

**Eighth EPSP Meeting – June 18-19, 2007**  
**Chevron 1500 Building**  
**Houston, TX**

**Called to order:** The eighth EPSP meeting was called to order by the chair and host for the meeting at 8:15, on June 18, 2007 at the Chevron 1500 Building, Houston, Texas. A brief explanation of the building's safety and emergency procedures was presented. Attendees were reminded of the panel's conflict of interest policy. No conflicts of interest were identified among the panel members.

**Self introductions:** Self introductions were made by all attendees.

**EPSP Members Present:** Bob Bruce, Barry Katz (Chair), Toshi Matsuoka (Vice Chair), Sumito Morita, Bramley Murton, Sadao Nagakubo, Donald Potts, Jerome Schubert, Craig Shipp, Dieter Strack, Manabu Tanahashi, Catalin Teodoriu, Toshiki Watanabe, and Bill Winters

**Alternates Present:** Yoshifumi Nogi, Phillipe Gaillot

**EPSP Members Absent:** Michael Enachescu, Masami Hato, Philippe Lapointe, and Tadashi Maruyama,

**Guests:** James Allan (NSF), Jack Baldauf (USIO), Keir Becker (SPC), Gilbert Camoin (Proponent 519), George Claypool (TAMU Safety Panel), Peter Cliff (Proponent 595), Neil DeSilva (TAMU Safety Panel), Earl Doyle (SSP), Dan Evans (ESO), Patty Fryer (Proponent 505), Colin Graham (ESO), Sean Gulick (Proponent 548), Thomas Janecek (IODP-MI), Cedric John (USIO), David Kring (Proponent 548), Shinichi Kuramoto (CDEX and Proponent 603), Hans Christian Larsen (IODP-MI), Jim Mori (SPC), Craig Nicholson (Proponent 705), Moe Kyaw Thu (CDEX), Joel Watkins (TAMU Safety Panel), Jody Webster (Proponent 519), Barry Zelt (IODP-MI)

**Agenda Review:** The chair noted the minor changes and additions and incorporated them into the final agenda.

**Approval of prior meeting minutes:** Minutes were approved as presented. It was noted by the chair that the requested latitudes and longitudes and safety sheets for proposal 537A, 600, and 603-Stage 1 were received. As part of the minutes review process Colin Graham presented the safety monitoring approach to be used for the New Jersey margin drilling program. This was an action item from the prior meeting. The approach to be used will be similar to that used for the Arctic Drilling Expedition (i.e., monitoring of the drilling operations and the use of a gas "sniffer"). Site planning and screening represents the primary safety tool. Prior work has suggested that the chosen

sites should lack free gas. Several of the members of EPSP felt uncomfortable with this as a general policy statement and requested that the MSP hydrocarbon monitoring process continue to be reviewed on a case-by-case basis.

**Final minutes of the 8<sup>th</sup> meeting minutes will include a copy of the New Jersey monitoring plan.**

**Review of SPC activities:** Keir Becker reviewed key actions of the SPC and SASEC that may directly or indirectly impact EPSP activities. A possible drilling timeline was presented in light of the current budgetary constraints. USIO funding was less than originally anticipated. This resulted in January 1, 2008 being the earliest start date for SODV operations. It is also unlikely that the program will be able to support 12 months of drilling per year. Minor modifications were also made to the *Chikyu* and MSP operational timelines. EPSP has reviewed all of the proposals currently scheduled for drilling. It was noted that the proposal ranking by SPC was the most even since global ranking began in 1997. Jim Mori was formally approved as the next SPC Chair. It was noted that SASEC has endorsed IODP-MI pursuing collaborative relationships with industry. James Allen noted that there are restrictions to these relationships and that for “off-IODP contract” activities the SAS, including EPSP, cannot be directly involved. It was stated that as a result of the current fiscal limitations the program will need to be flexible but science principals should remain paramount. Rigorous scientific review of proposals is even more important. There will be a need to examine the SAS working structure for cost saving purposes. Panel size should be re-examined. There was also a recommendation for earlier EPSP previews to identify safety concerns. An alternative to reducing panel size could be a reduction in the number of meetings. It was suggested by Earl Doyle that each panel should be asked for input as to how they may best deal with the budget reductions rather than having a single across-the-board approach implemented by all panels.

**Review of USIO activities:** Jack Baldauf presented the USIO update. This update included a review of the status of the SODV. Financial pressures on the program have been significant as a result of the reductions in NSF monies available as well as the increased costs driven by the petroleum sector. These pressures resulted in a re-scoping of the SODV conversion and a modified timeline. Although the ship was not being stretched the new design will accommodate additional laboratory space and berths and an improved core flow. A working drilling schedule was presented. A number of possible scheduling issues were reported including weather and clearances. The results of the TAMU Safety Panel were reported. The TAMU Safety panel endorsed the recommendations of EPSP for NanTroSEIZE, the Pacific Equatorial Age Transect, the Bering Sea, Canterbury, Wilkes Land and CRISP. The TAMU Safety Panel recommended that an experienced geochemist sail

on the Canterbury cruise. It was noted that planning is continuing for GOM II. The planning involved a joint industry-academia meeting. It was reported that current plans for the SODV do not include real-time seismic capability. The absence of this capability would reduce the ability to relocate sites once the expedition has begun. This suggests a need for the identification and approval of an increased number of contingency sites.

**Review of ESO activities:** Colin Graham presented a summary of ESO activities which included an update on the New Jersey margin drilling. It was reported that the original drilling vessel was in an accident and it needed to be replaced. The new drilling platform would be more expensive. ECORD approved the needed funds. Drilling will proceed in 2007 but will be delayed, and probably extend into October beyond the optimum weather-window. The change in timing of the expedition has complicated staffing. There was a need to demonstrate suitable ground conditions for the platform. A survey was conducted. Platform owners have expressed satisfaction with the results. There was some discussion among the attendees whether the geotechnical survey was sufficient. It was noted that the owner-operator and insurance company felt that the survey was adequate. ESO also reported a meeting with the Great Barrier Reef Park Authority and that they have begun the permitting process, with a plan to implement in September – November 2008. It was also noted that ESO has trained a number of marine mammal observers.

**Review of CDEX activities:** Shin'ichi Kuramoto presented a summary of CDEX activities. The *Chikyu* and its crew has been gaining drilling experience through a series of commercial wells from offshore Kenya and Northwest Australia. The ship has worked in water depths of ~2200 meters and has had penetrations in excess of as much as 3400 meters. The *Chikyu* operational schedule was reviewed and the co-chief scientists for the first three expeditions were presented. The first Expedition for the *Chikyu* is scheduled for September 21 – November 16, 2007. Readiness and safety training was also reviewed. As part of this discussion, it was also noted that as a consequence of some of the pre-IODP drilling some riser tensioning issues have developed which will need to be resolved.

**Review of SSP activities:** Earl Doyle presented a review of SSP activities. He reviewed the SSP ranking system which now addresses both availability of data, the prior focus, and the quality of the data. He presented SSP's rankings of the datasets for the proposals to be previewed and reviewed by EPSP. He noted that SSP will consider reviewing their rankings when EPSP has relocated or deepened sites beyond those requested in the original drilling proposal.

**Review of IODP-MI activities:** Barry Zelt presented an update on the status of proposals. He noted that there was a rebound in the number of submissions in April when compared with the October 2006 deadline. It was also noted

that there is a growing balance among the lead proponents by IODP membership. Currently there are 128 active proposals in the system. The majority of these proposals are for non-riser drilling (~75%), with MSPs accounting for 9%, riser drilling accounting for 3%, and the remainder involving multiple platforms. Panel members were reminded of the free publication *Scientific Drilling*. It was reported that Nobu Eguchi former liaison to EPSP will be leaving IODP-MI.

**Review of Reef Drilling Guidelines:** Don Potts reviewed the Reef Drilling Guidelines that were prepared by ESO following their experience with the Tahiti drilling. Minor editorial changes were made by the panel during this review. They have been captured and included in the final document. He also reviewed the Recommendations (now Considerations) for Implementing Reef Drilling Guidelines that was prepared by Bramley Murton and Don Potts and had been included in the January minutes. Several recommendations were made by the panel including the addition of an introductory framework, clarification between operator and proponent issues, and the separation of surface and sub-surface activities. The sub-panel was asked to make the necessary modifications to the document and report back to the panel before adjournment.

**The revised Reef Drilling Guidelines and Considerations for Implementing Reef Drilling Guidelines will be included in the final minutes CD.**

**Preview of Proposal 519-Full2 (South Pacific Sea Level – Part 2 – Australian Great Barrier Reef):** Gilbert Camoin and Jody Webster presented the scientific rationale for the proposed program. The drilling program has several goals: 1- an examination of the timing and cause of the last deglaciation as reflected by a rise in sea level. The corals are used as the sea level indicator. Prior work (e.g. Barbados) was performed in active tectonic settings leaving a number of unanswered questions; 2- the defining of sea surface temperatures and salinities; and 3- analyze reef responses to environmental changes. Following the scientific overview a review of some of the anticipated technical challenges was made. These challenges included problems due to the shallow water depth, heterogeneous lithological composition and structure, irregular topography, and environmental issues. The results of the Tahiti drilling (Part 1 of South Pacific Sea Level) were discussed. It was noted that swath bathymetry should be acceptable as a means to locate a drill site. However, the resolution at Tahiti was generally considered unacceptable. With the completion of the Tahiti review, prior drilling on the Great Barrier Reef was discussed and used as the introduction to the current drilling program. About 65 holes were drilled into the Holocene section. ODP Leg 133 was drilled into the peri-platform setting in front of the reef. A jack-up was used in 1995. This operation penetrated over 200 meters and had over 80% recovery. Currently available data include a recently acquired multi-beam dataset (with 5

meter spacing), some Chirp, and submersible observations. The plans for the upcoming site survey include overlapping high-resolution multi-beam using two different systems, Chirp and Sparker data, AUV (Autonomous Underwater Vehicle) stereographic imaging, dredging and sediment collection. A permit for the survey has already been obtained. The general geometry of the four survey areas - HYD-01A, VIP-01A, NGO-01A, and RIB-01A - was presented. The timeline for the survey and site selection was discussed. An early EPSP review, with identified locations, is required before the final permitting can be accomplished.

**EPSP requests that the proponents develop a number of contingency sites in order to reduce the need to add sites once the expedition has started. The identified locations will represent the center-point of a circle with a 150 meter radius. This approach will permit the final positioning of drill site in a location not to damage any living reef. A summary montage for each drill site is requested. All maps, cross-sections, and displays should use consistent scales, units, and color scales. A bathymetric slope map is also requested.**

**ESO has requested a January/February review date. A consensus was obtained that based on the panel's current understanding and the limited drill depths (40 – 50 meters) this review could be conducted via e-mail.**

**Preview of Proposal 705-Pre2 (Santa Barbara Basin Climate Change):** Craig Nicholson presented the scientific justification for the proposal. The drilling is aimed at extending the high resolution global climate record from ~160,000 years to ~1.2 million years. The Santa Barbara Basin is considered an ideal setting for such a study because of its environmentally sensitive location, high and constant sedimentation rate, high biogenic productivity, minimal physical and biological disturbance, the presence of a continuous stratigraphic record, and its prior history of study. As a result of industry and academic interest a significant dataset exists that permits the effective position of the drilling locations. It was noted that drilling was required because composite conventional coring would permit examination only back to ~700,000 years. The proponents were aware of EPSP concerns raised by prior drilling in the basin. Craig Nicholson suggested that there exist a number of misconceptions concerning earlier drilling in the basin (Site 893). A review of the earlier operations was, therefore, presented. It was noted that the first hole (893A) reached 196.5 m without any problems. Recovery exceeded 100% because of gas expansion. The second hole (893B) was terminated prematurely not because of safety reasons but because the APC became stuck and insufficient time was available to reach the target depth. A review of the seismic data from Site 893 does not reveal the presence of any obvious shallow gas. The focus of the proposed drilling program is the Mid-Channel Trend, where

unroofing and folding resulted in compaction and gas loss. Layering in prior cores from the area did not display gas separation. The available database was presented. A large number of commercial wells (up to 5.4 km) and boreholes up to 1 km are present in the basin and provide guidance on velocity and shallow hazards. A number of different drilling scenarios were presented. A discussion by the panel followed to determine their overall comfort level with the proposal. **The panel recommended that the proponents go-forward with their proposal, with an understanding that a suitable safe drilling program could probably be developed.** The panel decided that it would be premature to review the specific drilling locations. The panel also decided not to review the different drilling scenarios because their development requires a detailed understanding of the scientific goals and objectives and could begin to crossover between being a reviewing body and an active proponent. EPSP did provide guidance as to what the panel will need to see prior to final approval. It was also suggested that another preview of the proposal would be required prior to the final review. This review would most probably be conducted following SPC ranking after the proposal has been fully developed.

**The panel requests that the safety package include a summary table of all nearby industry wells considered relevant to the proposed drill sites. Structure maps and true amplitude maps should be created and checked for conformance to determine whether any shallow gas accumulations may exist. If structural highs are selected as drilling sites there should be a clear indication that the units to be penetrated are exposed to the sea floor. It was determined that the seismic data will need to be re-processed focusing on the shallow portion of the sequence. It is recommended that a number of contingency sites be developed in case problems develop either during the safety review or the drilling operation. An EPSP watchdog will be assigned when the proposal is ranked by SPC. An independent shallow hazard assessment will be required before the final EPSP review can be conducted. (This assessment is an operator issue.)**

**Meeting was recessed:**

**Meeting called back to order:** June 19 at 8:00

**Safety reminders were presented by the chair.**

**Preview of Proposal 595-Full3 (Indus Fan and Murray Ridge):** Peter Clift presented the second preview of the proposal. This was requested by the chair because of the recent turnover in the EPSP membership and the need to familiarize the new panel members with the proposed program. The proposal was developed to examine the relationship between tectonics, climate, and

erosion. Among the questions raised is whether climate or tectonics dominate the exhumation of mountain belts. The results of the drilling should also help to confirm the timing of the India-Asia collision and will provide dates for the key seismic reflectors. It was noted that no viable onshore drilling options were identified to answer the questions raised by the proposal. There had been prior DSDP and ODP drilling in the Indus Fan. The deepest penetration was at Site 222, with penetration to about 1300 mbsf. There was only spot coring at this site. No stability problems or hydrocarbons were reported. The current drilling program focuses on the Murray Ridge site MU-1C. This site is planned to penetrate 3800 meters of sediment and 50 meters of basement. The current plans do not include LWD/MWD. The available seismic data were reviewed. The site was located within a 3D survey provided by Shell.

**The panel requested consistent displays. Seismic data should be presented with and without interpretations. EPSP would like to see a pore pressure prediction. Multiple locations are suggested so that drilling alternatives are available. Structure maps on key reflectors and amplitude extractions should be provided to the panel. A shallow hazards assessment should be performed prior to the final review. (This is an operator action.) The proponents should consider velocity errors and tool string length if LWD/MWD is incorporated into the final drilling program when proposing the target depth. If possible, an attempt should be made to correlate the proposed drilling location with the planned Shell well.**

**Preview of Proposal 505-Full15 (Mariana Convergent Margin):** Patricia Fryer reviewed the scientific objectives of the proposal. The program examines a nonaccretionary convergent margin that provides direct sampling of the slab and forearc rocks/muds and permits the sampling of pristine slab fluids as well as access to microbial populations from a high pH environment. The program will examine variability of fluids within this setting and place them in an appropriate regional framework. The only expected hydrocarbons in the region are thought to be a consequence of serpentinization followed by Fischer-Tropsch. Although sufficient methane is thought to be present for hydrate formation there is no evidence to suggest their presence. The panel did not believe that there was any meaningful hydrocarbon risk. A preview of the three drilling areas – Big Blue, Celestial, and Blue Moon - followed. The penetrated section is thought to be composed of serpentinized mud. Holes are limited to 250 meters. It was noted that the Blue Moon locations were not located on available MSC lines. **Their positioning was based on available sidescan data and are located near to mutli-channel seismic data. Considering the anticipated character of the section and the proposed depth of penetration the positioning off the available seismic was not thought by EPSP to preclude drilling. This assessment should not, however, be considered a change in overall panel policy. EPSP will continue to review and consider each drilling location on case-by-case**

basis. Following discussion it was determined that the final safety review of Proposal 505 can be accomplished by e-mail.

**EPSP requested that the proponents add a number of contingency drilling sites prior to final submission. A visual inspection of each site will be required prior to drilling in order to avoid active macro-communities. If an active community is observed drilling cannot proceed at that location and the ship will need to proceed to another approved location. The panel requests that the datasets for each proposed site be displayed as a single montage when the final safety package is assembled.**

**Preview of Proposal 548-Full2 (Chixculub K-T Impact Crater):** Sean Gulick and David Kring reviewed the justification for drilling the Chixculub crater. The justification included: 1- only impact structure known to be clearly associated with an extinction event; 2- only accessible peak ring; and 3- unique opportunity to examine the effect of impacts on evolution. The proponents discussed the K-T event, noting the presence of shock quartz, the iridium anomaly, and spherules at numerous locations worldwide that correlate exactly with the extinction event. The discussion continued noting the availability of geophysical (gravity and seismic) data that can be used to define the subsurface crater structure. The relationship between crater size and morphology/type was also highlighted. Mechanisms of formation were presented as was the estimated amount of energy released during the Chixculub impact, which was estimated to be on the order of 100 million atomic bombs. It was suggested that this impact was particularly lethal because of the sulfur-rich character of the target. The available seismic data were reviewed. It was noted that an onshore drilling location targeting the peak ring could not be selected because of the quality of the available onshore seismic data. Chicx-03A and 2A, the two proposed drilling locations, target the peak ring. These sites will test the mechanism for peak ring formation. The results of drilling by both PEMEX and ICDP were reported. These wells penetrated impact breccias and melts rock. It was noted that most wells lacked any indication of hydrocarbons. The exception was ICDP Site Yaxcopoil-1, which had minor oil shows within a slump block. This lack of commercial success had led PEMEX to the abandon further exploration within the inner ring. Models suggest that this lack of success is largely the result of the elevated temperatures that the sedimentary section has been subjected to. Potential issues associated with fisheries, sea bottom conditions, and tourism were also noted.

**EPSP requests that the wells within the region be reviewed and summarized and that additional information on the hydrocarbon show in Yaxcopoli-1 be made available. There are questions whether the reported material was a true show. The panel also would like to know the geochemical character of the organic matter so that they can assess its origin and significance with regard to hydrocarbon risk, if any. The panel also requested that the seismic data be panelized to highlight the section of interest.**

**Review of Site NT2-03, NT2-03C and Addendum sites:** Shin'ichi Kuramoto presented the request to approve the Stage 2 component of NT2-03B. The presentation began with an overview of the science objectives and the Stage 1 plan. EPSP had approved NT2-03B to a depth of 1250 meters at its January 2007 meeting. The request was to deepen this site to 3500 meters as well as to approve NT2-03C to 3600 meters, and two additional contingency sites. Although the bottom hole temperatures would exceed 100°C, the proponents suggest that the hydrocarbon risk is low as a result of low organic carbon contents and poor quality reservoirs. Gas hydrates and shallow free gas concerns were addressed as part of the Stage 1 review. It was noted that weather (typhoons) and the Kuroshio Current could present drilling problems. A significant site survey database exists. It is suggested that there could be between 5 and 10% error in the velocity assignment. Following the general discussion the specific sites were presented. The panel recommendations follow.

<b>Site Identification</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Approved Depth of Penetration (m)</b>	<b>Comments</b>
NT2-03B	33°14.300'N	136°42.650'E	1250	EPSP deferred their decision to permit deepening the site to 3500 meters pending the submission of additional information noted below.
NT2-03C	33°13.9075'N	136°41.811'E	1250	EPSP deferred their decision to permit deepening the site to 3600 meters pending the submission of

Site Identification	Latitude	Longitude	Approved Depth of Penetration (m)	Comments
				additional information noted below.
NT2-05A	33°12.433'N	136°43.867'E	275	Stage 1 contingency location. EPSP reduced the depth of penetration from 300 m to 275 m. Concerns were expressed about penetrating a strong reflector.
NT2-10A	33°12.830'N	136°43.600'E	325	Stage 1 contingency location. EPSP reduced the depth of penetration from 350 m to 325 m. Concerns were expressed about penetrating a strong reflector.

**EPSP requested that they be provided with the anticipated pore pressure profile, fracture gradient, and casing design plan. The detailed well plan was also requested. Concerns were expressed about the well design including load and the geotechnical character of the sediment. A contingency plan should be provided that establishes what happens if the drilling window is exceeded. It was requested that this supplemental material be provided to the panel by September 1, 2007. The panel will review this material by October 1 and forward comments, questions, and concerns to the Vice Chair (Toshi Matsuoka), who will organize an EPSP special meeting, in Japan, with the operator (CDEX) to conduct a final review. Although all panel members would be invited to attend the meeting it is anticipated that only the Japanese members will attend and will represent the concerns of the full panel as expressed in the written responses to the revised safety package. If at all possible the final review and report on the two deferred locations should be completed by October 15, 2007.**

**Final Review of LWD/MWD Operational Template, NanTroSEIZE Stage 1 Operational Protocol and LWD/MWD operational templates:** Moe Kyaw Thu presented the “final” LWD/MWD template, which was built on prior program experience where LWD/MWD were used as the primary safety monitoring tool. It was noted that this should be viewed as a living document and that modifications will be made as experience is gained by the program. The panel accepted the documented as presented. The draft operational protocol for NanTroSEIZE was also presented. Concerns were expressed concerning the stated chain of command. Among the questions raised were concerns about the roles of the co-chiefs in scientific operations and when decisions will need to go back to the shore. The panel requested that the roles and responsibilities of all decision makers be clearly documented. No specific comments to the MWD/LWD Operational Plan for Drilling Hazard Monitoring in NanTroSEIZE Stage 1 were offered other than the previous concerns concerning the need for more clarity concerning the chain of command.

**Status of EPSP Contribution to SEG Hydrates Volume:** Craig Shipp reported for the group. There has not been any significant progress on the drafting of an EPSP contribution. The sub-panel (Toshi Matsuoka, Sumito Moria, Bob Bruce, and Craig Shipp) will contact Mike Riedel and determine whether this remains a viable project for the panel and will take the necessary actions.

**Other new business:** No new additional business was brought forward.

**Next Meetings:** Noting the fiscal restraints on IODP the panel discussed extending the dates between meetings. A change to a three-day annual meeting was discussed as an option to replace the current two two-day meetings. It was suggested that any change should be driven based on technical needs. Two future meeting options were presented to the panel: a January meeting date (February 18-19, 2008) or a June meeting date (June 16-18, 2008). Tentatively the next meeting host will be Dieter Strack, with the meeting to be held in Germany. Details will be provided once dates are finalized.

**Following the EPSP meeting an OTF meeting was held. As a result of their actions it was determined by the chair that the next EPSP meeting will be June 16-18, 2008. The panel may be asked to perform a series of e-reviews. These could include the final review for Proposals 519-Full2 and 505-Full5 prior to the June meeting. The agenda for the next meeting will be built following the next two SPC meetings. A second meeting was not scheduled. The timing of the meeting following the planned June 2008 meeting is contingent on drilling plans.**

**Acknowledgements:** EPSP thanks Barbara Hanlon for her assistance with logistics, Chevron for sponsoring the meeting, and Schlumberger for sponsoring the evening social event.

**Adjournment:** Meeting was adjourned at 16:00.