to use the proposed compartmentalized form as a guide or template for watchdogs to enter all of the required information when writing their reviews.

5.9 Report for the MS PHD'S participants

Seven students from the Minorities Striving and Pursuing Higher Degrees of Success in the Earth System Sciences (MSPHD'S) Professional Development Program attended the SSEP meeting and gave short presentations about their scientific background and ongoing research activities. Mentors from SSEP included Jerry Dickens, Shemin Ge, Jeff Gee, Barbara John, Dick Norris, Mitch Malone, and Greg Ravizza.

6. Resolutions for outgoing SSEP members

Resolutions were presented thanking outgoing SSEP members for their years of dedication: Craig Fulthorpe, Takashi Hasegawa, Akira Hayashida, Richard Norris, Greg Ravizza, Demian Saffer, Damon Teagle, and Toshitsugu Yamazaki.

7. Next SSEP meetings

Ryuji Tada announced that the 7th SSEP meeting has been scheduled in Sapporo, Japan. Tentative dates are November 13 to 16, 2006. Julia Morgan kindly extended an invitation for the 8th SSEP meeting to be held in Houston, USA. Tentative dates are May 28-31, 2007.

8. Conclusion

The co-chairs Ruediger Stein, Mike Underwood, and Ryuji Tada thanked again the host Jörg Erzinger for his excellent logistical arrangements, guided tours, and warm hospitality throughout the meeting. The co-chairs thanked all of the panel members for their dedication and hard work. Watchdogs submitted drafts of all proposal reviews to the IODP-MI science coordinators (Jeff Schuffert, Barry Zelt, and Nobu Eguchi) before the meeting ended.

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May 29 to June 01, 2006
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MINUTES (2.0)

1. Joint Session, Reports

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

The complete list of participants in the 6th meeting of SSEP is provided as **Attachment 1.**

1.2. Opening remarks by local host.

Jörg Erzinger welcomed attendees and summarized logistics.

1.3. Approval of last SSEPs meeting minutes

SSEP Consensus 0605-1: The SSEP approves the minutes of their 5th SSEP meeting on 15-18 November 2005, Turtle Bay, Oahu, Hawaii.

1.4. Approval of SSEP meeting agenda

SSEP Consensus 0605-2: The SSEP approves the revised agenda of their 6th meeting on May 29 to June 01, 2006, Potsdam, Germany.

The agenda for the 6th meeting of SSEP is provided as **Attachment 2.**

1.5. Introduction to meeting organization

Ruediger Stein briefly reviewed the meeting agenda and described how the meeting would be organized.

1.6. IODP-MI Report

Barry Zelt reported on recent activities at IODP-MI. Topics of interest included: the SAS meeting schedule, proposal submission statistics, SSEP review process, information about the Site Survey Data Bank (SSDB), information about new online proposal database, and the journal "Scientific Drilling".

1.7. SPC Report

Keir Becker reported on outcomes of the 7th meeting of the Science Planning Committee, which was held in St. Petersburg, Florida (March 06-09, 2006). Topics of interest included the approval of Tada-san as SSEP co-chair, an update on FY07-09 schedule development, results of the proposal ranking for FY08/09, information on different alternatives for

FY07/08/09 SODV schedule, information on the replacement of SSPOC by SASEC, brief update on Mission Implementation Plan, and SPC response to SSEP DPG/PPG requests.

1.8. STP Report

Heiner Villinger reported on activities of the Science and Technology Panel. He presented STP recommendations on temperature and pressure tools, digital taxonomic dictionaries, New Jersey Transect measurements, and Third Party tools, all approved by SPC. Proposals should be flagged for possible review by STP and/or EDP, if (1) unclear logging plans or no logging at all is included, (2) CORK installation is planned and no experienced CORK scientist is co-PI, (3) use of unproven technology is crucial for success of leg, and (4) Third Party Tool Issues will be used. Concerning current proposals to be reviewed during this meeting, Heiner Villinger presented a list of proposals which should go to STP and/or EDP from the STP standpoint of view (see **Attachment 3**).

1.9. JOI Alliance Report (US Implementing Organization)

Mitch Malone reported on recent activities at IODP-TAMU, JOI, and LDEO. Topics of interest included first results of Expedition 312 (Superfast Spread Crust Mission to Hole 1256D), information on planning/pre-expedition meetings of NanTroSEIZE, Juan de Fuca, and Equatorial Pacific expeditions, USIO staff changes, and SODV priorities and time line.

1.10. CDEX Report (Japan Implementing Organization)

Kan Aoike reported on recent activities at CDEX. Topics of interest included information on the Chickyu Shakedown Cruise, Preparation status for NanTroSEIZE, Kochi Core Center, Information Service, and CEDEX website and newsletter.

1.11. ESO Report (European Implementing Organization)

Tim Brewer provided a report of the Tahiti Sea Level Expedition 310 including shipboard operations (geophysical logging) and onshore activities during the Onshore Science Party in Bremen (Febraury 13 to March 02, 2006). He also gave information on the stage of planning of the New Jersey Margin Drilling.

1.12. SSP Report

Dale Sawyer reported on activities of the Site Survey Panel. He summarized the status of proposals reviewed during the last SSP meeting (San Diego, Calif., 22-24 February, 2006). There is a consensus (approved by SPC) maintaining an open access policy for the IODP site-survey data bank and sharing site-survey data and metadata with other international scientific organizations and data banks. Coming proposals submitted to IODP-MI need to include site survey summary Form 6.

1.13 JOI Partnership with the MS PHD'S Program

Amy Castner reported on JOI's partnership with the Minorities Striving and Pursuing Higher Degrees of Success in the Earth System Sciences (MSPHD'S) Professional Development Program, as a mechanism to encourage minority students to explore and pursue careers in the oceans sciences.

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Breakout Session 1: Deep Biosphere and Subocean Seafloor (Chair: Mike Underwood)

Proposal	Short Title	Lead Proponent	Lead Watchdog	Watchdog2	Watchdog3	Watchdog4	Watchdog5
Deep Biosphere							
574-Full3	Rainbow Hydrothermal Field, Mid Atlantic	Fouquet	Wilson	Ge	Takeuchi	Konnerup-M	Dickens
689-Pre	Morocco Margin Deep Biosphere	Depreiter	Takeuchi	Menez	Takai	Ge	Ito, Makoto
701-Pre	Great Australian Bight Deep Biosphere	Wortmann	Takai	Takeuchi	Ishibashi	Menez	Ravizza
Observatories							
693-APL	S. Chamorro Seamount CORK	Wheat	Ishibashi	Menez	Wilson	Morgan	Takai
690-APL	Juan de Fuca SeisCORK	Stephen	Morgan	Ishibashi	Ge	Takai	Hirono
685-Full	Ligurian Margin Borehole Observatory	Henry	Ge	Hirono	Erzinger	Summa	Jian
Seismogenic							
633-Full2	Middle America Slope	Brueckmann	Summa	Ito, Makoto	Ravizza	Wilson	Christeson
703-Pre	Costa Rica SeisCORK	Brown	Hirono	Wilson	Ishibashi	Summa	Morgan
704-Pre	Sumatra Seismogenic Zone	Goldfinger	Chen	Anma	Hirono	Tamura	Morgan
707-Pre	Sagami Bay Seismic Monitoring	Nishimura	Jaeger	Yamazaki	Anma	Hirono	Fulthorpe

Breakout Session 2: Ocean History and Climate (Chair: Ruediger Stein)

Proposal No	Short Title	Lead Proponent	Lead Watchdog1	Watchdog2	Watchdog3	Watchdog4	Watchdog5
656-Full3	Belize Margin Paleoclimate and Tectonics	Droxler	Fulthorpe	Thurow	Jaeger	Chen	Ito, Takasi
691-Full	Weddell Basin Evolution and Paleoceanography	Jokat	Clemens	Norris	Backman	Ravizza	Summa
699-Pre	Messinian Salinity Crisis	Jolivet	Ito, Takasi	Eynaud	Dickens	Fulthorpe	Backman
700-Pre	Southern Ocean Climate Excursions	Zachos	Norris	Hasegawa	Eynaud	Clemens	Thurow
702-Pre	Southern African Climates	Zahn	Eynaud	Ravizza	Clemens	Dickens	Hasegawa
705-Pre	Santa Barbara Basin Climate Change	Kennett	Dickens	Jian	Hasegawa	Thurow	Takeuchi
644-Full	Mediterranean Outflow	Molina	Backman	Jian	Jaeger	Clemens	Chen
661-Full2	Newfoundland Sediment Drifts	Norris	Thurow	Jaeger	Fulthorpe	Hasegawa	Ito, Makato
706-Full	Kerguelen Large Igneous Province	Coffin	Fujiwara	Teagle	Ohara	Ito, Takasi	Norris

Breakout Session 3: Solid Earth (Chair: Ryuji Tada)							
Proposal No	Short Title	Lead Proponent	Lead Watchdog1	Watchdog2	Watchdog3	Watchdog4	Watchdog5
522-Full4	Superfast Spreading Crust	Teagle	Tamura	Ohara	Christeson	John	Gee
612-Full3	Geodynamo	Yamazaki	Hayashida	*Gee*	Erzinger	Ohara	Jian
669-Full	Walvis Ridge Hotspot	Sager	Gee	Tamura	Chen	Yamazaki	Teagle
692-Pre	Flemish Cap Rifted Margin	Hopper	Erzinger	Ito, Makoto	John	Konnerup-M	Hayashida
694-Full	Izu-Bonin-Mariana Arc Evolution	Tatsumi	Christeson	Gee	Fujiwara	Konnerup-M	Teagle
695-Pre	Izu-Bonin-Mariana Pre-Arc Crust	Arculus	Yamazaki	John	Hayashida	Anma	Norris
696-Pre	Izu-Bonin-Mariana Deep Forearc Crust	Pearce	Anma	Erzinger	Christeson	Menez	Ishibashi
697-Pre	Izu-Bonin-Mariana Rearc Crust	Tamura	John	Fujiwara	Hayashida	Yamazaki	Gee
698-Pre	Izu-Bonin-Mariana Arc Middle Crust	Tatsumi	Konnerup-M	Christeson	Anma	Fujiwara	Ito, Takasi

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.

Proposal No	Short Title	Lead Proponent	Conflict of interest
522-Full4	Superfast Spreading Crust	Teagle	Teagle
574-Full3	Rainbow Hydrothermal Field, Mid Atlantic Ridge	Fouquet	
612-Full3	Geodynamo	Yamazaki	Yamazaki
656-Full3	Belize Margin Paleoclimate and Tectonics	Droxler	
669-Full	Walvis Ridge Hotspot	Sager	
685-Full	Ligurian Margin Borehole Observatory	Henry	
689-Pre	Morocco Margin Deep Biosphere	Depreiter	
690-APL	Juan de Fuca SeisCORK	Stephen	
691-Full	Weddell Basin Evolution and Paleoceanography	Jokat	Stein
692-Pre	Flemish Cap Rifted Margin	Hopper	Sawyer
693-APL	S. Chamorro Seamount CORK	Wheat	
694-Full	Izu-Bonin-Mariana Arc Evolution	Tatsumi	Ohara, Tamura
695-Pre	Izu-Bonin-Mariana Pre-Arc Crust	Arculus	Ohara, Tamura
696-Pre	Izu-Bonin-Mariana Deep Forearc Crust	Pearce	Ohara, Tamura
697-Pre	Izu-Bonin-Mariana Rearc Crust	Tamura	Ohara, Tamura
698-Pre	Izu-Bonin-Mariana Arc Middle Crust	Tatsumi	Ohara, Tamura
699-Pre	Messinian Salinity Crisis	Jolivet	
700-Pre	Southern Ocean Climate Excursions	Zachos	
701-Pre	Great Australian Bight Deep Biosphere	Wortmann	
702-Pre	Southern African Climates	Zahn	Neben
703-Pre	Costa Rica SeisCORK	Brown	
704-Pre	Sumatra Seismogenic Zone	Goldfinger	Neben
705-Pre	Santa Barbara Basin Climate Change	Kennett	Tada
706-Full	Kerguelen Large Igneous Province	Coffin	
707-Pre	Sagami Bay Seismic Monitoring	Nishimura	
633-Full2	Middle America Slope	Brueckmann	Takai
644-Full	Mediterranean Outflow	Molina	Eynaud, Makoto Ito
661-Full2	Newfoundland Sediment Drifts	Norris	

The course of action regarding each of the 27 proposals reviewed during the Potsdam meeting was achieved by consensus of the full panel. The dispositions are as follows:

APL: forward to SPC = 1.
Pre-Proposal: request Pre2 Proposal = 3.
Pre-Proposal: request Full Proposals = 9.
Pre-Proposal: request APL or Full = 1.
Pre-Proposal: deactivate = 1.
Full Proposal: request revision = 8.
Full Proposal: send for external review = 1.
Full Proposal: forward to SPC = 3.

The specific dispositions for each proposal are as follows:

Proposal No	Short Title	Proponent	Lead WD	Watchdog2	Watchdog3	Watchdog4	Watchdog5	Comments
APLs								
690-APL	Juan de Fuca SeisCORK	Stephen	Morgan	Ishibashi	Ge	Takai	Hirono	withdrawn
693-APL	S. Chamorro Seamount CORK	Wheat	Ishibashi	Menez	Wilson	Morgan	Takai	Forward to SPC
Pre-Proposals: Request Pre2-Proposal								
697-Pre	Izu-Bonin-Mariana Rearc Crust	Tamura	John	Fujiwara	Hayashida	Yamazaki	Gee	
698-Pre	Izu-Bonin-Mariana Arc Middle Crust	Tatsumi	Konnerup-M	Christeson	Anma	Fujiwara	Ito, Takasi	
701-Pre	Great Australian Bight Deep Biosphere	Wortmann	Takai	Takeuchi	Ishibashi	Menez	Ravizza	
Pre-Proposals: Request Full-Proposal								
689-Pre	Morocco Margin Deep Biosphere	Depreiter	Takeuchi	Menez	Takai	Ge	Ito, Makoto	
692-Pre	Flemish Cap Rifted Margin	Hopper	Erzinger	Ito, Makoto	John	Konnerup-M	Hayashida	
695-Pre	Izu-Bonin-Mariana Pre-Arc Crust	Arculus	Yamazaki	John	Hayashida	Anma	Norris	
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Pre-Proposals: Deactivate								
699-Pre	Messinian Salinity Crisis	Jolivet	Ito, Takasi	Eynaud	Dickens	Fulthorpe	Backman	
Full-Proposals: Request Revision								
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656-Full3	Belize Margin Paleoclimate and Tectonics	Droxler	Fulthorpe	Thurow	Jaeger	Chen	Ito, Takasi	
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685-Full	Ligurian Margin Borehole Observatory	Henry	Ge	Hirono	Erzinger	Summa	Jian	
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644-Full	Mediterranean Outflow	Molina	Backman	Jian	Jaeger	Clemens	Chen	
Full-Proposals: Obtain External Reviews								
574-Full3	Rainbow Hydrothermal Field, Mid Atlantic Ridge	Fouquet	Wilson	Ge	Takeuchi	Konnerup-M	Dickens	
Full-Proposals: Forward to SPC								
612-Full3	Geodynamo	Yamazaki	Hayashida	*Gee*	Erzinger	Ohara	Jian	
633-Full2	Middle America Slope	Brueckmann	Summa	Ito, Makoto	Ravizza	Wilson	Christeson	
661-Full2	Newfoundland Sediment Drifts	Norris	Thurow	Jaeger	Fulthorpe	Hasegawa	Ito, Makato	

A qualitative grouping was assigned to the 3 proposals forwarded to the SPC using the revised 5-star scale. Each grouping was obtained by consensus of the full panel.

4. Discussion on Mission Concept

Keir Becker gave a short summary of the "IODP Mission Designation and Implementation Plan" and outlined what is needed from SSEP now. As outlined in the document, SSEP is charged to recommend to SPC themes for possible missions and a list of potential mission team members for the first year missions, based on current proposals and the ISP. Given inadequate advanced notice, panel members had difficulty making a thorough assessment of existing proposal pressure and charting progress toward the achievement of ISP priorities. As result of a joint discussion, SSEP identified two possible themes for first year missions, Theme 1 related to seismogenic zones and Theme 2 related to global climate change. Two small working groups were formed to discuss the outline and potential team members in more detail, and present the discussion results at the last day of the meeting (Theme 1: Mike Underwood, John Chen, Tetsuro Hirono, and Julia Morgan; Theme 2: Gerald Dickens, Steven Clemens, John Jaeger, Ruediger Stein, and Ryuji Tada).

5. Discussions and Recommendations

5.1. Workshops vs. PPG on "Ultra-high resolution of Paleoclimate"

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SSEP Consensus 0605-3: SSEP agrees to recommend a workshop related to "Ultra-high resolution of Paleoclimate". Jürgen Thurow will prepare an outline of workshop proposal including mandate/goals and names of potential members of the steering committee. A draft of the workshop proposal will be distributed for comments to the other panel members. Members of the steering committee will submit funding proposals to their funding agencies (J-DESC, ECORD/ESF, USAC).

SSEP Recommendation 0605-1: SSEP recommends that SPC consider endorsing an international workshop to focus on "Ultra-high resolution of Paleoclimate".

The proposal for a workshop on "Ultra-high resolution of Paleoclimate" is included as Attachment 4.

5.2. Workshops vs. PPG on "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene"

At the November 2005 SSEP meeting, SSEP recommended that SPC consider forming a program planning group (PPG) that will be responsible for stimulating proposal pressure within the general theme of high-latitude extreme climate. SSEP´s recommendation was discussed during the SPC meeting (St. Petersburg/Florida, March 2006), and SPC decided, instead, to recommend convening a synthesis workshop before creating another PPG on this topic.

SSEP Consensus 0605-4: SSEP agrees to recommend a workshop related to "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene". Greg Ravizza (in cooperation with Elisabettta Erba and Ruediger Stein) will prepare an outline of workshop proposal including mandate/goals and names of potential members of the steering committee. A draft of the workshop proposal will be distributed for comments to the other panel members. Members of the steering committee will submit funding proposals to their funding agencies (J-DESC, ECORD/ESF, USAC).

SSEP Recommendation 0605-2: SSEP recommends that SPC consider endorsing an international workshop to focus on "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene".

The proposal for a workshop on "Dynamics of the Earth System during Extreme Climates of the Cretaceous and Paleogene" is included as **Attachment 5.**

5.3. Recommendations for Mission Themes and Mission Team members

Following a discussion of mission themes, in general, Mike Underwood and Ruediger Stein presented draft outlines and rationale for two first year missions, together with lists of potential mission team members. The proposed mission themes are seismogenic zones and global climate change, respectively. Progress on the seismogenic zone has been considerable, with CDPs for NanTroSEIZE and CRISP already ranked by SPC. There is also considerable proposal pressure for studies of global climate change, but the need is acute for coordination of activities and testing of specific modeling predictions.

SSEP Recommendation 0605-3: Based on its assessment of current proposals, the ISP, and plans for forthcoming workshops sponsored by IODP-MI, SSEP recommends that SPC consider the following two major themes for possible missions (first year):
(1) "Seismogenic Zones"
(2) "Global climate change and carbon cycling: testing and constraining predictions of future climate change".
SSEP will provide SPC with the outlines and lists of potential mission team members before the next SPC meeting.

The outlines of the two missions and lists of potential mission team members are included as **Attachment 6** and **Attachment 7.**

5.4. SeisCORK

SSEP discussed the ramifications of having Proposal 690-APL withdrawn and considered ways to convey the importance of this type of tool development. Although not yet available for use, several active drilling proposals already include deployment of such a combined tool, in particular, along the Nankai, Ligurian, and Costa Rica margins. Many other settings would also benefit from availability of this technology (e.g., unstable slopes, volcano flanks mid-ocean ridge flanks). This tool would allow for continuous co-located high-quality seismic, hydrogeologic, geochemical, and microbiological observations, that could be accessed or retrieved by autonomous vehicle or cabled observatory system.

SSEP Recommendation 0605-4: SSEP recommends that SPC encourage the immediate development of a borehole tool that would deploy seismometers as part of a dedicated subseafloor observatory. Borehole seismometers offer significant advantages over ocean bottom seismometers (improved coupling, reduced background noise, proximity to seismic sources), thereby allowing detection of very small earthquakes indicative of fluid flow and incipient rock deformation. Access to this tool would enhance the ability of future proposals and drilling operations to achieve the ISP objectives of integrating long-term observatory science into IODP operations.

5.5. Update of criteria for CDPs

SSEP discussed the criteria for designation of a complex drilling project (CDP).

SSEP Consensus 0605-5: SSEP agrees by consensus to the updated criteria of a CDP. These criteria are included to the minutes as **Attachment 8**.

5.6. Deactivation of full proposals

SSEP discussed their internal guidelines for deactivating proposals. According to the panel's mandate, deactivation is possible at any time, but the desire to nurture proposals has resulted in an expectation among panel members that deactivation should not occur without benefit of external review.

SSEP Consensus 0605-6: SSEP agrees by consensus that an initial submission, whether written as a pre-proposal, full proposal, or APL, can be deactivated without sending the proposal out for external review.

5.7. Revised five-stars grouping system

SSEP discussed revision of its 5-star grouping system, particularly the translation from « stars » to « words ». This discussion was prompted by a desire to make final reviews more credible and consistent with the assignment of stars when proposals are forwarded to SPC.

SSEP Consensus 0605-7: SSEP agrees by consensus to a revised translation for its five-stars grouping system, as included to the minutes as **Attachment 9**.

5.8. Revised proposal review form

SSEP discussed the pros and cons of revising its proposal review form. Polling of the panel members revealed that opinions were split almost 50:50 over individual preference for the old (open format) versus new (compartmentalized format) form.

SSEP Consensus 0605-8: SSEP agrees by consensus to retain the old form (open format) but to use the proposed compartmentalized form as a guide or template for watchdogs to enter all of the required information when writing their reviews.

5.9 Report for the MS PHD'S participants

Seven students from the Minorities Striving and Pursuing Higher Degrees of Success in the Earth System Sciences (MSPHD'S) Professional Development Program attended the SSEP meeting and gave short presentations about their scientific background and ongoing research activities (see list below). Mentors from SSEP included Jerry Dickens, Shemin Ge, Jeff Gee, Barbara John, Mitch Malone, and Greg Ravizza.

Name	Institution	Research specialities
Jozan Powell	U. South Florida	Atmospheric Science, Science Education
Warner Ithier	U. South Florida	Radionuclides
Sekeenia Haynes	Florida A&M University	Aquatic chemistry
Elizabeth Padilla	Georgia Tech	Environ. Microbiol., Microbial Oceanogr.
Juanita Escalera	U. Metropolitan	Environmental science
Jason White	Howard University	Atmospheric sciences
Treda Smith	VIMS	Marine and environmental sciences

6. Resolutions for outgoing SSEP members

Resolutions were presented thanking outgoing SSEP members for their years of dedication: Craig Fulthorpe, Takashi Hasegawa, Akira Hayashida, Richard Norris, Greg Ravizza, Demian Saffer, Damon Teagle, and Toshitsugu Yamazaki.

7. Next SSEP meetings

Ryuji Tada announced that the 7th SSEP meeting has been scheduled in Sapporo, Japan. Tentative dates are November 13 to 16, 2006. Julia Morgan kindly extended an invitation for the 8th SSEP meeting to be held in Houston, USA. Tentative dates are May 28-31, 2007.

8. Conclusion

The co-chairs Ruediger Stein, Mike Underwood, and Ryuji Tada thanked again the host Jörg Erzinger for his excellent logistical arrangements, guided tours, and warm hospitality throughout the meeting. The co-chairs thanked all of the panel members for their dedication and hard work. Watchdogs submitted drafts of all proposal reviews to the IODP-MI science coordinators (Jeff Schuffert, Barry Zelt, and Nobu Eguchi) before the meeting ended.

Attachment 1

Name (*co-chair)	E-mail	Affiliation	Comments
Anma, Ryo	anma@arsia.geo.tsukuba.ac.jp	SSEP	New member
Backman, Jan	backman@geo.su.se	SSEP	
Chen, John Yongshun	johnyc@pku.edu.cn	SSEP	
Christeson, Gail	gail@ig.utexas.edu	SSEP	New member
Clemens, Steven	Steven_Clemens@brown.edu	SSEP	Alternate for Flower, Ben
Dickens, Gerald	jerry@rice.edu	SSEP	
Erzinger, Jörg	erz@gfz-potsdam.de	SSEP	
Eynaud, Frederique	f.eynaud@epoc.u-bordeaux1.fr	SSEP	
Flower, Ben	bflower@marine.usf.edu	SSEP	Not attending
Fujiwara, Toshiya	toshi@jamstec.go.jp	SSEP	
Fulthorpe, Craig	craig@utig.ig.utexas.edu	SSEP	
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Ito, Takashi	tito@mx.ibaraki.ac.jp	SSEP	
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Joye, Samantha	mjoye@uga.edu	SSEP	Not attending
Konnerup-Madsen, Jens	jenskm@geol.ku.dk	SSEP	
Menez, Bénédicte	menez@ipgp.jussieu.fr	SSEP	New member
Morgan, Julia	morganj@rice.edu	SSEP	
Norris, Richard	rnorris@ucsd.edu	SSEP	Not attending
Ohara, Yasuhiko	ohara@jodc.go.jp	SSEP	
Ravizza, Greg	ravizza@hawaii.edu	SSEP	
Saffer, Demian	dsaffer@geosc.psu.edu	SSEP	Not attending
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Takeuchi, Mio	takeuchi-mio@aist.go.jp	SSEP	New member
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Yamazaki, Toshitsugu	toshi-yamazaki@aist.go.jp	SSEP	
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Brewer, Tim	tsb5@leicester.ac.uk	ESO	
Curewitz, Daniel	daniel@jamstec.go.jp	CDEX	Not attending
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Eguchi, Nobuhisa	science@iodp-mi-sapporo.org	IODP-MI	
Harms, Ulrich	ulrich@gfz-potsdam.de	ICDP	Not attending
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Lovell, Mike	mtl@leicester.ac.uk	STP	Not attending
MacLeod, Christopher	macleod@cf.ac.uk	SPC	Not attending
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Masago, Hideki	masagoh@jamstec.go.jp	CDEX	Not attending
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Neben, Soenke	s.neben@bgr.de	SSP	
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Escalera, Juanita	jennyescalera@yahoo.com	U. Metropolitana	MS PHD student
Habtes, Seenai	shabtes@marine.usf.edu	U. South Florida	MS PHD student
Haynes, Sekeenia	haynes@msn.com	Florida A&M U.	MS PHD student
Padilla, Elizabeth	epadilla7@yahoo.com	Georgia Tech	MS PHD student
Smith, Treda	treda@vims.edu	VIMS	MS PHD student
White, Jason	jwhite27@hotmail.com	Howard U.	MS PHD student

Attachment 2

Agenda of the Meeting of the
6. Scientific Steering and Evaluation Panel
May 29 to June 01, 2006
Potsdam, Germany

Sunday, May 28

Excursion (Potsdam Tour) for those who have registered until May 10

Meeting Place (May 29 to June 01):
All sessions as well as coffee (morning and afternoon) and lunch (ca. 12.30-13.30h) breaks will be in the building H of the "Science Park Albert Einstein", Telegrafenberg Potsdam

Monday, May 29 (08.30-18.00h)

Registration (08.30-09.00h)

Joint Session (Start 09.00h)

1. Reports

1.1 Introduction of attendees to SSEP
1.2 Opening Remarks by host (J. Erzinger)
1.3 Approval of the agenda
1.4 Approval of minutes from Nov 2005 meeting, Turtle Bay/Hawaii
1.5 Introduction to the meeting (R. Stein)
1.6 IODP-MI Report (N. Eguchi, J. Schuffert, B. Zelt)
1.7 SPC Report (K. Becker)
1.8 SSP report (S. Neben, D. Sawyer, A. Tanaka)
1.9 STP Report (H. Villinger)
1.10 JOI Alliance (M. Malone)
1.11 CDEX report (K. Aoike, D. Curewitz, H. Masago)
1.12 ESO Report (T. Brewer)
1.13 MSPHD Program (A. Castner)

2. Meeting overview

2.1. Review of SSEP Mandate and panel responsibilities (R. Stein)
2.2. Conflict of interest rules and declarations (R. Stein)
2.3. Proposal review process (R. Stein)
2.4. Organization of breakout sessions (R. Stein)
2.5 Revised proposal review form (M. Underwood)

2.6 Revised five-stars grouping system (M. Underwood)
2.7. Designation of Complex Drilling Projects (M. Underwood)
2.8 Introduction to joint discussion/working groups (R. Stein)

Breakout sessions

Proposal reviews:
Deep Biosphere and subseafloor ocean (M. Underwood) (Room VR1)
Ocean history and climate (R. Stein) (Room VR2)
Solid Earth (R. Tada) (Room VR3)

Tuesday, May 30 (08.30-17.00h)

Breakout sessions continued (08.30-17.00h)

Proposal reviews:
Deep Biosphere and subseafloor ocean (M. Underwood) (Room VR1)
Ocean history and climate (R. Stein) (Room VR2)
Solid Earth (R. Tada) (Room VR3)

Social Event (18.00 – ca. 22.00h)

River Boat Tour "Historical Potsdam" including a dinner buffet

Wednesday, May 31 (08.30-18.00h)

Joint discussion on Mission Concept and Workshps/PPG/DPG (08.30-10.30h)
General introduction (R. Stein)
Introduction to Misson Concept discussion (K. Becker)
SSEP suggestions for mission themes (R. Stein)
Proposal reviews, groupings, CDP (M. Underwood)

Working group discussions (if needed) (11.00-15.30h)

WG1: Mission Concept and suggestions for themes (M. Underwood/R. Stein)
WG2: Workshops/PPG/DPG (R. Tada)
WG3: Reviews, groupings, designation of CDP (M. Underwood)

Joint SSEP session (16.00-18.00h)

Working group reports and general discussion (if needed)

Proposal review summaries and dispositions:
Deep Biosphere and subseafloor ocean (M. Underwood)
Ocean history and climate (R. Stein)
Solid Earth (R. Tada)

Social Event (Start 19.00 at the hotel) (optional)

Tour to Berlin

Thursday, June 01 (08.30-16.00h)

Joint SSEP session (08.30-16.00h)

Proposal review summaries and dispositions (continued)
Deep Biosphere and subseafloor ocean (M. Underwood)
Ocean history and climate (R. Stein)
Solid Earth (R. Tada)

Finish writing watchdog comments

3. Discussions and recommendations to SPC on Mission Concept and Workshops/PPG

4. Presentations by MSPHD students

5. Resolutions for outgoing SSEP members

6. Announcements on upcoming SSEPs Meetings
5.1. November 2006
5.2. May 2007

7. Conclusions

Attachment 3

STP Recommondation for SSEP

- All the proposals marked in yellow should go to STP and/or EDP as they contain significant technological or 3rd party tool issues which should be looked at by the other panel(s). At which point in the proposal submission process this should happen is up to the panel but I suggest as early as possible. Especially proposals asking for CORKed holes need to have at least one or better two CORK-experts among the proponents.
- The proposals marked in blue lack the required temperature measurements; I didn't find arguments in those proposals not mentioning the temperature measurements that they are not feasible. These proposals do not have to be sent to STP but SSEP should remind the proponents of the SPC approved policy regarding temperature measurements.

H. Villinger, 24.5.06

Proposal	Logging Plan	T &/ or P	CORKs	Remarks
522 Superfast Spreading	yes	n/a	no	
574 Rainbow	yes	yes	yes	Lots of high-T issues
612 Paloeamag; Pacific	yes	no	no	make sure that APC & DVTP temperature measurements are done
633 Mud volcano; CR	yes	no	yes	make sure that APC & DVTP temperature measurements are done
656 Belize margin	yes	no	no	make sure that APC & DVTP temperature measurements are done
661 Newfoundland	yes	no	no	make sure that APC & DVTP temperature measurements are done
669 Walvis Ridge	yes	no	no	make sure that APC & DVTP temperature measurements are done
685 Ligurian Sea Observatory	yes	yes	yes	lots of technical and 3rd party tool issue
689 Deep biosphere, mud volcanoe	?	no	yes	logging plan not specified; technical issues re CORK installation; make sure that APC & DVTP temperature measurements

				are done
690 SeisCORK	no	no	yes	lots of technical and 3rd party tool issue
691 Weddell Sea	no	no	no	Form seems to be messed up
692 Newfoundland breakup	-	-	-	not sure how they filled out the form
693 CORK Modernization	n/a	yes	yes	Technical issues
694 IBM	n/a	n/a	n/a	No site summaries available
695 IBM	yes	yes	no	
696 IBM	yes	yes	no	
697 IBM	yes	yes	no	
698 IBM	yes	yes	no	
699 Messinian Salinity Crisis	yes	yes	no	
700 Maud Rise	yes	no	no	make sure that APC & DVTP temperature measurements are done
701 Great Australian Bight	yes	yes	no	
702 Agulhas Current	yes	no	no	make sure that APC & DVTP temperature measurements are done
703 SeisCORK	yes	no	yes	Technological and 3rd party tool issues; make sure that APC & DVTP temperature measurements are done
704 Sumatra	yes	no	no	make sure that APC & DVTP temperature measurements are done
705 Santa Barbara Basin	yes	no	no	make sure that APC & DVTP temperature measurements are done
706 Kerguelen	yes	no	no	make sure that APC & DVTP temperature measurements are done
707 Tokyo Bay Area	yes	no	yes	Technological and 3rd party tool issues; make sure that APC & DVTP temperature measurements are done

Attachment 4

Proposal for
IODP-ICDP workshop on "High- to ultra-high resolution sedimentary records"

Rationale

The study of sedimentary records with high to ultra high temporal resolution approaching those of instrumental records (e.g. varved muds, muds rich in tephra layers, muds with excellent magnetic signals, dust, corals with growth bands) has a high potential to achieve several highly ranked scientific goals of the IODP Initial Science Plan, including palaeoclimatic/palaeoenvironmental reconstructions and evolution of humans. These records ideally with a sub-annual to centennial resolution provide a unique opportunity to evaluate the operation of the ocean-continent-atmosphere system globally, and on human time scales and to appraise the relative importance of each part of the system.

Long records of excellent quality have been drilled through ocean drilling and contributed significantly to our current understanding of the climate system (e.g. ODP Drilling in the Santa Barbara Basin, California). Equally lacustrine records of comparable resolution have significantly enhanced the climate "portofolio". When calibrated independently with C14 dating, or when long-floating time scales can be constructed varve time scales proved to be robust and suitable for large-scale correlation. Having such detailed multi-proxy records of past marine and continental environmental conditions available will allow researchers to better understand why and how the whole climate system responds rapidly to external and internal forcing and how the various oscillations of the climate system may interact over much longer time intervals.

Although conventional piston coring has resulted in very good science, the high sedimentation rates required to achieve the temporal resolution needed result usually in records longer than what can be achieved with conventional coring. Ocean Drilling from various platforms and GLAD drilling are the only "tools" available at present to produce such long records and the quantity of material needed for study.

Scientific and technical objectives

The main objective of the workshop is to bring together experts in the fields described above to design strategies to find and/or explore key areas with potential high-resolution records with the aim to coordinate and integrate existing proposals from within IODP/ICDP and from other scientific programs and to develop new drilling proposals incorporating the aims outlined below. The ultimate goal will be to identify a global array of high-resolution coring sites spanning different time intervals to fully understand the causes and consequences of rapid environmental/climate change.

<u>Specific objectives will include:</u>

- To identify paired marine-terrestrial (and atmosperic) records, e.g. West coast of the Americas/laminated marine and lacustrine (and ice core) records; Europe/circum-Pacificlaminated lacustrine records and marine records with abundant tephra; Patagonia, SE Asia/continental and marine dust/loess records (iron fertilisation hypothesis)

- To test the true global extent of "fashionable" short-term climatic transitions (e.g.Dansgaard-Oeschger cycles, bipolar seesaw)

- Given the known circum-Antarctic occurrence of suitable sedimentary records (e.g. Palmer Deep) what type of climate cyclicity and rapid climate change can be observed on different high-resolution timescales and how do they compare with what is known from outside this area (rest of the world).

- To identify areas with potentially high-resolution tephra stratigraphy which can be tied in with continental records of human evolution (e.g., E Africa).

- To discuss the draw-down of huge quantities of C and N in some of the marine basins with high accumulation rates and its effect on the global carbon and nitrogen cycle and rapid climate change.

- Long-distance correlation between rather different environments

- To address processes and differing response times of the continental and marine environments.

- To discuss platforms other than those already used by the two programs to obtain high-quality long complete sequences.

Target audience

To cover the wide range of expertise required we propose forty active participants from the marine and terrestrial community including experts on multiproxy records from laminated sediments (sedimentologists, organic/anorganic geochemists, micropaleontologists), paleomagnetists, tephrachronologists, paleontologists, stratigraphic correlators, seismic interpreters. Funding will be sought from IODP, ICDP, USSAC, ESF and JEAS with the aim to organize the workshop in 2007.

Participants may include (subjective and incomplete):
Ariztegui (Switzerland), Barron (US), Beaufort (France), Behl (US), Brumsack (Germany), Dunbar (US), Dickens (US), Francus (Canada), Fukusawa (Japan), Ganeshram (UK), Haug (Germany), Keigwin (US), Kemp (UK), Laj (France), Lange (Chili), Lotter (Netherlands), Lowe (UK), Lueckge (Germany), Meyers (US), Nederbragt (UK), Pedersen (Canada), Pike (UK), Rea (US), Renberg (Sweden), Schimmelmann (US), Tada (Japan), Thudhope (UK), Zolitschka (Germany).

Attachment 5

Request for SPC endorsement of a workshop on "Extreme Climates and abrupt climate change during the Cretaceous and Paleogene."

Background

Following the SSEP in Hawaii in 11/05 a request was submitted for a PPG entitled "Dynamics of the Earth System during Extreme Climates**."** The proposed PPG was aimed at coordinating existing drilling proposals and stimulating new drilling proposals in the broad area of extreme climates of the Cretaceous and Paleogene. This request was received but not accepted by the SPC. With this decision the SPC suggested that a synthesis workshop that included results from recent Paleogene drilling legs would be a more appropriate mechanism for stimulating progress in this area. This present proposal to conduct a workshop on extreme climates of the Cretaceous and Paleogene is therefore a direct response to the suggestion of the SPC.

At the most recent SSEP meeting (5/06 in Potsdam) the SSEP drafted a description of a mission that identified testing predictions of future climate change as program goal of the highest priority for scientific ocean drilling. Determining the duration, environmental boundary conditions, primary causative mechanism, and operative feedbacks of extreme and abrupt climate events in the geologic past represents one important component of this effort. The link between this workshop and the newly drafted mission statement reinforces SSEP support for fostering continued effort in this area.

Specifically extreme warmth and abrupt climate change events of the Cretaceous and Paleogene are germane to current concerns over modern global warming. These events provide an opportunity to test the performance of climate models used to predict future climate change. They also provide an opportunity to gauge the relative importance of various climate feedbacks, and perhaps, to identify new feedbacks whose role in our climate system has not yet been recognized.

Workshop Mandate

To assess progress toward achieving the objectives of "Extreme Climates Initiative" as described in the IODP Initial Science Plan by providing a venue for synthesis of recent relevant drilling results. To update the broader strategy for investigating extreme climate events (on a global scale from low to – especially – high latitudes) in order to maximize the contribution of this effort to testing predictions of future climate change. To initiate discussion of new drilling plans to investigate the dynamics of the ocean/atmosphere system and paleobiological processes during past extreme climates. The need to address outstanding extreme climate objectives of the

ISP, and the opportunity propose important new lines of investigation, indicate pressing need to develop a revised /expanded strategy.

Specific Workshop Objectives

In this context we proposed a workshop that will have 4 main objectives.

1. To review the current status of our knowledge of extreme climate events of the Cretaceous and Paleogene, with special emphasis on results from recent drilling.

2. To critically evaluate how additional study of extreme climates of the geologic past can be best targeted to contribute to testing predictions of future climate change. Identifying fundamental feedbacks that act to either damp or amplify perturbations of Earth's climate system, and quantifying their range of sensitivity over geologic time are of particular interest.

3. To discuss future drilling efforts that will further advance scientific understanding of extreme climate events of the geologic past. This discussion will include both marine and continental targets. It is our intent that it will lay a foundation for an integrated drilling effort between IODP and ICDP focused on exploiting the potential of the geologic record for constraining the limits of future climate change.

4. To assess the successes and failures of current climate models to explain past intervals of extreme warmth and abrupt climate events. To identify the types of new proxy climate records needed in order to improve the use of Cretaceous and Paleogene warm intervals as test cases for models used to predict future climates.

Organizing committee of the workshop

The following community members have been contacted and are all willing to work to organize this workshop.

Karen Bice WHOI
Elizabetta Erba, University of Milano
Takashi Hasagawa, Kanazawa University
Dick Norris, SIO

Attachment 6

Mission on the Seismogenic Zone

Drilling into the seismogenic zone of an active subduction zone mega-thrust represents one of the more ambitious initiatives of the IODP Initial Science Plan. The challenges associated with this initiative are unprecedented and include the logistics of ultra-deep riser drilling and the design and installation of long-term borehole observatories that can operate at high temperatures and pressures. Proposal pressure has been strong, with two Complex Drilling Programs (CDP) already approved by the Science Advisory Structure (NanTroSEIZE and CRISP). The NanTroSEIZE science plan is mature and well on its way to implementation under the direction of a Project Management Team, and the first stage of CRISP is on the verge of being scheduled. A pre-proposal has been submitted to drill a new transect across the Sumatra subduction zone, within the region of the devastating earthquake and tsunami of December 2004. Geophysical surveys must be completed there to provide base-level characterization of the Sumatra margin, but once that work is finished we expect the pre-proposal to evolve into a third CDP. Several additional proposals have been submitted on related topics and drilling targets (e.g., monitoring asperities in Sagami Bay, mud mounds and diapirs in Costa Rica, installation of observatories in upper plate of Costa Rica). Creation of a mission on the seismogenic zone would greatly enhance the chances of success by these projects, particularly with respect to the following: (1) timely design, development, and testing of instruments and deployment strategies for borehole observatories (e.g., SCIMPI, SeisCORK, ultra-deep monitoring tools, multi-packer CORKs with multiple tool strings), (2) operational and management strategies for optimal staging of riser drilling, logging, and sampling programs within the ultra-deep boreholes, and (3) integration of scientific results, data sharing, and development and testing of novel scientific hypotheses. Given the extremely high cost and long lead times associated with riser drilling, the benefits of collaboration and strategic integration among the lead proponents and chief project scientists from each project cannot be overstated.

<u>Suggestions for Mission Team:</u>

Harold Tobin
Masa Kinoshita
Wonn Soh
Cesar Ranero
Paola Vannucchi
Kevin Brown
Warner Bruekmann
Chris Goldfinger
Takuya Nishimura
Earl Davis
Eiichiro Araki

Attachment 7

Integrated Ocean Drilling Program (IODP) Mission

Global climate change and carbon cycling:
Testing and constraining predictions of future climate change

Understanding the cycling and fate of carbon among the atmosphere, hydrosphere, biosphere, and their effects on the cryosphere, are among the greatest scientific challenges of the new millennium. The relevance and societal importance of accurately predicting the future consequences of massive carbon injection are beyond question. The Intergovernmental Panel on Climate Change (IPCC) has issued a series of landmark documents that provide the rationale for, and expected ranges of, such effects (e.g., melting of continental ice sheets and glaciers, rising sea level, intensification of El Nino, abrupt climate transitions). Recent studies indicate that global climate can change abruptly at potentially human time scales as a result of non-linear response to changing boundary conditions, either naturally (e.g., solar luminosity changes) or artificially (e.g., pCO_2 level changes). The best way to document the history of abrupt climate change mechanisms is through targeted sampling and analyses of marine sedimentary archives. These records reveal the full range, rates, and effects of natural climate variability, long before humans began to influence the Earth system. To maximize our contribution by scientific ocean drilling, we propose a Mission to foster, link and synthesize proposals and expeditions that explicitly address predictions discussed in the IPCC documents. This effort by IODP will be heavily integrated with activities and scientific leaders in other communities, including global climate and carbon cycle (or earth system) modeling, and continental and ice core drilling. Workshops will be required to synthesize recent IODP achievements, discuss future scientific goals, and formulate optimal implementation strategies for the Mission. Coordinated working groups will be responsible for developing a series of IODP proposals and managing all of the components of the comprehensive science plan.

Examples of potential components for such a Mission are given here:

- Document geochemical cycling of carbon and climate changes into and out of the major greenhouse episodes of the Cretaceous.
- Evaluate mechanisms of global warming and recovery, and biotic effects and changes in pH caused by massive carbon inputs of the early Paleogene.
- Chronicle the evolution of (sub-) millennial-scale variability in surface temperature, ice sheet dynamics, wind system and thermohaline circulation throughout the last 3 Myr, as clues to understanding the mechanisms responsible for abrupt climate change.
- Generate ultra high-resolution climate records, which provide crucial boundary conditions for global climate models.
- Test the effect of increasing pCO_2 on global climate during the MIS 13 to 11 transition (as indicated by recent EPICA ice core results), by mapping climatic changes during this specific interval.
- Test whether or not El Nino events become more prominent under warmer conditions by drilling sediment or corals in the Equatorial Pacific.
- Recover, produce, and evaluate climatic time-series derived from marine archives in the context of time-dependent global climate model simulations.
- Development of specialized logging tools to improve our ability to develop and interpret high resolution paleo climate records.

Potential candidates for Mission Team

IODP (- ODP) community

Rick Behl (proposal proponent; US)
Alan Mix (proposal proponent; US)
Heiko Pälike (proposal proponent; ECORD/UK)
Ryuji Tada (proposal proponent; Japan)
Kozo Takahashi (proposal proponent; Japan)
Ralf Tiedemann (proposal proponent; ECORD/Germany)
James Zachos (proposal proponent; US)
Rainer Zahn (proposal proponent; ECORD/Spain)
Paul Wilson (proposal proponent; ECORD/UK)
Karen Bice (proposal proponent; WHOI, US)

Hiroshi Nishi (Micropaleontology, extreme climates; Hokkaido University, Japan)
Hodaka Kawahata (Geochemistry; ORI Tokyo University, Japan)
Hiroshi Kitazato (Micropaleontology, microbiology; IFREE, JAMSTEC, Japan)

Elisabetta Erba (Milano University, ECORD/Italy)
Mitch Lyle (Boise State University/Idaho, US)
Maureen Raymo (Boston University, US)
Matt Huber (Purdue University, US)

Outside IODP

Hubertus Fischer (Ice cores, EPICA, GRIP, etc.; AWI Bremerhaven, Germany)
Brian Flannery (Climate modeling and policy; ExxonMobil, US)
Zhengyu Liu (Modeling; University of Wisconsin, US)
Paul J. Valdes (Modeling of modern and past climate system; Bristol, UK)
Eiichi Tajika (Geochemical modeling, carbon cycling; Tokyo University, Japan)
Yasuhiro Yamanaka (Geophysical modeling, global warming and Cretaceous simulations; Hokkaido University, Japan)

Attachment 8

Criteria to identify CDP

(1) Overall scientific objectives have a strong potential to significantly advance understanding on major themes of ISP and important processes in the Earth system.

(2) The component proposals address parts of the overarching objective(s) and are closely interrelated. The completion of each component is essential to attain the overarching objective(s) but this/these can not be achieved through a series of individual proposals.

(3) Multi-phase and/or multi-platform approach is essential for the project.

Attachment 9

Criteria for Grouping Proposals by SSEP
Revised 05-2006

Preamble: The purpose of the grouping system is for SSEP to convey as much information as possible to SPC when forwarding proposals for the global ranking exercise. The 5-star system must be applied by SSEP and interpreted by SPC within the context of the *final review*. The *final review*, therefore, must contain explicit justification for each grouping.

5 stars: Exceptional proposal. The science plan is innovative, cutting-edge, and extends beyond the vision of the Initial Science Plan. In all probability, the expedition(s) will generate major conceptual breakthroughs and exciting new discoveries.

4 stars: Outstanding proposal. Addresses one of the high-priority initiatives of the Initial Science Plan. If scheduled, drilling is likely to result in significant refinements of existing scientific concepts. In all probability, the expedition(s) will be regarded as a major achievement of scientific ocean drilling.

3 stars: Very good proposal. Objectives are consistent with thematic priorities of the Initial Science Plan. The science plan is likely to result in successful expedition(s) typical of the majority of ODP and IODP legs. If scheduled, drilling will build on a long history of scientific achievement by refining existing concepts, filling a gap in the global database, or resolving a pointed scientific debate.

2 stars: Good proposal. The project is "drillable" and the science plan, if scheduled, is likely to result in successful expedition(s) typical of the majority of ODP and IODP legs. The scientific objectives, however, are either excessively narrow or peripheral to thematic priorities of the Initial Science Plan.

1 star: Project is "drillable", but the scientific objectives are either not relevant to the Initial Science Plan or the proposal contains deficiencies in organization and/or strategy, as identified by both panel reviews and external reviews. The nurturing process has culminated, so the proponents may need additional help in their planning and preparation. With effective guidance, the science plan could result in successful expedition(s), typical of the majority of ODP and IODP legs.