EPSP Meeting – December 12-14, 2005
The New Otani Kaimana Beach Hotel
Honolulu, Hawaii

Called to order: The fifth EPSP meeting was called to order by the chair at 08:05, on December 12, 2005, at the New Otani Kaimana Beach Hotel, Honolulu, Hawaii.

Self introductions: Self introductions were made by all attendees.

EPSP Members Present: Bob Bruce, Masami Hato, Hans Juvkam-Wold, Susumu Kato, Barry Katz (Chair), Tadashi Maruyama, Jean Mascle, Toshifumi Matsuoka, Sumito Morita, Bramley Murton, Donald Potts, Jerome Schubert, Craig Shipp, Dieter Strack, Toshiki Watanabe, and Bill Winters.

EPSP Members Absent: Akito Furutani

GUESTS: Jack Baldauf (USIO-TAMU), Keir Becker (SPC), George Claypool (TAMU Safety Panel), Neil DeSilva (TAMU Safety Panel), Earl Doyle (SSP), Carlota Escutia (proponent Proposal 482), Peter Flemings (co-chief Expedition 308), Craig Fulthorpe (proponent Proposal 600), Colin Graham (ESO), Martin Hovland (TAMU Safety Panel) Atsushi Ibusuki (CDEX), Koichi Iijima (IFREE/JAMSTC), Thomas Janecek (IODP-MI), Alberto Malinverno (USIO-LDEO), Greg Moore (proponent Proposal 603A) Gregory Mountain (proponent Proposal 564), Michael Riedel (co-chief Expedition 311), Tatsuhiko Sakamoto (proponent Proposal 477), Michael Storms (USIA-TAMU), Uko Suzuki (CDEX), Kozo Takahashi (proponent Proposal 477), Joel Watkins (past EPSP member), and Barry Zelt (IODP-MI).

Meeting logistics: **Greg Moore**, meeting host, welcomed all attendees, reviewed meeting logistics. The chair noted the emergency exits and stated that if there was a need to evacuate all meeting participants should gather in the front of the hotel.

Approval of prior meeting minutes: No additional corrections to the minutes from the June 2005 regular meeting or the July 2005 special meeting were brought forward. The minutes to both previous meetings were accepted as presented.

Vice Chair nomination and selection: A single nomination for Vice Chair was brought forward. The panel unanimously recommended that **Toshifumi Matsuoka** be named vice chair of the panel. The vice chair will serve as liaison with SSP and will be an alternate point of contact with the operators and SPC.

The chair will formally advise SPC of the panel's recommendation and ask that they formalize the appointment.

Review of SPC activities: **Keir Becker** reviewed key activities and actions of the SPC and OTF that will impact EPSP. It was noted that there has been a push toward long-term planning, which should result in a more efficiently operated program. The **operational plans for both the *Chikyu* and the SODV were presented**. Limited drilling with these two new platforms will begin late in fiscal year 2007. EPSP has reviewed or is in the process of reviewing much of the proposed and projected drilling program into FY2009. The entire program has not yet been defined and the panel has not yet reviewed the Equatorial Pacific Paleogene Transect (Proposal 626-Full2). NanTroSEIZE plays a very important part of this initial drilling plan. It has been suggested that LWD/MWD may be performed prior to all coring operations in NanTroSEIZE, where the ***Chikyu* will provide the initial safety monitoring for the SODV**. This will require an increase in cooperation between the two operators. The **Monterey** drilling program was **not included** in the proposed plan because of potential environmental issues. Nineteen proposals and two APLs will be forwarded to SPC for ranking at their next meeting. Depending on actions by SPC and OTF the panel will need to consider scheduling the preview and review of additional proposals. As a consequence of the timing of the acquisition and processing of the 3-D dataset from the Nankai Trough and the anticipated review schedule it was suggested that the panel should consider revising its meeting rotation – meeting in Yokohoma in December 2006 rather than in Kyoto in June 2006 and moving the European (France) meeting forward. The current schedule of June and December meetings is consistent with the current program timeline.

Review of status of JOI Alliance (non-riser) activites: **Jack Baldauf** presented an overview of JOI Alliance activities since the last EPSP meeting including a brief summary of drilling operations for expeditions 308 (Gulf of Mexico), 309/312 (Superfast), and 311 (Cascadia), as well as modifications to the drilling program. Details of Expeditions 308 and 311 were deferred to the LWD/MWD discussion. Expedition 312 is currently underway. It was noted that Expedition 308 was the first use of mud for controlled drilling. **Site 1323** (Ursa basin – Gulf of Mexico) **was terminated following the pre-defined protocols without incident**. It was also noted that transect time was effectively used to compare the J-CORES and JANUS databases. This was the first of such exercises and was considered very useful. An outreach program – *School of Rock Expedition* – was undertaken. This was a pilot program from teacher training. The SODV timeline and program was detailed. Although it appeared that the *Joides Resolution* would be retained by the program it would undergo significant upgrading to increase laboratory space and flexibility, larger scientific staff, upgrades in habitability and HES standards. The timeline and cost of the up-grades may be complicated by the impact of hurricanes on the drilling industry. **The operator is preparing the environmental impact statement for the next phase of drilling.** A separate statement will be prepared for Monterey drilling. Panel members were asked for comments on the SODV vessel and operations, including the need and/or requirements for an ROV during drilling.

Review of CDEX activities: **Uko Suzuki** presented a brief update of CDEX operations. The **focus of the presentation was on the current timeline** and **schedule of operations** for the ***Chikyu***. A major milestone was obtained by the Chikyu – **the first cores were collected** offshore Shimokita. The timeline included the collection and processing of the 3-D dataset associated with the NanTroSEIZE program. During the discussion it was noted that the Phase 1 portion of the NanTroSEIZE program would not require 3-D data but Phase 2 drilling could be problematic if the new seismic data were not available. It was also noted that the operator and proponents **should consider the development of alternate sites as a consequence of potential issues associated with ocean currents**. The early development of the alternate sites or programs (drilling order) would eliminate complications that could develop if options need to be considered on an accelerated timeline.

The panel has requested that the processing flow plan for the 3-D data set should be provided prior to the review.

Review of ESO activities: **Colin Graham** reviewed the drilling program for **Expedition 310 (Tahiti)**, including the securing of the drilling vessel (*DP Hunter*). Drilling was completed November 16th. The onshore sampling party will begin mid-February. **Logging was difficult because of the nature of the sedimentary section (i.e., presence of cavernous voids), but successful. Sites were relocated** with the approval of the EPSP chair because of the presence of volcanics. Availability of high resolution bathymetric data was found to be essential in the Tahiti environment with steep slopes and rugged topography. Live corals were avoided with the help of a seabed camera. The **go-forward plan for New Jersey was also presented**. It was anticipated that drilling could occur as early as the summer of 2006.

Review of SSP's assessment of data readiness: **Earl Doyle** reviewed the **status of the Matrix**. The history of the data readiness guide was presented as were the changes suggested by SSP. The panel was asked to review the guide and provide recommendations by February 2006 so that a "final" version could be presented to the community as a guide to proponents. The new program data base at Scripps was reviewed. The new data base will provide online access to all data entered into the system. The data classification/status scheme was briefly reviewed as were the **results of the September SSP reviews**.

Introduction of the new Site Survey Data Bank and Proposal Status: **Barry Zelt** provided an **overview of the site survey data bank**. Development of the program began in May 2005 and became operation on August 15. The new data bank will eventually **permit the viewing of both 2-D and 3-D data**. The status of a separate proposal data base was also reviewed. This data base will be operated by IODP-MI. It is currently behind schedule because of some initial

programming decisions. 110 proposals are currently in the system – 16 are with OTF, 10 with SPC, and the remainder with SSEP.

Review of Proposal 477 (Bering Sea and Okhotsk Sea): A brief **scientific review** of the proposal and general EPSP issues was made by **Kozo Takahashi.** The proposed drilling program was designed to **examine high latitude climate change** – the timing and mechanisms of glaciation (feedback associated with evaporation, chemical weathering and CO_2 interaction, and freshwater input into the Arctic), the role of high latitude connections between the Atlantic and Pacific Oceans, and the nature of cyclicity. It was noted that there have been **very limited prior sampling opportunities** in the proposed study areas. The **site-by-site review** was presented **Tats Sakamoto**.

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
BOW-12B	53°24.0'N	179°31.3'W	745	Approved at the relocated position (Previously BOW-12A). Approved depth accounts for logging tool that may be used during LWD operations.
BOW-14B	54°02.0'N	179°00.5'E	600	Approved at the relocated position (Previously BOW-14A). Reduced depth of approved penetration from that requested. Panel was concerned about penetrating the strong amplitude event near the original proposed depth of penetration.
BOW-15A	54°49.7'N	176°55.0'E	165	Approved depth accounts for logging tool that may be used during LWD operations.
GAT-3C	59°03.0'N	179°12.2'W	745	Contingent approval at the relocated position (Previously GAT-3B). New position is at shot point 2860 on line R/V Hakuhou-maru KH99-3 Stk3-7(W-E). Approved depth accounts for logging tool that may be

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
				used during LWD operations.
GAT-4C	57°33.4'N	175°49.0'W	745	Contingent approval at the relocated position (Previously GAT-4B). New position is at shot point 351 on line R/V Hakuhou-maru KH99-3 Stk1(SW-NE). Approved depth accounts for logging tool that may be used during LWD operations.
UMK-4D	54°40.2'N	169°58.9'W	200	Contingent approval at the relocated position (Previously UMK-4C). New position is at shot point 3275 on USGS R/V Lee Cruise L6-80 Line 2). Approved depth accounts for logging tool that may be used during LWD operations. New water depth to be provided by proponents.
UMK-3B	54°25.1'N	170°14.6'W	200	Approved at the relocated position (Previously UMK-3A).
SHR-3B	56°26.1'N	170°37.2'E	200	Approved at the relocated position (Previously SHR-3A).
SHR-1B	57°19.0'N	170°06.4'E	200	Approved at the relocated position (Previously SHR-1A).
KST-1B	55°55.6'N	164°54.9'E	200	Approved at the relocated position (Previously KST-1A).
KAM-2B	52°14.2'N	153°02.3'E	200	Approved at the corrected position (Previously KAM-2A).
SAK-2B	51°19.5'N	145°55.5'E	200	Approved at the corrected position (Previously SAK-

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
				2A).
ASR-3B	48°58.7'N	150°26.4'E	700	Approved at the corrected position (Previously ASR-3A).
ASR-4B	48°45.0'N	151°13.5'E	200	Approved at the corrected position (Previously ASR-4A).
ASR-1C	49°09.7N	150°30.5'E	245	Contingent approval at the relocated position (Previously ASR-1B). New position is at shot point 55 on R/V Pegas Cruise 21, Leg 021, 190, 07:46-20:00. Approved depth accounts for logging tool that may be used during LWD operations.
ASR-2B	48°35.6'N	150°55.8'E	245	Approved at the corrected position (Previously ASR-2A). Approved depth accounts for logging tool that may be used during LWD operations.
COP-2F	52°03.1'N	147°01.4'E	200	Approved at the corrected position (Previously COP-2B).
COP-2E	51°59.0'N	147°10.4'E	745	Approved at the corrected position (Previously COP-2C). Approved depth accounts for logging tool that may be used during LWD operations.
PGR-2A	47°52.9'N	147°13.7'E	445	Approved depth accounts for logging tool that may be used during LWD operations.

In order to obtain final approvals proponents have been asked to provide new latitudes and longitudes and completed safety sheets to the EPSP Chair, USIO-TAMU, and IODP-MI for sites GAT-3C, GAT-4C, UMK-4D, and ASR-1C. Proponents are also asked to re-confirm what spheroid was used and insure that the all data are consistent. Provide this confirmation to the panel chair, TAMU (Jack Baldauf), and IODP-MI.

EPSP watchdog for Proposal 477 is Sumito Morita.

Meeting was recessed at 17:35.

Meeting was called back to order at 08:00 on December 13, 2005.

Final Review of the New Jersey margin (Proposal 564): **Greg Mountain** reviewed the proposed drilling program. The scientific objective of the program is to examine the **causes for discontinuities within the stratigraphic record**, specifically examining the role of changes in ice volume and the magnitude of their induced changes in sea level. The New Jersey margin was selected for this study because of its **high sedimentation rates** during the period of interest, the lack of tectonic disturbance, the cosmopolitan nature of the biofacies, and the quality of the available seismic data. The sites under review complete a transect from onshore into deeper water. The gap in the transect existed because of water depth limitations imposed by the operator of the *Resolution.* Significant thermogenic gas has been identified in the area in the deeper portion of the stratigraphic sequence. **No shallow gas hazard was identified as a result of the independent shallow gas hazard assessment conducted for the operator**. As a consequence of the anticipated character of the sedimentary sequence it was noted that casing and a significant amount of drilling mud will be required in order to maintain hole stability.

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
MAT-1A	39° 38.05'N	73° 37.02'W	800	Approved depth accounts for logging tool that may be used during LWD operations.
MAT-1B	39° 38.12'N	73° 37.25'W	800	Approved depth accounts for logging tool that may be used during LWD operations.
MAT-1C	39° 38.35'N	73° 37.35'W	800	Approved depth accounts

				for logging tool that may be used during LWD operations.
MAT-3A	39° 31.20'N	73° 24.80'W	800	Approved depth accounts for logging tool that may be used during LWD operations.
MAT-3B	39° 30.85'N	73° 25.05'W	800	Approved depth accounts for logging tool that may be used during LWD operations.
MAT-3C	39° 31.50'N	73° 24.55'W	800	Approved depth accounts for logging tool that may be used during LWD operations.
MAT-2A			---	Not reviewed – withdrawn by proponent.
MAT-2B			---	Not reviewed – withdrawn by proponent.
MAT-2C			---	Not reviewed – withdrawn by proponent.
MAT-2D	39^{o} 33.94320'N	73^{o} 29.83596'W	800	Contingent approval at the newly requested location pending actions by the proponents. Approved depth accounts for logging tool that may be used during LWD operations.
MAT-2E	39^{o} 34.02498'N	73^{o} 29.76300'W	800	Contingent approval at the newly requested location pending actions by the proponents. Approved depth accounts for logging tool that may be used during LWD operations.
MAT-2F	39^{o} 34.27200'N	73^{o} 29.3902'W	800	Contingent approval at the newly requested location pending actions by the proponents. Approved depth accounts for logging tool that may be used during LWD operations.

The TAT-11 cable runs approximately 1 mile from the MAT-1 sites and needs to be located prior to drilling. Magnetic data are not available for these sites.

In order to obtain final drilling approval proponents are required to submit to the EPSP Chair, ESO and to IODP-MI the new latitude/longitudes, completed safety sheets, and annotated seismic data (crossing lines, and chirp data) for MAT-2D, MAT-2E, and MAT-2F.

It was noted that the EPSP review did not examine geotechnical issues. The nature of the sediment could become an issue depending on the nature of the platform selected by the operator. The operator will be responsible for making the necessary assessments based on platform selection. The panel will provide comments, if necessary or requested.

EPSP watchdog for Proposal 564 is Craig Shipp.

Preview of Proposal 600 (Canterbury basin): **Craig Fulthorpe** provided an overview of the scientific objectives of the drilling program. It was noted that this program had some similarity to the previously discussed New Jersey margin program. It was designed to examine Miocene to Recent sea **level history** and the **sediment drift** history, as **controlled by active bottom water currents**. The program will use a drilling transect to examine the development of the sequence stratigraphic pattern. Specifically, the program will provide information on the **erosional history of the Southern Alps** and the **timing of the onset of circum-Antarctic circulation**. These data will also aid in determining the **synchroneity of global sea level changes**. The **sediments drifts** to be examined can be significant obtaining thicknesses up to **1000m**. They become larger up-section, terminating in the Pliocene. These drifts are of sufficient magnitude to actually influence sequence boundaries. This scientific review was followed by a site-by-site preview. The upper 500m of section could be as much as 50% sand. The **shallowest site (CB01A)** was located in 82 meters of water, **near the current operational limits of the *Resolution***. Data were collected largely in accordance with the published (1994) guidelines for shallow water operations. Closely spaced lines were, however, absent. The current dataset has a **2km line-spacing**.

Site ID	Proposed Latitude	Proposed Longitude	Panel Action
CB-01A	44^{o} 46.06'S	171^{o} 40.26'E	No EPSP issues raised, hole can be deepened to accommodate LWD/MWD logging tools.
CB-01B	44^{o} 49.27'S	171^{o} 44.98'E	No EPSP issues were raised. It **does not**

Site ID	Proposed Latitude	Proposed Longitude	Panel Action
			appear, however, that a deeper hole can be approved by the panel in order to accommodate the LWD/MWD tools.
CB-02A	44° 50.49'S	171° 47.12'E	No EPSP issues raised, hole can be deepened to accommodate LWD/MWD logging tools.
CB-02B	44° 51.85'S	171° 48.68'E	No EPSP issues raised, hole can be deepened to accommodate LWD/MWD logging tools.
CB-03A	44° 53.43'S	171° 50.98'E	Panel expressed concern about the high amplitude at ~1.05 seconds. Proponents were asked to consider relocating site away from the line crossing.
CB-04A	44° 56.05'S	172° 1.09'E	It is recommended that the proponents consider an alternate site to move away from the deep set of high amplitude reflectors. It was noted by the panel that although preferred, placement of a drill site is at a line-crossing it is not required.
CB-05A	44° 40.54'S	172° 33.06'E	Provide expanded discussion on contourites that might be used as an analogue.
CB-05B	44° 41.60'S	172° 32.10'E	Provide expanded discussion on contourites that might be used as an analogue.
CB-05C	44° 41.52'S	172° 33.92'E	Provide expanded discussion on contourites that might be used as an analogue. This site is located within an apparent closure mapped at U8

Site ID	Proposed Latitude	Proposed Longitude	Panel Action
			level (near the edge of the current seismic data). The panel would prefer that the site be moved outside of this closure. Additional industry seismic data may be available and may permit the positioning of the site in a less risky location without compromising the scientific objectives.

EPSP has requested independent reprocessing of line 66. It is recommended that the reprocessing be completed by December 2006 and that the final review be scheduled for June 2007. Bathymetric data would be helpful for the review process. A generalized pore pressure prediction should be made to provide some guidance as to whether abnormal pressure may exist. The OTF should examine which drilling platforms may become involved with the drilling plan. The panel would like to review a preliminary operational protocol at it's December 2006 meeting. A shallow hazard review will be required prior to final review. It is recommended that this review follow a MMS standard report format. It is possible that not all of the proposed sites can be drilled to their proposed depths without riser capability – CB-04A is proposed to a depth of 1805 meters.

EPSP watchdog for Proposal 600 is Bob Bruce.

Review of Proposal 482 (Wilkes Land margin): **Carlota Escutia** presented the **scientific objectives** of the proposed drilling program. This program which is comparable to the completed Prydz Bay program has three primary objectives: 1- the **timing of the Antarctic glaciation** (first arrival of ice on the continental shelf and abyssal plain); 2- the nature and cause of **large ice volume fluctuations**; and 3- the acquisition of a **high resolution record** of late Neogene through Quaternary glaciation. Following this review a site-by-site review as conducted.

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
WLSHE-09A	66° 20'S	142° 40'E	380	Approved at proposed location – Approved depth accounts for logging tool.
WLSHE-09B	66°24'S	132°47'E	770	Approved at revised location.
WLSHE-07A	66° 03'S	143° 08'E	875	Approved at proposed location – Approved depth accounts for logging tool.
WLSHE-07B	66°10'S	143°06'E	1595	Approved at revised location.
WLSHE-08A	66° 00'S	143° 18'E	270	Approved at proposed location – Approved depth accounts for logging tool.
WLSHE-08B	66°00'S	143°22'E	220	Approved at revised location.
WLRIS-03A	64° 40'S	144° 00'E	1000	Approved at proposed location – Approved depth accounts for logging tool.
WLRIS-04A	64° 50'S	144° 03'E	1050	Approved at proposed location – Approved depth accounts for logging tool.
WLRIS-02A	64° 00'S	139° 49'E	1050	Approved at proposed location – Approved depth accounts for logging tool.

In order to obtain final approval proponents have been asked to provide latitudes and longitudes, depth conversions, and completed safety sheets for sites WLSHE-09B, WLSHE-07B, and WLSHE-08B to the EPSP Chair, USIO-TAMU, and IODP-MI.

EPSP watchdog for Proposal 482 is Bramley Morton.

Review of APL 638 (East Antarctica): **Carlota Escutia** presented the **scientific objectives** of the proposed drilling program. A single hole in the **Adelie Drift** is proposed to obtain a **high resolution Holocene climate record of the Southern Ocean**. The APL has not yet been ranked by SPC. The review by EPSP was conducted in order to maximize efficiency, because one of the proponents was already in attendance. The site-by-site review followed this discussion.

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
ADEL-01B	66° 28.8'S	140° 25.5'E	250*	Approved as requested
ADEL-01A	66°24.8'S	140°25.7'E	250*	Approved as proposed
ADEL-01C	66° 24.2'S	140° 26.0'E	275*	Approved as requested

*Concern was expressed that there could be issues with the estimated depth of penetration. Approval is limited to the Holocene drift sequence (i.e., coring should terminate when the glacial dimict "basement" is encountered) but not greater than that stated in the above table.

EPSP watchdog for APL638 is Bramley Morton.

General comment and discussion: It was noted by Craig Shipp that the **inclusion of processing and data acquisition parameters** by the presenters made the panel's job easier during this meeting. It is strongly recommended that this become a **standard part of the safety package and presentation**.

Discussion on future meetings: The **next meeting date** was reaffirmed to be **June 22-23**. Suggested venue is Paris or Nice, France. Details to be provided by meeting **host Jean Mascle**. A final determination of meeting location will be made in January 2006. A tentative date of **December 4-5** was set for the second 2006 meeting. The working venue is **Yokohoma, Japan**. A meeting host has not yet been established.

Meeting was recessed at 17:00.

Meeting was called back to order at 08:00 on December 14, 2005.

NanTroSEIZE (603A) Review: The NanTroSEIZE program was reviewed by **Greg Moore**. This discussion included a review of the scientific aims and operational plans. The program was designed to **examine the physical, chemical, and hydrologic changes that occur within the region where earthquakes are generated**. Drilling represents only part of the planned experiment which will examine changes in the sediment as it undergoes cycling, the nature of the fault system and its spatial variability, and temporal changes in slip behavior. The study area was selected because of its long record of frequent strong earthquakes, it is currently locked with little aseismic convergence, the fault and drilling targets are well imaged, targets are within the reach of the *Chikyu*, and the location will permit allied studies. The CDP has four operational phases. Phase 1 is the drilling of the reference sites to examine the character of the sediments prior to subduction. Phase 2 is the drilling of the splay fault system. Phase 3 is the deep well through the sedimentary prism into main subduction

zone. Phase 4 is long-term monitoring of downhole instrumentation. Current working plans call for **LWD/MWD to be performed by the *Chikyu* prior to coring by the *SODV* at all of the operational stage 1 locations** (note that operational stages and phases are not equivalent in the NanTroSEIZE experiment). Prior drilling in the area suggested that potential EPSP issues may exist associated with **hole stability associated with shallow unconsolidated sands**, **gas hydrates**, **over-pressure**, and **thermogenic hydrocarbons**. It was specifically noted that **abnormal pressure was the target for NT01-02A** and **NT01-07A**. It was, however, noted that that drilling has occurred within the region and that no major problems existed.

Site ID	Proposed Latitude	Proposed Longitude	Approved Depth of Penetration (mbsf)	Panel Action
NT01-01A	32° 44.8878'N	136° 55.0236'E	570	Approved as requested
NT01-07A	32° 49.7300'N	136° 52.8900'E	1120	Approved as requested
NT01-02A	32° 47.4996'N	137° 09.2784'E	720	Approved as requested
NT01-06A	32° 51.3600'N	137° 17.6700'E	1090	Approved as requested
NT01-03A	33° 01.2326'N	136° 47.9485'E	700	Approved as requested

Requested drilling depths were sufficient to accommodate the LWD/MWD tools. Approved drilling depths, therefore, reflected the initial request. Sites NT01-01A, NT01-02A, NT01-06A, and NT01-07A all include an estimated 100 meters of basement penetration.

EPSP would like to review the operational protocol for the drilling of the phase 1 NantroSEIZE components at a formal meeting because of the required coordination between operators. Essentially the *Chikyu* will be conducting the initial safety and hydrocarbon monitoring for the SODV. This will be the first coordinated drilling program. It is, therefore, highly recommended that an initial conceptual draft of the coordinated operational protocol be reviewed at the next (June) EPSP panel meeting, with a more formal review being conducted at the December EPSP meeting.

EPSP watchdog for Proposal 603A is Sumito Morita.

Review of LWD/MWD Experiences on Expeditions 308 and 311 and the development of a go-forward plan: **Peter Flemings** reviewed the results of

Expedition 308 (Gulf of Mexico) where the **primary pre-drill risk was** assumed to be **over-pressure** and the potential for **shallow water flow**. Drilling followed a pre-established drilling protocol. Three firsts for the expedition were noted: 1- **real-time LWD** during scientific ocean drilling; 2- use of **LWD-pressure monitoring**; and 3- use of **weighted mud as part of a controlled drilling program**. Site 1323 was terminated without incident when a second sand interval was encountered. Site 1324 was drilled over-balanced reducing some of its potential scientific results. The use of the weighted mud resulted in increased hole stability. Overall the expedition was considered very successful. The value of **careful monitoring** and a **good mud engineer** was noted. Two key questions were raised during the presentation.

- **Can the mud/drilling program be revised once drilling begins and additional data become available?**
- **Were the issues encountered during the first phase of Gulf of Mexico drilling as great as those that might be encountered when, and if, the "Blue Sand" is penetrated during the second phase of Gulf of Mexico drilling?**

Flemings suggested that the operation could have been improved if a **sea floor camera** was present to observe flow and if there was better **integration of real-time data into the drilling program**.

Michael Riedel presented a review of the results from **Expedition 311 (Cascadia)**. LWD/MWD was performed prior to coring in order to better determine coring positions and the distribution of hydrates. The **primary pre-drill risk** was assumed to be the **presence of free gas**. Hydrates were found present only in the sandy horizons. Considerable **intra-site variability in the hydrate distribution was observed**. The causes for this lateral variability over small distances are not fully understood. The presence of such variability clearly **complicates any safety monitoring program**. The monitoring program was heavily dependent on pressure monitoring, with drilling for the entire expedition potentially being limited by the availability of weighted mud on the ship and the inability to readily re-supply. Among the questions raised during this presentation was

- **What is the role of conventional geochemical monitoring in-light of the use of LWD/MWD?**

Alberto Malinverno presented an **overview of the monitoring programs** used during both expeditions. This included a restatement of the drilling and monitoring protocols and the nature of the tool string, which could approach 47 meters. (The logging tool strings were different for the two expeditions.) **Pressure, fluid VP are monitored real-time**, with **gamma rays** being measured **a few meters above the bit**, and **density neutron data obtained between 6.5 and 12.5 meters above the bit**. The **LWD/MWD program was able to deal with an unexpected over-pressured zone** at Site 1323. It was noted that the

development of the protocol document was labor intensive and that the presence of **real-time data could make such a protocol document obsolete**. It is suggested that EPSP provide guidelines but not rigid thresholds and that the operators decide on measurements, procedures, and drilling guidelines.

Michael Storms presented the operators overview of the two expeditions including **lessons learned**. The Expedition 308 protocol was designed with the understanding that the ship could be re-supplied with weighted drilling mud. An actual shipboard protocol was prepared which included specifically how monitoring was to be conducted and responses. The original protocol document was considered a **good starting point** but was also considered to restrictive and may have **reduced operational efficiency**. For example, the established protocols resulted in Site 1324 being drilling over-balanced. Expedition 308 established that shallow water flow can be detected and "killed" safely and that such flow **cannot easily be predicted prior to drilling**. It was also noted that real-time monitoring although good was unable to differentiate between a massive sand and a sequence of thinly bedded sands. Expedition 311 built on the experience gained from Expedition 308. Expedition 311 used sea water rather than weighted mud. As a result of flow rates no real-time monitoring was possible in the upper 29 meters. Clarification is needed on expeditions as to which protocol "continuous coring vs. MWD/LWD" can be used on any particular site. For example, when **over-pressure** is considered a major risk **LWD/MWD may provide a better means of monitoring**. A universal drilling protocol should not be expected. There will be a **need to customize the drilling protocols based on individual expedition risks**.

A general discussion followed the four presentations. It was agreed that the two **LWD/MWD experiences were successful** and that they provided excellent learning experiences for the operator and the program. It was also generally agreed that LWD/MWD could be used as an effective safety monitoring technique and may prove more reliable than coring and geochemical analysis under a number of circumstance. It was felt, however, that the current approach to drilling protocol design was not efficient. **EPSP and the operators should develop of a list of key risks (e.g., free shallow gas, shallow water flow, etc.) and how the panel would feel that they would best be monitored**. From this a template of a general operational protocol document should be developed. This protocol should provide a means to use the LWD/MWD results to modify the drilling and coring operations. However, there needs to be pre-defined operational limits that cannot be crossed. The operator and EPSP should develop **operational limits before going to sea**. The proposed **Indus Fan and Canterbury basin** drilling may provide excellent opportunities to **test the operational template**. There were a number of general issues raised during the discussion. These included the concurrent use of **multiple drilling platforms** where LWD/MWD was in use. Would there be **sufficient experienced staff** available and how will **consistency** be maintained **across platforms**?

The three operators will begin to prepare the draft template document. A discussion of this draft document will begin at the June 2006 EPSP meeting.

Other business

Panel members were reminded that their **input on video monitoring using either a fixed camera or an ROV is required as soon as possible**.

No additional new business was brought forward.

Formal recognitions: The panel chair thanked **Greg Moore** for acting as meeting host.

Meeting was adjourned at 14:50.