FINAL
(June 1, 1995)

JOIDES SITE SURVEY PANEL MINUTES

April 5-7, 1995
Bedford Institute of Oceanography,
Dartmouth, Nova Scotia, Canada

Members: Srivastava, Shiri (*GSC Atlantic, Canada*) Chair
Camerlenghi, Angelo (*OGS, Itlay*)
Casey, Jack (*U. Houston, USA*)
Enachescu, Michael (*Husky, Canada*)
Hinz, Karl (*BGR, Germany*)
Kastens, Kim (*L-DEO, USA*)
Mountain, Greg (*L-DEO, USA*)
Peterson, Larry (*RSMAS, USA*)
Scrutton, Roger (*U. Edinburgh, UK*)
Tokuyama, Hidekazu (*ORI, Japan*)

Liaison: Ball, Mahlon (*PPSP*)
Ellins, Kathy (*JOIDES Office*)
Dick, Henry (*PCOM*)
Quoidbach, Daniel (*ODP Data Bank*)
Miller, Jay (*ODP/TAMU*)
Malfait, Bruce (*NSF*)

Apologies: Sibuet, Jean-Claude (*IFREMER, France*)
Toomey, Douglas (*U. Oregon, USA*)
Trehu, Anne (*Oregon State Univ., USA*)

AGENDA

JOIDES Site Survey Panel Meeting
April 5-7, 1995
Bedford Institute of Oceanography,
Dartmouth, N.S, Canada

1.PRELIMINARY MATTERS

1.1 Introduction and Logistics (Srivastava)
1.2 Action items from November 1994 LDEO meeting (Srivastava)
1.3 Charge and procedures for this meeting (Srivastava)
1.4 Watchdog assignments (Srivastava)
1.5 Panel Membership (Srivastava)
1.6 Next meeting (Srivastava)

2.REPORTS

2.1 PANCH/Drillopts (Kastens)
2.2 PCOM (Dick)
2.3 OHP (Peterson)
2.4 PPSP (Ball/Quoidbach)
2.5 Data Bank (Quoidbach)
2.6 JOIDES Office (Ellins)
2.7 TAMU (Miller)
2.8 NSF (Malfait)

3.SITE SURVEY IMPLICATIONS OF RECENTLY DRILLED LEGS

3.1 Leg 158: TAG hydrothermal system (Miller)
3.2 Leg 159: Equatorial Atlantic Transform fault (Miller)

4.SITE SURVEY STATUS OF UPCOMING SCHEDULED LEGS*

4.1 Leg 162: NAAG II (Peterson/Quoidbach)
4.2 Leg 163: Volcanic margin, East Greenland (Scrutton/Quoidbach)
4.3 Leg 164: Gas Hydrate (Camerlenghi/Quoidbach)
4.4 Leg 165: Caribbean Ocean History (Mountain/Quoidbach)
4.5 Leg 166: The Bahamas Transect (Enachescu/Quoidbach)
4.6 Leg 167: California margin (Camerlenghi/Quoidbach)
4.7 Leg 168: Juan de Fuca Hydrothermal Circulation (Casey/Quoidbach)
4.8 Leg 169: Sedimented Ridges II (Casey/Quoidbach)
4.9 Leg 170: Costa Rica Accretionary Wedge (Tokuyama/Quoidbach)

5. POTENTIAL FUTURE DRILLING: OHP

5.1 354add4: Benguela Current (Hinz)
5.2 441: SW Pacific Gateway (Peterson) NEW
5.3 464: Southern Ocean Paleoceanography (Peterson)
5.4 404rev2: Late Neogene Paleoceanography (Mountain)
5.5 462: Blake Plateau and Blake Nose (Mountain)
5.6 465: SE Pacific Paleoceanography (Peterson) NEW

6. POTENTIAL FUTURE DRILLING: LITHP

6.1 300: Return to 735B (Casey)
6.2 411: Caribbean basement drilling (Hinz)
6.3 448: Ontong Java (Tokuyama) NEW
6.4 457: Kerguelen Plateau (Hinz) NEW
6.5 426: Australian Ant. Discordance (Kastens)
6.6 435: Izu-Mariana mass balance (Scrutton) NEW
6.7 451: Tonga Forearc/Arc drilling (Scrutton) NEW

7. POTENTIAL FUTURE DRILLING: TECP

7.1 447rev: West Woodlark Basin (Enachescu)
7.2 461add: Iberia 2 (Mountain)
7.3 450: Taiwan arc/cont collision (Scrutton)
7.4 468: Romanche FZ (Kastens) NEW
7.5 355rev: Peru Tectonic Erosion (Camerlenghi) NEW
7.6 442rev: Mariana Back Arc (Tokuyama)

8. POTENTIAL FUTURE DRILLING: SGPP

8.1 473: LOI35; Saanich Inlet (Casey) NEW
8.2 348: New Jersey (Kastens)
8.3 445: Nankai defor. & fluids (Camerlenghi) NEW
8.4 367: Great Australian Bight Carbonates (Enachescu) NEW

9. OTHER BUSINESS

9.1 Long Range Plans
9.2 Feedback to proponents
9.3 Any other items

* -- LEG 161 is not in the schedule as it's data set was approved at a previous meeting.

Executive Summary
JOIDES Site Survey Panel Meeting
April 5-7, 1995
Bedford Institute Of Oceanography,
Dartmouth, Nova Scotia, Canada

Charge for this meeting:

The goals for this meeting were to (1) to evaluate the site survey readiness of the top seven ranked proposals by the thematic panels at their spring meting and to advise the proponents of these proposals about data that they need to acquire and submit to the Data Bank in order to be scheduled for drilling, (2) to evaluate the site survey readiness of legs scheduled for drilling, and (3) to assess any site survey issues arising from recently drilled legs. The primary product of this meeting was to advice PCOM in preperation for selection of region of operation for the drill ship for 1997/78.

Our discussions resulted in the following recommendations to PCOM, action items, and points of consesus.

SSP Recommendation to PCOM concerning access to P-Code GPS navigation on board JOIDES RESOLUTION: SSP recommends that PCOM requests JOI working with UNOLS investigate the possibility of obtaining access to P-Code GPS navigation system for JOIDES RESOLUTION.

Explanatory Note:

Since 1994 three of the US Research Vessels Melville, Knor and Thomson have been available to collect site survey data for ODP proposals using P-Code navigation system. In order for J/R to locate these sites with the same accuracy it is essential that it uses a similar system. The question was discussed during SSP November 94 meeting and a request was made to ODP/TAMU to explore the feasibility of obtaining access to this system without jeopardizing similar efforts being made by UNOLS. ODP/TAMU has been denied access to P-CODE GPS at this time, and is continuing its efforts to acquire this system. JOI working in collaboration with UNOLS community may be more successful than the efforts of a single end user in obtaining access to P-Code for J/R.

****

Action Item #1 SSP chair Srivastava to forward to PCOM the list of the **six candidates** together with their CV's and the panel recommendations for their consideration at their next meeting.

Action Item # 2: SSP chair Srivastava to request **approval from the JOIDES Office for the July and November SSP meetings** to be held at LDEO, from July 26-28 and November 6-8, 1995 respectively.

Action Item # 3: SSP liaison to convey to the technical support group at ODP/TAMU the

following suggested procedure from SSP concerning implementation of the recommendation on **processing underway seismic data** approved by PCOM at their Dec 94 meeting.

The requirements of shipboard processing include: an off-line processing package that reads field tapes as input; an experienced processing technician assigned the responsibility of preparing profiles to the Co-Chiefs' satisfaction; and a display plotter roughly 18" or more in width. The steps that SSP suggest in a typical processing/display sequence ought to include: trace editing; bandpass filtering (± ntoch filtering); trace gain adjustment (scalar, spherical divergence, or automatic gain control (AGC); and display. The latter should be prepared at a useful scale (e.g. 1 second of two-way time = 4 inches, 1 hour of data = 10 inches) annotated with time of day ± shot point number.

SSP Action Item #4: Data Bank Manager **Quoidbach to write to the Co-Chiefs of scheduled legs**, reporting the sense of SSP discussion and enclosing the appropriate section of the draft minutes.

SSP Action Item #5: **Watchdogs to write to the lead proponent** of all other programs discussed, reporting the sense of the SSP discussion and enclosing the relevant section of the minutes. A copy of these letters to be sent to the ODP Data Bank. These letters can be sent by e-mail.

Action Item #6: SSP advises the **Data Bank to thank JOI for making additional funds available** to help the Data Bank move towards a more digital operation. In addition the Data Bank should communicate to JOI that SSP feels the funds will have more impact if used to better manage the existing paper data, and better handle navigation and swath bathymetric data, rather than to actively solicit new digital seismic records. The Data Bank should request permission to use the funds in this fashion, rather than for the purpose of handling digital seismic data as originally envisioned by JOI.

****

SSP Consensus # 1: SSP wishes to thank ODP/TAMU in their efforts in looking into the problem of placing **visual markers** at the desired locations using submersibles and coming up with an appropriate recommendation.

SSP Consensus # 2. Site Survey Panel **thanks Kim Kastens** for her many years of service to this panel, first as a member and then as a chairperson for the past two years. She has been a strong, efficient and a very pleasant chairperson to work with. We wish her best of luck in her new endeavour.

SSP Consensus # 3. Site Survey Panel wishes to **thank Greg Mountain, Anne Trehu and Angelo Camerlenghi** for their services to this panel. It has been a pleasure working with them and we will miss them and their thorough critiques of the proposals.

SSP Consensus #4 : No site survey problems were encountered on **Tag (Leg 158)** drilling and the general problems found with the use of HRGB are being looked into by TAMU.

SSP Consensus #5: Though there are still a number of items missing from the site survey data package, SSP considers the suite of approved **Leg 162** sites essentially ready for drilling. Proponents should consider the possibility of moving the new location of site SVAL-1 slightly to the east to avoid potential slumping off an adjacent basement high. We encourage prompt submission of any outstanding survey data that co-chiefs and/or proponents wish to have included in the official shipboard data package.

SSP Consensus #6: Whilst there is sufficient site survey data for **Leg 163** to proceed, SSP believes that there is insufficient data on the character of the seabed at sites EG66-1 and EG63-6 to allow a decision to be made on whether it will be possible to use hardrock guide base there.

SSP Consensus #7: Some confusion on the drilling plan for **Leg 164 (Gas Hydrates)** has been generated by the recent addition of drill sites. Co-chiefs are urged to clarify the situation and submit new site summary forms, along with the outstanding data to the DB (side scan sonar, velocity determinations and colour amplitude plots of seismic lines) repeatedly requested by the panel in the past. Almost all required data is in the DB for Leg 164.

SSP Consensus #8: Andre Droxler led a highly successful site-survey augmentation cruise for **Leg 165 (Caribbean Ocean History)** since our November 1994 meeting and has deposited crucial SCS data in the Data Bank. 3.5 Khz and along-track Hydrosweep topographic swaths across sites S-6, S-2b, S-2c, S-3b,S-3c, and NR1/2 were part of this survey and need to be delivered to the Data Bank as soon as possible. The locations of S-2b, S-2c, S-3b and S-3c appear to have been chosen well. However, the panel has three requests regarding the newest SCS data across these sites: (1) another display using a shorter AGC window might improve the imaging of features adjacent to strong reflectors such as A"; (2) time-varying filtering might provide better images of acoustic basement at S-2b and S-2c; and (3) every effort should be expended to assemble the best velocities possible at these latter sites to increase the confidence in estimates of depth (i.e. drilling time) to acoustic basement.

SSP Consensus #9: SSP notes that all required and some recommended data for **Leg 166 (Bahama Transect)** have been submitted to the Data Bank, but again urges the proponents to submit reprocessed versions of their seismic lines to the Data Bank as they become available. Additional core information should also be submitted for sites on the fluid flow transect.

SSP Consensus #10: Co-chief scientists of **Leg 167 (California Margin)** must submit new vital data to be collected on the Ewing cruise before the July 1st 1995 deadline for SSP and PPSP reviews.

SSP Consensus #11: No new data as requested by the panel has been supplied for **Leg 168 (East Juan de Fuca Hydrothermal)** since the Nov.94 SSP meeting. The proponents must

supply the remaining data to the DB as soon as possible. Additional data to be collected this summer at CC sites should be supplied to the DB, together with a description of new sites if so chosen, soon after the cruise. The proponents are advised to follow numbering of new sites as suggested by JOIDES office. If a submersible cruise is to take place for positioning of site PP6, where HRGB may be used, then copies of all visual and imagery data should be supplied to the DB.

SSP Consensus #12: SSP appreciates the efforts made by the proponents of **Leg 169 (Sedimented Ridges II)** in responding to its concerns for the Escanaba Trough data and in keeping the panel fully informed of new developments and amendments to the drilling strategies. All the required data is now in the DB and the addition of the USGS Bull 2022 in January, 1995 helps to make the package more complete. However, SSP requests the addition of "recommended" Gloria data for the Escanaba Trough region and available submersible or ROV video/photographic imagery for the hydrothermal drill sites in the Middle Valley and Escanaba Trough. SSP recommends that the proponents make every effort to place passive markers (for details contact Dr. J. Miller at ODP\TAMU) at proposed drill sites with already funded submersible or ROV cruises to the region. Submersible dives may be added to existing programs possible via JOI-USSAC Site Survey Augmentation funds. SSP would also like an updated seismic track map for the Middle Valley sites with the Sedimented Ridge II -Rev3 proposed sites located on this map. Lastly, SSP would like the proponents to address questions regarding the accurate location of Site BH6 in order to meet the objective of penetration of the 856 fault zone.

SSP Consensus #13: The **Costa Rica Accretionary Wedge (Leg 170)** data set is complete for the structural objectives. However, cores and visual data sets for fluid objectives are needed.

SSP Consensus #14: Most required and recommended data in support of the **Benguela Current proposal (354-add4)** are in the data bank, and SSP appreciates the efforts made by the proponents in responding to its concerns. SSP urges the proponents to acquire additional high resolution Parasound seismic data along crossing lines at the proposed sites NCB2 and SCB1 during the forthcoming METEOR cruise scheduled for January 1996.

SSP Consensus #15: The **SW Pacific Gateway (441)** proponents have done a very good job of addressing previous panel comments, and have produced a more focused one-leg program. A substantial body of survey data already appear to exist for these sites, and the proponents initial data submission suggests that the quality of existing data is quite good. Efforts should be made to gather and submit remaining available survey data in a timely fashion. SSP would like to be kept abreast of proponent plans to gather vital data currently lacking at several of the southern sites.

SSP Consensus #16: The proposal **464 for drilling in the South Atlantic-Subantarctic** region addresses high OHP thematic priorities. Site survey data are currently inadequate to target final drilling locations, but plans to collect additional survey data are well underway. NSF/ODP has committed to funding a field program contingent upon ship scheduling, and a German site

survey proposal is currently pending. SSP encourages proponents to continue to assemble and submit already existing survey data to the ODP Data Bank in as timely a fashion as possible.

SSP Consensus #17: For **NW Atlantic Sediment Drift proposal (404-rev)** SSP awaits the BER-1 profile and navigation, Marion Dufresne survey and sample data, and a regional working-scale map needed for site BR-1 to be considered adequately prepared. Similarly, Deep Tow echosounder and navigation data are needed at BBOR1, 2. A working-scale track chart with relevant core, 3.5 and seismic data are needed for the entire set of proposed BBOR and CS sites.

SSP Consensus #18: SSP encourages the proponent of **Blake Nose proposal (462)** to address (by July 1) the two issues discussed at its Nov '94 meeting: (1) sediment velocity data must be assembled from available sources to provide greater confidence in depth (drilling time) to proposed TD's; and (2) the concerns for spud-in difficulty (as encountered at DSDP Site 389) could be relieved by a site-specific demonstration (from bottom photos, samples, 3.5 kHz profiles, etc. with accompanying discussion supplied as text) that there are no phosphorite hardgrounds at the proposed drillsite.

SSP Consensus #19: Proponents of **SE Pacific paleoceanography proposal 465** are to be congratulated for producing a drilling proposal that has climbed into the OHP rankings so quickly. Site survey data, however, are currently inadequate for specific site selection. We encourage proponents to continue their efforts to locate and compile available site survey data from the region, and to submit relevant data to the Data Bank in order to maintain their proposal's visibility in the eyes of SSP. Funding is currently being sought for new survey efforts and we wish the proponents good luck in this endeavour. They should also contact Drs Karl Hinz (BGR) and Angelo Camerlenghi (OGS) for collecting additional data on their cruises. We consider it unlikely at this time that sufficient survey data will be in hand for inclusion in a 1997 drilling program.

SSP Consensus #20: Most of the required data for proposal **300 (Return to site 735B)** is now available in order to deepen Site 735B. However, since the November, 1994 SSP meeting, no new data has arrived to the DB. SSP, however, requires video or photographic imagery for offset drill sites because of the planned use of the HRGB there. The proponents are advised that they should make every effort to obtain this data if the offset sites are to be scheduled or they may choose to formulate arguments to the satisfaction of ODP/TAMU that this visual data is not needed for the offset sites based on existing data and previous drilling in the region. In either case it is advised that the proponents should be in touch with ODP/TAMU (Dr. Jay Miller) concerning the use of the HRGB in this proposal. The proponents are advised to deposit as much data from the British seismic experiment as possible in this region to the DB so that it can be considered by SSP during their July meeting. This will be an important addition for continued evaluation of the proposal by SSP and the thematic panels. The proponents are asked to keep SSP appraised of the site survey proposal's funding status.

SSP Consensus #21: SSP urges the proponents of **Caribbean Basalt Provinces (411, 415-rev)** to deposit the recommended data recently collected across the proposed sites as listed in

Nov. 94 minutes to the Data Bank before the July 1 deadline so that these can be assessed by SSP.

SSP Consensus #22: Though substantial amount of single channel reflection seismic and bathymetry data for **Ontong Java Plateau** exist in the Data Bank because of previous drilling but site specific data for proposal **448** is lacking. Little or no data has been deposited with the Data Bank by the proponents for specific sites. It is recommended that MCS data together with velocity information need to be collected at many of the proposed sites because of deep basement drilling. It is recommended that proper documentation together with required seismic, and recommended magnetic and gravity data be deposited with the Data Bank. In SSP opinion adequate data does not exist in the DB for this proposal.

SSP Consensus #23: There is a likelihood that most of the required data for proposal **457-rev** for drilling on **Kerguelen Plateau** can be assembled to support a complete drilling leg. The lack of drilling time and lack of adequate data at some of the sites are very likely to require elimination of several sites from the present very ambitious 18 site drilling plan. Although site survey data for ODP Leg 120 are in the Data Bank, the dataset remains far from complete. Swath bathymetry is required at site KIP18. The mentioned new geophysical data from recent French cruises have not been deposited in the Data Bank. SSP awaits the announced revised version of the proposal and additional data to support the drilling on the Kerguelen Plateau.

SSP Consensus #24: No data are in the Data Bank in support of the **Australia-Antarctic Discordance proposal (426)**. A site survey cruise is scheduled for Jan-Feb 1996.

SSP Consensus #25: For the **Nicaragua margin transect (471)** to test mass and chemical balance there is still a lot of site survey data to be acquired. SSP awaits these data. For the **Izu subduction zone (472)**, site BON8A, an MCS profile is available and should be supplemented with data appropriate to paleoceanographic targets which would aid the mass balancing work as well. The site survey data for 801C is likely to be complete; but for all sites SSP would like to see data being deposited in the Data Bank.

SSP Consensus #26: It is possible that the site survey requirements for **Tonga Forearc proposal (451-rev2)** can be satisfied by the existing data. The proponents should assemble data sets according to site survey target type C, Active Margin, with the proviso that swath bathymetry is only required at site TF7A, and only recommended elsewhere. They should also seek information on regional values of heat flow. Data submission to the Data Bank should proceed soon so that SSP can make a proper evaluation.

SSP Consensus #27: SSP acknowledges that a nearly comprehensive data package supporting drilling in the **West Woodlark Basin (447)** now exist in the Data Bank. A few items like cross lines are yet to be supplied and it is understood that they will be collected some time this fall. These lines together with visual and coring data for site 3A, on top of the seamount, will complete the data package. One of the sites may need PPSP preview.

SSP Consensus #28: SSP encourages the proponents of **Return To West Iberia (461-add)** to contact the principals of the upcoming Discovery cruise and request that if possible a seismic crossing of site IAP-7 be completed to provide improved 3-D control of basement morphology.

SSP Consensus #29: SSP welcomes the well written proposal revision **(450) on Taiwan Arc/continent collision** and is optimistic that a complete site survey database for all the sites can be assembled. Forthcoming surveys should be tailored to the requirements for site survey at category C (sites 1-6) and D (7) sites and heat flow and bottom sample data should be pursued where appropriate. The proponents should start to submit data to the Data Bank.

SSP Consensus #30: Although no data package has yet been deposited for the new **Romanche Fracture Zone (468)** proposal, it appears from the proposal that quite a bit of pertinent data exists around the proposed sites. For sites ROM-1a and ROM-2a, on limestone caps, the proponents need to clarify their spud-in strategy, and provide visual data if a hard rock guidebase is needed. Site ROM-3a, proposed for 1000m penetration into a thick pile of deformed sediments of unknown origin, could present safety problems.

SSP Consensus #31: All vital data for **Peruvian margin (# 355-rev5)**, already submitted to the Data Base in support of ODP Leg 112, should be available. The panel recommends that proponents re-evaluate or submit new heat flow data in the light of the fluid and gas hydrates objectives.

SSP Consensus #32: Judging from the **Northern Marianas Rift proposal (442)** a reasonable quantity of single channel seismic reflection data exist at most sites but this data has not been deposited with the data bank yet. SSP had recommended that a swath bathymetric map covering the entire region of the northern tip of the Mariana Trough and MCS profiles (migrated section) passing through each proposed sites are required. SSP recommends that these data be acquired if already exit and sent to ODP Data Bank as soon as possible. For further acquisition of MCS data the proponents should contact ORI, Japan. Adequate data does not exist for this proposal in the DB.

SSP Consensus #33: Some high resolution seismic, 3.5 kHz, and sediment core data for **Saanich Inlet Proposal** are in the DB and will be reviewed at the July SSP meeting. The proponents are encouraged to submit the additional high resolution seismic data, 3.5 khz data, and sediment core results at the proposed sites to be collected during a cruise this summer so that the data can be reviewed at the July SSP meeting. Track charts of all existing seismic data with Sites plotted are required. The proponents are encouraged to submit all this data to the DB as soon as possible because two of the ODP Legs are now scheduled and SSP and Safety panels need to review the data in July and September meetings respectively.

There are some important safety and sample issues to be addressed that are related to gas in the shallowest part of the section. The new seismic data will be essential for these reviews. One of the proposed site, SI-1 lies in water depth shallower than 200m and will either require shallow water hazards survey or moving this site to deeper water depths. As the drilling is

proposed to be carried out in an inlet, it would be desirable if the proponents could supply information on the existing current in the region and an idea of the man made drilling hazards like cable etc in this region. It appears from the communications of the proponents that all the necessary data required by SSP for drilling could be available by the July SSP meeting.

SSP Consensus #34: **New Jersey II shelf (348)** sites have been previously approved by SSP from a science perspective.

SSP Consensus #35: All vital data for **Nankai Trough (#445)**, already submitted to the Data Base in support of ODP Leg 131 and DSDP Legs 31 and 87, should be available. Side scan data for the western transect should be deposited with the data bank. The panel recommends that proponents re-evaluate or submit new heat flow data for the western transect in the light of the fluid objectives.

SSP Consensus #36: The sites located in water depths of less than 50 m in **Great Australian Bight proposal (367)** need to be shifted to deeper water as they cannot be drilled by JOIDES RESOLUTION. Sites located in water depths 100 to 200 m need to be shifted to deeper water depths or meet Shallow Water Hazards guidelines. Some data has been supplied to the Data Bank and more is expected. A site survey cruise is planned to be carried out. The proposal needs to reviewed once all this data together with revision of sites are deposited in the Data Bank.

Minutes
JOIDES Site Survey Panel Meeting
April 5-7, 1995
Bedford Institute Of Oceanography,
Dartmouth, Nova Scotia, Canada

Note: These minutes are arranged in a logical order for ease of reading, and do not reflect the exact order in which items were discussed at the meeting.

1. PRELIMINARY MATTERS

1.1 Introduction and logistics (Srivastava)

SSP Chair Srivastava welcomed all those present and introduced Dr. David Prior, Director of the Atlantic Geoscience Centre. Dr Prior welcomed the panel members to AGC at the Bedford Institute of Oceanography. He described the multidisciplinary approach to studies on environmental marine geology, regional reconnaissance, and basin analysis taken by the AGC. The primary mandate of the Centre is to promote ocean industry, sustainable development, and assert Canada's influence over its marine resources. In connection with 30% government reduction in funding, there will be an increasing focus on mineral exploration, environmental geoscience, ocean mapping, the Centre's major capability of maintaining databases, and trying to balance long term scientific goals and short term applications i.e. solving nearshore environmental problems.

Srivastava introduced the new industry member Michael Enachescu from Husky International Canada, to the panel and thanked Kim Kastens on her excellent efforts and efficiency in serving as SSP Chair, and for nominating him as SSP Chair and others for supporting his nomination. He commented that Kastens would be a " hard act to follow". He then described the arrangements for communications, meals, transportation, field trip and the opportunities for exercise and tours of the Institute and of the Centre.

1.3 Action items from November 1994 LDEO Meeting (Srivastava)

(November Item # 1): ODP\TAMU liaison Richter was to initiate or facilitate discussion between ODP\TAMU and the WHOI\ALVIN group on technical requirements for **visual markers** to be emplaced on the seafloor by a submersible and subsequently located by the Joides Resolution VIT camera.

Acting liaison Miller reported on the outcome of this discussion and some of the recommendations resulting from his recent participation in ALVIN cruise (Appendix A). Miller pointed out that considering the optimal size, shape, ease of handling and deploying such a marker from ALVIN, including cost, resulted in Miller's recommendation to TAMU that a five gallon plastic BUCKET LID as the most suitable marker to be used from submersibles. Questions were also raised concerning the difficulty experienced on a recent leg in interrogating one of the transponders left at the site by ALVIN and whether some other navigational device can be left instead. Miller pointed out that there are no other suitable devices available and even though the

transponders used at the site in Leg 158 were very reliable there is no guarantee that they are 100% fail proof. Miller pointed out that coordination of placing such markers using ALVIN will be the responsibility of the proponents and they have to ensure that a suitable window will be available to do so prior to the leg. TAMU will be more than willing to help the proponents with the technical aspects of placing such markers and for procuring them but the funds will have to come out of the proponent's budget.

SSP Consensus # 1: SSP wishes to thank ODP/TAMU in their efforts in looking into the problem of placing visual markers at the desired locations using submersibles and coming up with an appropriate recommendation.

(November Action Item 2): Joides Office liaison Ellins to provide copies of **thematic panel reviews** (and other minutes sections dealing explicitly with specific proposals) to the Data Bank for inclusion in the SSP Watchdog books.

Ellins reported that this is now JOIDES Office policy. Since there was insufficient time between receipt of the Spring Thematic Panel reviews and the SSP April meeting, proposal reviews were distributed to the Watchdogs by Ellins at the meeting. These were inserted into the Watchdog books by the Watchdogs. These reviews will also be sent by email directly to Dan Quoidbach at the DB. It was agreed that to expedite the matter in future JOIDES Office will try to obtain rankings from each thematic panel on proposals soon after their meeting so that these can be then sent to SSP chair for watchdogging assignments.

(November Action Item 3): TAMU/ODP liaison to organize a demonstration of the new Joides Resolution **real time navigation system.**

Jay Miller (TAMU/ODP) organized this display based on software WINFROG during the coffee break. The system has been operational on JOIDES Resolution since Leg 159. The J/R real time navigation system is capable of: 1) incorporating existing tracklines or any other data provided the data is in Drawing eXchange Format (DXF), 2) it can output data (e.g. to combine with GMT graphs etc), 3) all output data is stored in ASCII column delimited format, 4) it can't produce real-time hard-copy on any plotter as it requires interface between a type of plotter no longer manufactured except on special order (i.e. modifying another plotter). Interfacing data acquisition and plotting would require decreasing acquisition rate, decreasing efficiency and ease of use, and increasing cost. Real time plotting is available on any monitor on the Resolution. Large format, hard-copy plot is available within minutes after a line is run. 4) It can incorporate LBL bottom-moored acoustic transponder navigation data provided navigation net is compatible with J/R system. All requires advance preparation. At present this system exists on the bridge, in the co-chiefs" office, the systems manager's office and the underway geophysics lab. SSP wishes to thank Miller for demonstrating this system.

(November Action Item 4): TAMU/ODP liaison to convey to the appropriate operations personnel at TAMU the concern expressed by some SSP members that ODP's efforts to obtain **P-Code GPS navigation** capabilities need to be coordinated with similar efforts on the part of UNOLS, so as not to jeopardise the UNOLS effort.

TAMU/ODP liaison Jay Miller mentioned that TAMU made some enquiries about

obtaining this code with little success. It seems that UNOSL has been successful in acquiring this code but since there does not seem to be any obvious way of acquiring it for J/R, TAMU feels that they can not proceed any further with this issue. SSP formulated the following recommendation to PCOM

SSP Recommendation to PCOM concerning access to P-Code GPS navigation on board JOIDES RESOLUTION: SSP recommends that PCOM requests JOI working with UNOLS investigate the possibility of obtaining access to P-Code GPS navigation system for JOIDES RESOLUTION.

Explanatory Note:

Since 1994 three of the US Research Vessels Melville, Knor and Thomson have been available to collect site survey data for ODP proposals using P-Code navigation system. In order for J/R to locate these sites with the same accuracy it is essential that it uses a similar system. The question was discussed during SSP November 94 meeting and a request was made to ODP/TAMU to explore the feasibility of obtaining access to this system without jeopardizing similar efforts being made by UNOLS. ODP/TAMU has been denied access to P-CODE GPS at this time, and is continuing its efforts to acquire this system. JOI working in collaboration with UNOLS community may be more successful than the efforts of a single end user in obtaining access to P-Code for J/R.

(November Action Item 5): Each panel member to send a watchdog letter to the lead proponent of each watchdogged proposal for a potential future drilling leg, reporting the sense of the SSP discussion and enclosing the appropriate section of the minutes. Quoidbach to send a watchdog letter to the Co-Chiefs of each scheduled leg. Copies of all watchdog letters to be sent to the Data Bank. Data Bank to forward a copy of the complete packet of watchdog letters to the JOIDES Office. Srivastava thanked the watchdogs, Quoidbach and Data Bank for doing this.

(November Action Item 6): ODP/TAMU liaison to discuss with ODP operations superintendents the circumstances under which re-entry cone emplacement has been difficult or unsuccessful.

The question arose during SSP Nov 94 meeting concerning the requirement of a core to be taken at re-entry sites during the site survey as has been required by TAMU. TAMU acting liaison Miller responded that from operations department the consensus has been that no systematic or distinct pattern of problems have been evident. The primary utility of taking a core and doing some measurements would be for determining shear strength minima for multiple casing operations. Shear strength profiles might be useful for on-site determinations of length of casing strings to be deployed. Jet-in tests routinely provide information about how much casing needs to be set. From operations concerns: The measurement can be accomplished without much difficulty or expense. Shear strength test is currently on the MST track. However, there are other questions to sort out, like sampling interval, archiving such cores etc, that the problem need to be looked differently. On the basis of the ODP/TAMU response, SSP realised that this action item had been misunderstood by TAMU. The action item referred to physical property data obtained on piston cores in advance of ODP drilling. The panel felt that it cannot hurt to have this information for re-entry cones sites (basement). Srivastava questioned whether the matrix

should be changed to reflect that these data are not essential but desirable. Scrutton responded that the very fact that a core could be taken is useful information. He recommended that the requirements should remain as they are in the matrix and that SSP continue to ask proponents to take cores but not to make additional geotechnical measurements. This was then agreed by all.

(November Action Items 7): SSP Chair Kasten to contact the three candidates for industry member of SSP, ask if they are willing to be considered, obtain cv's of the willing candidates, and present candidates to PCOM.

None of the three candidates could get approval from their employers to attending SSP meeting if selected. Therefore, efforts were by made the present chair and others member of the panel and liaison to nominate suitable candidates. Three nominations were obtained. Details of these candidates were then circulated among the panel members for comments. Summary of these comments were then communicated to PCOM who in turn circulated them among its panel members by e-mail and decided to select Michael Enachescu as the industry member for SSP panel.

(November Action Item 8): SSP chair Kastens to request permission for next meeting. This was done by Kastens.

1.3 Charge and procedures for this meeting (Srivastava)

The goals for this meeting were to (1) to evaluate the site survey readiness of the top seven ranked proposals by the thematic panels at their spring meting and to advise the proponents of these proposals about data that they need to acquire and submit to the Data Bank in order to be scheduled for drilling, (2) to evaluate the site survey readiness of legs scheduled for drilling, and (3) to assess any site survey issues arising from recently drilled legs.

1.4 New Watchdog Assignments (Srivastava)

SSP chair Srivastava circulated the list of the top seven ranked proposals by the thematic panels during their spring 95 meeting among the panel members for their selection of proposals they wished to watchdog. On receipt of the responses Srivastava then made out the assignment for watchdogging different proposals. A resulting list of proposals with watchdog assigned was then sent to Joides Office with a request to send copies of the relevant proposals to each watchdog. The table in Appendix B lists the present and historical watchdog assignments.

1.5 Panel membership (Srivastava)

SSP chair Srivastava reported that 3 of the US members and one ESF member will be rotating off at the end of this meeting. Srivastava also pointed out by showing a table the rotational schedule for US members together with those for the others members from participating countries. For US members, the scheme of rotation is 4 years. Other partner countries may use whatever rotational scheme they wish, although 4 years is recommended. In addition to the three US Members who leave the panel, Angelo Camerlenghi will be replaced by H. Lykke-Anderson from Denmark. ESF follows a three year rotational pattern for their representative to SSP.

To facilitate discussion and recommendations from the panel for the replacement of three retiring US members, it was decided to obtained nominations of the perspective candidates by e-mail. Details of these candidates were then circulated among the panel members for comments. These comments were then summarised by the chair and together with the CV's of these candidates they were circulated again to the members prior to the meeting. The panel discussed the US Nominees: John Diebold, Roger Flood, Charlie Paull, Mitch Lyle, John Mahoney, Mark Holmes. SSP members agreed that all candidates would make excellent members. Discussion of the LRP and how it might influence the selection of SSP members ensued. In addition, the global rankings were considered and the importance of regional and thematic expertise of the nominees discussed. Camerlenghi cautioned the panel not to overly emphasize regional or thematic expertise in the selection process but to continue to focus on technical expertise as SSP is a technical panel. He reminded the panel that the role of the panel is to evaluate the data. The US candidates to replace the three US SSP members who are rotating off the panel were prioritized. The following consensus were then passed by the panel thanking the rotating off members for their contribution to the panel.

SSP Consensus # 2. Site Survey Panel thanks Kim Kastens for her many years of service to this panel, first as a member and then as a chairperson for the past two years. She has been a strong, efficient and a very pleasant chairperson to work with. We wish her best of luck in her new endeavour.

SSP Consensus # 3. Site Survey Panel wishes to thank Greg Mountain, Anne Trehu and Angelo Camerlenghi for their services to this panel. It has been a pleasure working with them and we will miss them and their thorough critiques of the proposals.

Action Item #1 SSP chair Srivastava to forward to PCOM the list of the six candidates together with their CV's and the panel recommendations for their consideration at their next meeting.

1.6 Next meeting (Srivastava)

Srivastava discussed the question of the next two SSP meetings to be held at LDEO and it was decided to hold these meetings from July 26-28, 1995 and November 6-8, 1995. Quoidbach requested that consideration be given to scheduling the Fall meeting as the non-US meeting. He felt that last year the least amount of data was evaluated at this meeting, therefore he would have less to send or carry. Kastens commented that this may have been an aberration. Moreover, since Nov. is the make or break meeting, it is important to have all the data available so that SSP can formulate their final advice to PCOM. It is also useful for SSP members to have the assistance of Milly and Anna Maria form the SSDB during the fall meeting.

Action Item # 2: SSP chair Srivastava to request approval from the JOIDES Office for the July and November SSP meetings to be held at LDEO, from July 26-28 and November 6-8, 1995 respectively.

2.0 REPORTS

2.1 PANCH/Drillopts (Kastens)

The Drilling Operations meeting (DRILLOPTS) was held on the Monday of week of the end-of-the-year PCOM meeting. The DRILLOPTS group include representatives from all the thematic panels, SSP, PPSP, TAMU/ODP, the Borehole Research Group, and PCOM. Scientific, operational, logistical, safety and site survey issues were aired for all the programs in the prospectus, and several straw-man schedules were developed. Even though PCOM chose a schedule which did not resemble any of our strawman schedules, PCOM still felt that the DRILLOPTS exercise was valuable and should be continued in future years. Over the course of the year, SSP should keep in mind that DRILLOPTS represents an opportunity to air or resolve thorny issues concerning specific legs. The Panel Chairs meeting (PANCH) met on Tuesday of the week of the end-of-the-year PCOM meeting. We heard presentations on and discussed the ODP budget, the computer upgrade, plans for changing ODP publications, the new Performance Evaluation Committee (PEC IV), what to do with non-performers (ship board scientists who don't live up to their promises). The main point of interest for SSP was the discussion of "interpanel communications." Thematic Panel chairs agreed to take responsibility for communicating the nuances of their priorities for specific aspects of specific proposals direct to the SSP chair. Thematic panel chairs agreed to hold their spring meetings earlier in the year (not later than the first week of March); this will allow time for the Data Bank to compile existing data, for SSP watchdogs to be selected, and for the watchdogs to receive and read the proposals, all before the spring SSP meeting. Kastens reviewed her report to PCOM on SSP's activities for 1994, presented at the December 1994 PCOM meeting. All recommendations to PCOM from the November SSP meeting were accepted. Special projects undertaken in 1994 were (1) revision of the SSP data guidelines, and (2) contribution to the Offset Drilling Workshop and subsequent report. As an outgrowth of SSP's discussions of offset drilling and of shallow water hazards surveys, Kastens presented the following "SSP issue for PCOM consideration: "The site-specific survey data required to support certain kinds of challenging, high-priority, drilling target will probably not be produced as a by-product of independent science-driven survey cruises. SSP thinks that the funding structures of ODP member nations should include mechanisms to support site-specific surveys whose main contribution is to prepare the ground for drilling, rather than to directly reveal primary truths about earth processes." Kastens presented a bar graph showing number of data items received by the ODP Data Bank per year: the rate of deposition of data approximately doubled when ODP switched from a regional panel to a thematic panel advisory structure. In part this is because a larger number of programs are examined by SSP. Under the regional panel structure, SSP and the Data Bank basically only looked at programs that were blessed by the regional panel and almost certain to be scheduled. Under the present system, at our April meeting, SSP considers proposals from something like three to four times as many programs than can be scheduled in one year (20 programs in April 1994; 24 proposal in April 1995). At our July meetings, following the July 1 data deadline, we have been looking at data from something like twice as many programs as can be scheduled in one year. The reduction in number of programs considered between the April and July SSP meetings is primarily in response to PCOM's designation of an area of operations during the April PCOM meeting. Kastens pointed out to PCOM that it is absolutely crucial that PCOM

make a tough decision about area of operations for 1997 at their April 1995 meeting--SSP is not capable of examining full data sets from 20-24 proposals at our July meeting.

Ellins mentioned that in fact two of the drilling options produced during the DRILLOPTS meeting were merged to produce the proposed FY 96 Science Plan. Kastens also reported that SSP's recommendation regarding seafloor hazards was accepted by PCOM, although there was much debate. Kastens suggested that SSP remind TAMU that this recommendation was accepted and that they (TAMU) should look towards implementing it. Mountain raised concerns regarding the implementation of SSP Recommendation (November 1994; SSP recommends that PCOM request JOI to direct ODP/TAMU to make every reasonable effort to deposit processed copies of underway SCS data collected during surveys aboard the JOIDES Resolution into the ODP Data Bank.) The panel decided that to facilitate smooth implementation of this recommendation, which was accepted by PCOM at the annual 1994 meeting, Mountain will provide TAMU some very general guidelines on processing, formatting, and presentation of the JOIDES Resolution underway SCS data for the ODP SSDB. The following action plan was then formulated.

Action Item # 3: SSP liaison to convey to the technical support group at ODP/TAMU the following suggested procedure from SSP concerning implementation of the recommendation on processing underway seismic data approved by PCOM at their Dec 94 meeting.

The requirements of shipboard processing include: an off-line processing package that reads field tapes as input; an experienced processing technician assigned the responsibility of preparing profiles to the Co-Chiefs' satisfaction; and a display plotter roughly 18" or more in width. The steps that SSP suggest in a typical processing/display sequence ought to include: trace editing; bandpass filtering (± ntoch filtering); trace gain adjustment (scalar, spherical divergence, or automatic gain control (AGC); and display. The latter should be prepared at a useful scale (e.g. 1 second of two-way time = 4 inches, 1 hour of data = 10 inches) annotated with time of day ± shot point number.

2.2 PCOM (Dick)

The Planning Committee at its annual meeting at Texas A&M focused on several major issues in addition to finalizing the FY 1996 schedule. The latter has been transmitted separately from this report, but the SSP should note that scheduling two Caribbean legs was specifically not endorsed by PCOM, and only the Ocean History leg was scheduled. The Lithosphere Caribbean Leg was viewed by PCOM as having substantially compromised its objectives, largely due to planning too shallow penetrations into basement. It is unlikely that PCOM would consider scheduling this leg in the future in its present form. Among the principle issues PCOM dealt with were the new constraints on the Ocean Drilling Program presented by flat funding of $44.9 M for FY 96 to FY 97 as identified by NSF. The PCOM passed a motion recommending to BCOM the following prioritization with respect to budget cuts: 1) A 1 third reduction in the publication budget, 2) A reduction in technical support by the equivalent of 1 staff member per cruise, 3) Engineering development, 4) Certain experiments and special logs should be supported by non-commingled funds, 5) A reduction in the set aside for Special Operating Expenses from 4 to 3%.

PCOM established a Publications Subcommittee to recommend changes in the ODP publications structure that would both reduce its cost by 1/3 and enhance their visibility and impact on the scientific community. This committee assessed community opinion utilizing email and the JOIDES Panel structure, met at ODP TAMU and issued a report recommending a reduction in the size of the Initial Reports and Scientific Results, a shift to author produced copy, and the production and distribution of these volumes in both hard copy and an expanded electronic form. In addition, in order to increase the impact and visibility of ODP scientific results the committee recommended that the deadline for outside submission of papers be moved to 12 months post-cruise with prior submission of an original contribution to the scientific results. The committee also recommended that JOIDES underwrite thematic synthesis volumes emphasizing the results of scientific drilling in the oceans by providing salary support for the editors of such volumes. These volumes would be published through the various monograph and journal series of appropriate professional societies and would be proposed to them by the potential editors. Significant elements of the recommendations of the committee's report with budgetary impact on ODP/TAMU appear to already be proceeding towards implementation.

PCOM reaffirmed its support for both the Computer Data Base Upgrade and future DCS development, the above budgetary situation notwithstanding. All of the SSP's recommendations as noted in the minutes of the previous meeting of SSP were accepted by PCOM. PCOM also moved to establish clearer goals for the Computer Data Base Upgrade and better overall oversight of the development of this system.

2.3 OHP (Peterson)

Larry Peterson attended the Spring OHP meeting in Miami to facilitate communication between OHP and SSP, and to listen in on discussions of programs of high interest to OHP. He presented a brief summary of SSP's role in the proposal evaluation process, answered questions, and invited OHP members to contact him directly at any time for advice and information related to site survey issues. A copy of the global ranking and draft copies of the OHP proposal reviews were forwarded to Shiri Srivastava immediately after the meeting.

2.4 PPSP (Ball/Quoidbach)

Mahlon Ball reported that PPSP had completed reviews of Legs 162-165 and commended SSP and SSDB for their excellent work in assembling the data packages used in these safety reviews. PPSP is gratified that PCOM during its December 1994 meeting completed scheduling through 1996. This provides adequate lead time for compilation of assembling data packages and safety review of sites for 1996. Assuming that PCOM schedules an additional 6 legs at the December 1995 meeting, adequate lead time will be assured for the foreseeable future. It remains only necessary to get a Chief scientist appointed for Legs 168-170 in order to lay the groundwork for completion of reviews for 1996 drilling. A preliminary meeting of the potential participants in the NJ MAT drilling was held in conjunction with PPSP's March meeting. Jamie Austin described the gas hazards survey plan and arrangements to utilize John Chance and Associates in the data acquisition for the survey. Adam Klauss, ODP/TAMU introduced Peter Trabant, ODP's quality Control consultant to PPSP. PPSP Expressed confidence in the competence of both Trabant and John Chance Associate and decided to host a November 1995 Meeting to review results available from the hazards survey in time to make an oral presentation to PCOM at its

December 1995 Meeting.

2.5 Data Bank (Quoidbach)

Ana Maria Alvarez has been on sick leave for several weeks, but she is recovering and in good spirits. She is expected to return to work for partial days by mid-April. Ana thanks the SSP for all of their kind wishes for a speedy recovery. Since the last meeting the Data Bank has received 281 data items for various ODP proposals and scheduled Legs. Operations data packages were prepared for Legs 159 and 160, and work on the Leg 161 package will begin in several weeks. The Data Bank has also been constructing a series of World Wide Web pages for on-line distribution of Data Bank information and requirements for SSP and PPSP reviews. These pages should be ready by the end of April. This will be updated and expanded as time allows. The SSP mail alias, which the Data Bank maintains, has been updated. Panel members who are not receiving messages from the mailer should contact the Data Bank. At the December 1994 PCOM meeting, Dave Falvey proposed, and PCOM approved, that $10K be restored to the Data Bank budget for FY '95 to be targeted at gaining the ability to handle digital seismic data. JOI then asked the Data Bank for an outline of how the restored funds would be used, and suggested that the MCS group at Lamont should be utilized to minimize the amount of hardware and software needing to be purchased. The Data Bank responded to JOI with an initial proposal to use the LDEO MCS group to run out copies of any digital seismic lines received, to purchase an exabyte tape drive to compliment an existing DAT drive, and to upgrade the database server to a Power Macintosh computer for better performance. However, it was also indicated that SSP would be consulted in order to work out the best possible way to handle digital seismics, and to comment on the concerns of the Data Bank to the problems which could arise once this type of data is accepted routinely. Dan Quoidbach outlined his concerns to the SSP. These were: 1) A shift in the burden of ensuring data quality from the proponent to the Data Bank, 2) The added burden that maintaining a large tape archive would be on the Data Bank staff, 3) The additional difficulty in getting digital data from investigators who are already reluctant to provide paper records, and 4) the likely explosion in costs that would accompany having to plot out a large amount of seismic data on a routine basis. The Data Bank asked SSP for advice on how best to proceed so that these concerns are addressed. A sub-group of SSP was asked to discuss these issues during the meeting and report back to the entire panel.

2.6 JOIDES Office (Ellins)

Ellins reported that the JOIDES Office has received 10 new proposals for drilling, 16 revisions or addenda to existing proposals and 11 letters of intent since November 1995 . A table showing the Spring 1995 Global rankings (Appendix C) was distributed. Ellins asked SSP to note that Proposals 435 Rev and 435 Rev2 would become 471 and 472, respectively. In addition the proponents of LOI-35 (Saanich Inlet) have now submitted a full proposal for drilling to the JOIDES Office and will be designated proposal 473. Ellins distributed the Proposal guidelines and explanation of the new JOIDES Office drilling site designation policy. She gave a brief update on the revision of the LRP, summarised the meeting of European JOIDES PCOM and EXCOM members held in February in Cardiff, and described the successful JOIDES Resolution port call in Marseilles, France.

2.7 ODP/TAMU (Miller)

ODP/TAMU liaison Miller summarised briefly the items of interest to the panel among which was; selection of co-chief scientists of all legs to 166 is completed. The co-chiefs for the remaining two legs 168 to 170 to be announced shortly. He re-iterated the cut in the publication budget which was also mentioned by Dick. Prospectus of legs to 162 are out. These prospectuses will no longer be issued in paper copies but the entire document will be available on the network and those wishing to obtain copies can ftp it from the network. Replacement for Manager of Engineering Barry Harding, have been progressing well and a replacement will soon be announced. Director replacement is in progress. Other item of interest is the installation of online navigation display system on J/R since Leg 159.

2.8 NSF (Malfait)

The final 1995 ODP budget will be $45.8M. This includes new money and 1994 carry-forward of $900K from DCS and computer upgrade. The 1996 target budget is $44.9M. The next version of the long range plan is to be reviewed by PCOM in April. ODP council Review for 1999-2003 period to be completed in early 1996. Some individual countries (France and UK) are conducting their own reviews. The Performance Evaluation Committee (PEC-IV) review is to be completed in mid-1995. Science items of interest: VSP supported for gas hydrates leg (164); TAG instrument recovery successful; Borehole and ION science meetings held. A table of programs supported by USSAC and NSF that are highly ranked (Appendix D) was also presented.

3. SITE SURVEY IMPLICATIONS OF RECENTLY DRILLED LEGS

3.1 Leg 158: TAG hydrothermal system (Miller)

ODP/TAMU liaison Miller described the drilling results from Leg 158. Leg 158-Site survey package was complete (attach email response from Co-cheif Susan Humphris, Appendix E). High resolution photomosaic was helpful. Microbathymetry (2m contour) map with locations of markers deployed on several submersible programs was the most useful part of the package. In spite of encountering numerous drilling difficulties the Leg was successful in obtaining some very useful results. The drilling difficulties were caused mainly due to pyrite breccia. Drilling through it turned out to very difficult. One of the comments from Humpheris, relevant to this panel, was "For Legs that require precise positioning of holes relative to bottom features, a detailed map and seafloor markers are invaluable". Her comment on the use of HRGB is rather interesting in that nowhere they were able to find sites suitable for drilling using HRGB according to the guidelines. TAMU is looking into this.

The difficulties encountered in drilling during Leg 158 strengthens SSP consensus made during their April 95 meeting where they urged the scientific community to consider design of high resolution sea floor geophysical experiments capable of distinguishing between intact crustal blocks and volumes of pervasively fractured or brecciated material. Humpheris in her comments did not think that any available measurements could have differentiated between the massive pyrite from brecciated pyrite. The problem perhaps needs to be carefully considered further.

SSP Consensus #4 : No site survey problems were encountered on Tag (Leg 158) drilling and the general problems found with the use of HRGB are being looked into by TAMU.

3.2 Leg 159: Equatorial Atlantic Transform fault (Miller)

Leg 159-according to the Staff Scientist Peter Clift, the site survey package for Leg 159 was complete. No problems relative to site surveys were encountered during the leg.

4. SITE SURVEY STATUS OF UPCOMING SCHEDULED LEGS

Note: Leg 161 is not included as its data set was approved at a previous SSP meeting.

4.1 Leg 162: North Atlantic Arctic Gateway II

SSP Watchdog: Peterson/Quoidbach
SSP Proponents: None
Target Type(s): all Sites A (Paleoenvironment)

Leg 162 is rapidly approaching and it seems likely that the site survey data package for this program is essentially as complete as it will get. Heldover sites from Leg 151 (NAAG I) are considered currently ready for drilling by virtue of their earlier approval, though the Data Bank still lacks data normally considered vital for paleoceanographic targets at a number of sites (see summary of November 1994 SSP meeting). Sites newly proposed for the Leg 162 program are in pretty good shape. We note that confusion regarding the exact site positions of FENI-1 and FENI-2 seems to have been resolved, though important 3.5 kHz data are still lacking at these sites.

Since our last meeting, data submitted to the Data Bank include the recent survey data for SVAL-1 collected by Anders Soldheim, additional MCS lines in support of newly proposed alternate sites for YERM-1, and copies of several Poseidon MCS profiles from the Iceland-Faeroe Ridge (not available for SSP review at this meeting).

SVAL-1 has been shifted some 10.5 km to the north in response to new survey data and to address earlier SSP concerns of potential sediment disturbance at the original site location. The new location is at the intersection between a MCS line (BEL-4) and a new, high quality SCS line (NP94-5). We note with some concern the proximity of this repositioned site to a basement high to the west which may act as a source of slumped materials, and we suggest that proponents consider shifting this site location slightly to the east of the seismic line crossing.

Three new alternate sites (YERM-1B, C, D) have been proposed for YERM-1 (now termed YERM-1A) based on concerns of possible sea ice problems at the latter. These lie to the south near the crossings of east-west MCS lines BU4-79, BU5-79, BU10-79, and north-south trending MCS line BU2-79. The three alternate sites were recently approved by PPSP. All of the YERM sites, including the original YERM-1A, still lack SCS, 3.5 kHz, and core data.

Any additional survey data available, but not yet submitted, should be sent to the ODP Data Bank as soon as possible since the shipboard data package will be assembled shortly for distribution. SSP wishes the co-chiefs and scientific party of Leg 162 the best of luck in their upcoming cruise.

SSP Consensus #5: Though there are still a number of items missing from the site survey data package, SSP considers the suite of approved Leg 162 sites essentially ready for drilling. Proponents should consider the possibility of moving the new location of site SVAL-1 slightly to the east to avoid potential slumping off an adjacent basement high. We encourage prompt submission of any outstanding survey data that co-chiefs and/or proponents wish to have included in the official shipboard data package.

4.2 Leg 163: NARM Volcanic-II East Greenland transect

SSP Watchdog: Permanent: Trehu, Acting: Scrutton/Quoidbach
SSP Proponent: None, however Srivastava and Hinz were members of NARM-DPG
Target Types: B (Passive margin)

Since the November 1994 SSP meeting this proposal has been reviewed by PPSP and approved apart from moving site EG66-2 about 5km downdip in order to avoid a strong, possibly gas bearing, reflector. This moves the site off a crossing seismic profile, which is not ideal from the site survey point of view, but allows the site to sample a seismic facies not present at the original site.

However, there has been no development on the acquisition of data to allow a decision to be made on whether a re-entry cone or hardrock guide base would be useable at sites 66-1 and 63-6. No high-resolution seismic imaging of the seabed or visual data is available or likely to be collected. The potential roughness and variable composition of the seabed makes such data important. Recent experience with the hardrock guide base at other sites has indicated that documentation of the microtopography of the seabed is essential for its successful use. It seems likely that generally a trial and error approach to spudding in will have to be adopted off East Greenland; there is an alternate site for 66-1, 66-1A, where sediment cover is apparent.

SSP Consensus #6: Whilst there is sufficient site survey data for Leg 163 to proceed, SSP believes that there is insufficient data on the character of the seabed at sites EG66-1 and EG63-6 to allow a decision to be made on whether it will be possible to use hardrock guide base there.

4.3 Leg 164: Gas Hydrates

SSP Watchdog: Camerlenghi/Quoidbach
SSP Proponents: none
Target Type(s): A: paleoceanographic

The panel notes that one site (BRH-6) has been added to the drilling program subsequent to our November meeting and that it was approved by the Safety Panel during the last meeting in March 1995. However, the Site summary form for this site has not been submitted to the JOIDES Office. New sites should be named according to the directions provided by the JOIDES Office. Note that the Safety check Sheet submitted to the Safety Panel for safety review does not replace the Site Summary form.

Previously, at the Safety Panel meeting of October 1994, two sites (BHR-4 and BHR-5) where proposed and approved for drilling. It is our understanding that the Site Summary forms for these two sites have not been submitted to the JOIDES Office either.

The panel feels that the changes of proposed sites, although they do not create problems in terms of site survey readiness (the newly proposed sites are within the same grid of site survey data) have generated confusion both within the panel and at the Data Base. For examples it is not clear whether the new BRH transect still includes Sites BHR-2 and -3.

The co-chief scientists are requested to submit to the data bank a statement of clarification, and the final list of sites to be drilled during Leg 164. and appropriate definitive location maps. Site summary forms must be included for newly proposed sites.

Co-chief scientist are also reminded that outstanding data (side scan sonar, velocity determinations and colour amplitude plots of seismic lines) although promised in a letter dated October 1 1994, have not been submitted.

SSP Consensus #7: Some confusion on the drilling plan for Leg 164 (Gas Hydrates) has been generated by the recent addition of drill sites. Co-chiefs are urged to clarify the situation and submit new site summary forms, along with the outstanding data to the DB (side scan sonar, velocity determinations and colour amplitude plots of seismic lines) repeatedly requested by the panel in the past. Almost all required data is in the DB for Leg 164.

4.4 Leg 165: Caribbean Ocean History

SSP Watchdog: Mountain/Quoidbach
SSP Proponents: L. Peterson
Target Type: all sites type A: paleoceanography

Andre Droxler led a very successful JOI/USSAC-supported "site augmentation survey" across several sites in Dec '94. The short time between recognizing the data shortfall, securing funds to utilize a "ship of opportunity", completing a well-conceived survey, processing the data, and delivering it to the Data Bank demonstrate very effective coordination between drilling proponents, the JOIDES advisory structure, funding agencies and ship operators.

All alternate sites and all but 1 primary site (CB-1) were approved for drilling by PPSP at its March meeting, and the drilling leg is set to begin in late December of this year. However, a few essential - but small - data elements are still needed in the Data Bank as soon as possible. These are the 3.5 kHz and along-track Hydrosweep topographic swaths across sites S-6, S-2b, S-2c, S-3b,S-3c, and NR1/2. The SCS data across S-2b, S-2c, S-3b and S-3c were examined by SSP at the April '95 meeting, and the specific locations of each appear to have been chosen well. However, the panel has three requests regarding these data: (1) another display using a shorter AGC window might improve the imaging of features adjacent to strong reflectors such as A"; (2) time-varying filtering might provide better images of acoustic basement at S-2b and S-2c; and (3) every effort should be expended to assemble the best velocities possible at these latter sites to increase the confidence in estimates of depth (i.e. drilling time) to acoustic basement.

SSP Consensus #8: Andre Droxler led a highly successful site-survey augmentation cruise for Leg 165 (Caribbean Ocean History) since our November 1994 meeting and has deposited crucial SCS data in the Data Bank. 3.5 Khz and along-track Hydrosweep topographic swaths across sites S-6, S-2b, S-2c, S-3b,S-3c, and NR1/2 were part of this survey and need to be delivered to the Data Bank as soon as possible. The locations of S-2b, S-2c, S-3b and S-3c appear to have been chosen well. However, the panel has three requests regarding the newest SCS data across these sites: (1) another display using a shorter AGC window might improve the imaging of features adjacent to strong reflectors such as A"; (2) time-varying filtering might provide better images of acoustic basement at S-2b and S-2c; and (3) every effort should be expended to assemble the best velocities possible at these latter sites to increase the confidence in estimates of depth (i.e. drilling time) to acoustic basement.

4.5 Leg 166: Bahamas Transect (412-add2)

SSP Watchdog: Acting: Enachescu/Quoidbach; Permanent: Sibuet
SSP Proponents: None
Target types: Fluid flow sites, target A: Paleoceanographic; Sea level sites, target B: Passive Margin

At their fall meeting, SSP noted that all required and most recommended data had been deposited in the Data Bank for this proposal. This included brute stack versions of the high resolution, single channel seismic lines taken on the site survey which was completed in June of 1994. SSP had requested that additional processing be done on these lines to further suppress multiples, and that additional core descriptions be submitted for proposed sites with fluid flow objectives. Since that time, no new data have been received by the Data Bank, however the proponents have indicated that they are reprocessing their lines and expect to submit new versions by July 1 of this year.

The Bahamas Transect was placed on the FY '96 drilling schedule as Leg 166 at the December '94 PCOM meeting. The proponents prepared a report on their sites for the Pollution Prevention and Safety Panel, but the review of this Leg has been postponed until the September '95 PPSP meeting.

SSP Consensus #9: SSP notes that all required and some recommended data for Leg 166 (Bahama Transect) have been submitted to the Data Bank, but again urges the proponents to submit reprocessed versions of their seismic lines to the Data Bank as they become available. Additional core information should also be submitted for sites on the fluid flow transect.

4.6 Leg 167: California Margin (386,422,386)

SSP Watchdog: Camerlenghi/Quoidbach
SSP Proponents: None
Target Type(s): A (paleoenvironment)

The status of the Site Survey package is unchanged with respect to the last SSP meeting. The package is in a stand-by situation, awaiting the addition of the results of the R/V M. Ewing cruise scheduled in May 1995, which, if completed successfully, will provide sufficient site survey data for all proposed sites.

Co-chief scientists are reminded that the deadline for submission of the new data is July 1st 1995 (not August 1995 as previously put forth by M. Ball). Because this drilling program is in the anomalous situation of being included in the drilling schedule with a data package largely incomplete, it is essential that at least print monitors of all the seismic lines will be submitted along with results of coring, 3.5 kHz profiling and track charts. The panel must be able to evaluate, during the next July meeting, the quality and quantity of data collected and communicate to the Safety Panel before the safety review of September 1995. Improved seismic sections can be submitted to the panel before the deadline of November 1st 1995.

SSP Consensus #10: Co-chief scientists of Leg 167 (California Margin) must submit new vital data to be collected on the Ewing cruise before the July 1st 1995 deadline for SSP and PPSP reviews.

4.7 Leg 168: East Juan de Fuca Hydrothermal (440)

SSP Watchdog: Casey/Quoidbach
SSP Proponents: none
Target Types(s): E.and D. Open ocean environment (<400m and > 400 m sediment respectively) with additional requirements for high temperature environments ....

No new data has been supplied since the Nov. SSP meeting; so SSP's recommendations remain the same as in November, with some additions regarding the placement of HRGB. No seismic data which lie in the vicinity of the proposed sites with the exception of MCS data have been supplied. The panel realises that additional data will be collected at CC sites. SSP recommends location of new sites at the intersection of lines wherever possible. All of this data should be supplied to the DB soon after completion of the cruise. If a submersible cruise is to take place for positioning of site PP6 then copies of this data should be supplied to the DB. Existing visual data and imagery will be required for placement of the HRGB. This data should be placed in the DB as soon as possible.

SSP Consensus #11: No new data as requested by the panel has been supplied for Leg 168 (East Juan de Fuca Hydrothermal) since the Nov.94 SSP meeting. The proponents must supply the remaining data to the DB as soon as possible. Additional data to be collected this summer at CC sites should be supplied to the DB, together with a description of new sites if so chosen, soon after the cruise. The proponents are advised to follow numbering of new sites as suggested by JOIDES office. If a submersible cruise is to take place for positioning of site PP6, where HRGB may be used, then copies of all visual and imagery data should be supplied to the DB.

4.8 LEG 169: Sedimented Ridges II (SR II-Rev 3)

SSP Watchdog : Casey/Quoidbach
SSP Proponents: None
Target Types: E Open Ocean environment (<400 m sediment) with additional requirements for high temperature environment.

SSP Consensus #12: SSP appreciates the efforts made by the proponents of Leg 169 (Sedimented Ridges II) in responding to its concerns for the Escanaba Trough data and in keeping the panel fully informed of new developments and amendments to the drilling strategies. All the required data is now in the DB and the addition of the USGS Bull 2022 in January, 1995 helps to make the package more complete. However, SSP requests the addition of "recommended" Gloria data for the Escanaba Trough region and available submersible or ROV video/photographic imagery for the hydrothermal drill sites in the Middle Valley and Escanaba Trough. SSP recommends that the proponents make every effort to place passive markers (for details contact Dr. J. Miller at ODP\TAMU) at proposed drill sites with already funded submersible or ROV cruises to the region. Submersible dives may be added to existing programs possible via JOI-USSAC Site Survey Augmentation funds. SSP would also like an updated seismic track map for the Middle Valley sites with the Sedimented Ridge II -Rev3 proposed sites located on this map. Lastly, SSP would like the proponents to address questions regarding the accurate location of Site BH6 in order to meet the objective of penetration of the 856 fault zone.

4.9 Leg 170: Costa Rica Accretionary Wedge (400-Rev2)

SSP Watchdog: Tokuyama/Quoidbach
SSP Proponents: none
Target Type(s): C: Active margin

At our July 1994 meeting, SSP noted that a geophysical data package was ready, but piston/gravity cores and visual data sets were lacking and these were requested from the proponents. Core data are required for re-entry sites. The visual data such as photographs and video tapes obtained by the recent Alvin dives are very useful to understand fluid venting. The ODP Data Bank received the report of the Atlantis II cruise and Alvin dives but not copies of video tapes. SSP requests once again to send to ODP Data Bank core logs and selected photographs and video tapes.

SSP Consensus #13: The Costa Rica Accretionary Wedge (Leg 170) data set is complete for the structural objectives. However, cores and visual data sets for fluid objectives are needed.

5. POTENTIAL FUTURE DRILLING: OHP

5.1 Benguela Current (354add3, 354add4)

SSP Watchdog: Hinz

SSP Proponent: none
Target Type(s): A (Paleoenvironment)

The scientific objectives of this proposal, which was ranked very high by the OHP, is to reconstruct the Pliocene-Pleistocene histories of the Benguela Current and the costal upwelling off Angola and Namibia between 5°S and 31°S. In the latest revised addendum (354-add4) the proponents have selected 10 primary sites located along three transects:

- Sites NAB1, NAB3A and NAB4 are located along an E-W transect off the Congo Rise in intermediate water depths (1397-3001m). Maximum penetration is 400 m to 600 m.
- Sites MAB1, MAB3 and MAB5A lie along an E-W transect at approximately 12°S in water depths ranging from 500 m to 1559 m. Maximum penetration is 400 m to 600 m.
- Sites SAB2, WR1, NCB2 and SCB1 are located along a N-S transect traversing from the middle slope of Angola at about 16.5°S across the eastern Walvis Ridge too the upper slope at about 31.3°S. Maximum penetration of the proposed sites in water depths of 750 to 2770m are 600m.

The site survey data consist of bathymetry data acquired with a Hydrosweep swath sounder, high resolution seismic Parasound data with penetration of generally 100m and more, and high resolution SCS data of high quality and sufficient penetration varying between 1s and 2s (TWT) i.e 1000 to 2000m. These data were acquired during two METEOR cruises (1988, 1992) and during a SONNE cruise in 1993. All these data are in the data bank.
All the above mentioned first priority sites are neighboured by piston and gravity cores. Plots of del18 stratigraphy, organic and inorganic content, dry bulk density of the cores have been submitted to the data bank. Thus most of the required data for this proposal is in now in the data bank with the exception of the following.

The dataset for site SCB1, located on MCS line AM-54/Texas University is still insufficient. Therefore SSP recommends to acquire high resolution Parasound and SCS data along crossing lines at the proposed sites SCB1 and NCB2 during the forthcoming METEOR cruise, scheduled for January 1996. Further, SSP recommends to investigate the occurrence of man-made seafloor hazards including the position of submarine cables.

SSP Consensus #14: Most required and recommended data in support of the Benguela Current proposal (354-add4) are in the data bank, and SSP appreciates the efforts made by the proponents in responding to its concerns. SSP urges the proponents to acquire additional high resolution Parasound seismic data along crossing lines at the proposed sites NCB2 and SCB1 during the forthcoming METEOR cruise scheduled for January 1996.

5.2 SW Pacific gateway: Paleoceanography (441-ADD1): NEW

SSP Watchdog: Peterson
SSP Proponents: None
Target Type(s): all Sites A (Paleoenvironment)

This proposal addendum was prepared in response to panel comments from reviews of proposal 441 last spring. The proponents have done a commendable job of focusing their

science and addressing panel comments and concerns. Originally a two leg program with seventeen sites, this addendum presents a single leg program with seven sites positioned in two transects that cross the main flow axis of the deep western boundary current (DWBC) of the SW Pacific. The principal scientific objectives are to allow reconstruction of DWBC history, to study evolution of surface fronts and water masses, and to evaluate the transition from a "tranquil" deep ocean circulation in the early Cenozoic to the "powerhouse" ocean of today. This proposal addresses high priority OHP thematic objectives and has been enthusiastically endorsed by this panel.

Based on what is described in the addendum, a relatively large body of site survey data appears to already exist in support of the proposed sites. Proponents have begun to submit data, including a number of SCS lines that pass through individual site locations. These are generally of very good quality, though they were looked at without the benefit of navigation data at this particular meeting. Site locations were not marked on the profiles and, in the absence of shotpoint or location information, could only be guessed at through comparison with figures in the text of the proposal. At least one SCS profile (for PGAT-C/3A) had no vertical scale provided. Nevertheless, it appears that there are sufficient data potentially available to satisfy target type A data requirements at most sites. SSP urges the proponents to continue their efforts to gather and submit relevant survey data to the ODP Data Bank in a timely manner, and reminds them that July 1 is the next data deadline to be aware of. The proponents themselves note that additional survey data still need to be collected for several of the southern transect sites (PGAT-E/5A, -F/6A, -G/7A) and SSP would like to be kept informed of proponent efforts to acquire these data (including a potential timetable). Finally, the original proposal described commercial wells that have been drilled in the region, but it is not clear where these wells may lie with respect to the subset of sites described in this addendum. For eventual safety review, the locations of such wells will need to be supplied, along with data from those judged to potentially impact site safety considerations.

SSP Consensus #15: The SW Pacific Gateway (441) proponents have done a very good job of addressing previous panel comments, and have produced a more focused one-leg program. A substantial body of survey data already appear to exist for these sites, and the proponents initial data submission suggests that the quality of existing data is quite good. Efforts should be made to gather and submit remaining available survey data in a timely fashion. SSP would like to be kept abreast of proponent plans to gather vital data currently lacking at several of the southern sites.

5.3 Southern Atalntic paleoceanographic transect (464): NEW

SSP Watchdog: Peterson
SSP Proponents: None
Target Type(s): all sites A (Paleoenvironment)

This new proposal represents a combination of science objectives previously put forth in proposals 458 and 430. The program calls for drilling a transect of sites in the eastern sector of the far South Atlantic that covers a range of both latitudes (41° to 53°S) and depths (~2000 to 4800 m). The major scientific goals are to focus on the Cenozoic paleoceanography and

paleoclimatology of the Subantarctic, with an emphasis on understanding the history of surface and deep circulation, the role of the Southern Ocean in global biogeochemical cycles, and the evolution of the Antarctic cryosphere. Proposed sites at the fringe of the high silica belt have documented sedimentation rates in excess of 30 cm/kyr, making possible the investigation of sub-Milankovitch scale ocean and climate variability.
The overall program has strong support from OHP.

Seven primary sites and four secondary sites are proposed. The TSO sites (from original proposal 458) all have Parasound and Hydrosweep coverage, and all but two have associated piston cores. Four of the TSO sites are currently sited on single MCS lines collected from the R/V Polarstern. These lines were submitted to the Data Bank in time for our meeting, though navigation data apparently sent by e-mail were unavailable. The lines are generally of good quality. There are no crossing lines or SCS data available for any of the TSO sites and none of the other data have yet been submitted to the ODP Data Bank. Sub-SAT 1A (from original proposal 430) is presently located on a very poor quality Robert Conrad line. Sub-SAT 3 is a proposed reoccupation of ODP Site 704 and can be considered ready for drilling based on previous approval.

Both German and American proponents have submitted site survey proposals to their respective funding agencies. NSF/ODP has informed the U.S. proponents that they are committed to funding the survey, but it is not presently clear that a ship will be available for operations in this region during the austral summer 1995-96 weather window. The status of the German survey proposal to collect MCS data from the R/V Sonne has not yet been resolved. Assuming that one or both efforts move forward, it would appear that all vital site survey data will be in hand by early 1997 at the latest, sooner if a U.S. ship becomes available for the next austral summer field season.

In planning their survey efforts, proponents should aim to satisfy site survey data requirements for type A (paleoenvironment) targets. Vital data are considered to be high resolution SCS and 3.5 kHz profiles (or Parasound), and the presence of a sediment core at targeted sites. Because of the emphasis on drilling topographic features, SSP considers it highly desirable to have crossing lines in the immediate vicinity of each site, though site locations need not necessarily be restricted to the exact intersection of more than one line.

SSP Consensus #16: The proposal 464 for drilling in the South Atlantic-Subantarctic region addresses high OHP thematic priorities. Site survey data are currently inadequate to target final drilling locations, but plans to collect additional survey data are well underway. NSF/ODP has committed to funding a field program contingent upon ship scheduling, and a German site survey proposal is currently pending. SSP encourages proponents to continue to assemble and submit already existing survey data to the ODP Data Bank in as timely a fashion as possible.

5.4 NW Atlantic Sediment Drifts: Neogene Paleoceanography (404-Rev)

SSP Watchdog: Mountain

SSP Proponents: none
Target Type: all sites type A: paleoceanography

Small improvements in data readiness have been advanced for Neogene Paleoceanography (proposal 404, 404-Rev) since our Nov '94 meeting. These most recent submissions, unfortunately, have been of secondary importance; SSP encourages the proponent to deliver by July 1 the critical data elements still lacking to preserve a reasonable chance of making the Fall prospectus and be considered at the year-end scheduling meeting by PCOM. These critical data include:

for BR-1 (+ alternates) - navigation compiled onto one working-scale map comprising tracks of 3.5 kHz and seismic data plus existing cores that place the proposed site and drilling objectives into a regional context;

for BBOR-1, -2 (+ alternates) - down-looking Deep Tow echosounder data plus digital navigation;

for BBOR-1 through 8, CS1, 2 (+ alternates) - large, working-scale map of pertinent 3.5 kHz and seismic tracks and piston cores; good quality seismic profiles at each site that image to at least the proposed TD.

The proponent notified the SSP watchdog that Ed Boyle will attempt a 50m piston core at BR-1 aboard the Marion Dufresne in April '95; any information collected at BR-1 appropriate to data evaluation of this site (age-depth plots, 3.5 kHz and seismic profiles, bathymetry) would be of great help if delivered to the Data Bank before July 1. In addition, the complete BER-1 MCS line plus its digital navigation (recently sent by the French to the proponent) need to be deposited in the Data Bank. The revised proposal 404-Rev sent to the JOIDES office in Dec '94 included several helpful items requested by SSP, including page-size summary table of sites, locations and relevant core numbers, plus page-size plots of Kn140 cores and proposed BBOR/CS sites. ODP Site Summary formes were NOT included; these ought to be sent to the JOIDES office as soon as possible.

SSP Consensus #17: For NW Atlantic Sediment Drift proposal (404-rev) SSP awaits the BER-1 profile and navigation, Marion Dufresne survey and sample data, and a regional working-scale map needed for site BR-1 to be considered adequately prepared. Similarly, Deep Tow echosounder and navigation data are needed at BBOR1, 2. A working-scale track chart with relevant core, 3.5 and seismic data are needed for the entire set of proposed BBOR and CS sites.

5.5 Blake Plateau and Blake Nose Paleogene (462)

SSP Watchdog: Mountain
SSP Proponents: none
Target type: both A: paleoceanography and B: passive margin

The proponent continues to be very responsive to SSP requests for data submissions. Since our last meeting, files of digital navigation plus a large-scale paper compilation and copies of 10.2Khz Farnella data have arrived at the Data Bank. A map of Lamont piston

cores was sent as well.

SSP Consensus #18: SSP encourages the proponent of Blake Nose proposal (462) to address (by July 1) the two issues discussed at its Nov '94 meeting: (1) sediment velocity data must be assembled from available sources to provide greater confidence in depth (drilling time) to proposed TD's; and (2) the concerns for spud-in difficulty (as encountered at DSDP Site 389) could be relieved by a site-specific demonstration (from bottom photos, samples, 3.5 kHz profiles, etc. with accompanying discussion supplied as text) that there are no phosphorite hardgrounds at the proposed drillsite.

5.6 SE Pacific paleoceanography (465): NEW
SSP Watchdog: Peterson
SSP Proponents: None
Target Type(s): all Sites A (Paleoenvironment)

This new proposal calls for the drilling of Neogene and older sediments in a series of latitudinal and depth transects in the SE Pacific, ranging from the Cocos Ridge to the Chile Rise (~0° to 50°S) and in water depths from 900 to 4300 meters. The proposal is considered highly relevant to top OHP thematic objectives and addresses multiple questions relating to the dynamics of mid-depth and deep water-mass hydrography and chemistry, the history of a major eastern boundary current system, paleoproductivity, and tectonic-climate connections. Thirteen sites are proposed (mostly APC/XCB) with a maximum sediment penetration of 500 meters. The program of drilling is designed to fit into a single leg.

The SE Pacific is poorly surveyed and the majority of sites cannot be adequately located with existing data. Two of the proposed sites are at locations of good piston cores, but there are virtually no seismic or other supporting data from any of the sites at this time. The proponents are making efforts to search for existing data in the region and we encourage them to submit to the Site Survey Data Bank any data they locate which they feel may be relevant to making eventual site decisions.

A site survey proposal to NSF/ODP to survey the Nazca Ridge, Chile Basin, and Chile Rise sites has been submitted and recently declined, but the proponents have been encouraged to revise and resubmit. A separate proposal to survey northern sites on the Cocos and Carnegie Ridges is currently pending with the new Earth System History (ESH) panel of NSF. SSP members Karl Hinz and Angelo Camerlenghi noted that both German and Italian research vessels are currently, or soon to be, conducting geophysical surveys off Chile. Proponents can obtain additional information on these cruises by contacting Hinz and Camerlenghi directly. SSP wishes to remind proponents that their future survey efforts should be planned with data requirements for target type A (paleoenvironment) objectives in mind.

SSP Consensus #19: Proponents of SE Pacific paleoceanography proposal 465 are to be congratulated for producing a drilling proposal that has climbed into the OHP rankings so quickly. Site survey data, however, are currently inadequate for specific

site selection. We encourage proponents to continue their efforts to locate and compile available site survey data from the region, and to submit relevant data to the Data Bank in order to maintain their proposal's visibility in the eyes of SSP. Funding is currently being sought for new survey efforts and we wish the proponents good luck in this endeavour. They should also contact Drs Karl Hinz (BGR) and Angelo Camerlenghi (OGS) for collecting additional data on their cruises. We consider it unlikely at this time that sufficient survey data will be in hand for inclusion in a 1997 drilling program.

6. POTENTIAL FUTURE DRILLING: LITHP

6.1 Return to 735B, AII Fracture Zone (300)

SSP Watchdog: Casey
SSP Proponents: none
Target Type(s): Bare Rock Drilling

Since July, 1994 a magnetic anomaly map and swath bathymetry maps of various scales have been submitted to the DB. No new data has been submitted since the November, 1994 meeting. The SSP is very interested in the results of the British seismic survey recently conducted by Minshull and others in the region of Hole 735B. It may provide important regional and site specific information that has important implications for planning and meeting Lithosphere objectives involved in deepening 735B. It may establish the likelihood of penetrating mantle material at depth in 735B. As there is a gravity high associated with Site 735B, identification of a shallow crust-mantle transition would provide constraints that would help in planning of the Leg and help to firmly establish a major objective of the Leg and the Offset Drilling Program. The proponents are encouraged to submit the refraction results from this British seismic experiment to the DB as soon as possible, if not in final form, at least a submission of preliminary results of the cruise. Also fully processed seismic data should be deposited at the same time. Track lines and sections should be submitted with sites clearly marked. If the proposed site survey cruise (now pending) is conducted, it would provide video, deep-towed magnetic and sampling coverage of the area. However, this survey is not funded as yet. This survey would be of value in locating the offset holes where the HRGB is planned to be used. Bottom photography or video is usually required for the HRGB. Again, the seismic reflection work of Minshull may be important in establishing conditions to be expected for the offset sites.

SSP Consensus #20: Most of the required data for proposal 300 (Return to site 735B) is now available in order to deepen Site 735B. However, since the November, 1994 SSP meeting, no new data has arrived to the DB. SSP, however, requires video or photographic imagery for offset drill sites because of the planned use of the HRGB there. The proponents are advised that they should make every effort to obtain this data if the offset sites are to be scheduled or they may choose to formulate arguments to the satisfaction of ODP/TAMU that this visual data is not needed for the offset sites based on existing data and previous drilling in the region. In either case it

is advised that the proponents should be in touch with ODP/TAMU (Dr. Jay Miller) concerning the use of the HRGB in this proposal. The proponents are advised to deposit as much data from the British seismic experiment as possible in this region to the DB so that it can be considered by SSP during their July meeting. This will be an important addition for continued evaluation of the proposal by SSP and the thematic panels. The proponents are asked to keep SSP appraised of the site survey proposal's funding status.

6.2 Caribbean Cretaceous basalt province (411, 415-rev, 434)

SSP Watchdog: Hinz
SSP Proponent: None
Target type(s): D (Ocean Crust with >400m sediments)

Goals and status of the site survey database were discussed with some of the proponents during Nov 94 SSP meeting. The proponents were aware that the results from the recent completed cruises are important to complete the data base in particular for sites C1, S3, S3A and S7A. This data has not been deposited in the DB yet.

SSP Consensus #21: SSP urges the proponents of Caribbean Basalt Provinces (411, 415-rev) to deposit the recommended data recently collected across the proposed sites as listed in Nov. 94 minutes to the Data Bank before the July 1 deadline so that these can be assessed by SSP.

6.3 Ontong Java Plateau: origins, age and post-emplacement history (448-add): NEW

SSP Watchdog: Tokuyama
SSP Proponent: None
Target Type(s): D Open Ocean Crust (>400m sediment)

A basement drilling transect of the Ontong Java Plateau has been proposed to determine the age and duration of emplacement of the plateau, the style and environment of emplacement, range and diversity of emplacement and the post emplacement tectonic history of the plateau. For this the proponents had proposed nine holes to be drilled during two leg program. This was later altered to a four one leg program with the possibility of all nines holes to be drilled in case two leg program was feasible. All of the sites fall under the open ocean crust drilling where sediments are greater than 400 m. It is important that the proponents follow the guide lines for this type of drilling targets as given in JOIDES Journal June 1994.

From SSP point of view, the proposal lacks specific data from many of the sites, though substantial data exists in the Data Bank because of previous drilling in this region. The proposal is characterized to penetrate deep hole into basement which is presumably composed of igneous rocks or alternation of igneous and sedimentary rocks. However, all available seismic data are SCS profiles. ODP Data Bank has old SCS data which were used for Legs of 129 and 130. No new geophysical data have been sent to ODP Data Bank for this proposal. And no specific geophysical data exists for OJ6, OJ7a, OJ7b, OJ8 and OJ9a. It would be useful to supply a map with track lines and site locations so one can see the amount

of data available at each site. At present the data exist in bits and pieces. This concern was also echoed by thematic panels earlier.

SSP makes the following recommendations.

1) The guide lines for category D specify high resolution or deep penetration reflection profiles. Considering the deep basement targets for this proposal it is recommended that every effort be made of acquiring deep penetration seismic data. MCS profiles are required to determine detailed basement characterisation at these sites. MCS are also required at OJ1a and OJ1b because these sites are located on down thrown block. Similarly 3.5 khz data is required at all sites.

2) MCS profiles are required to clarify rift dipping reflectors developing in the basement for sites OJ2/807C and OJ5.
3) Cross lines are required for site OJ4 to determine the 2D structure of diatreme.

4) Velocity information is required for deep penetration site such as OJ1a, OJ2/807C, OJ3, OJ4, OJ4a and OJ5.

5) If magnetic and gravity data exist not only in the vicinity of the proposed site but also for entire Ontong Java Plateau, it should be deposited with the ODP Data Bank.

6) SSP recommends that every effort be made to carry out a survey which could obtain above geophysical data.

SSP Consensus #22: Though substantial amount of single channel reflection seismic and bathymetry data for Ontong Java Plateau exist in the Data Bank because of previous drilling but site specific data for proposal 448 is lacking. Little or no data has been deposited with the Data Bank by the proponents for specific sites. It is recommended that MCS data together with velocity information need to be collected at many of the proposed sites because of deep basement drilling. It is recommended that proper documentation together with required seismic, and recommended magnetic and gravity data be deposited with the Data Bank. In SSP opinion adequate data does not exist in the DB for this proposal.

6.4 Kerguelen Plateau and Broken Ridge: age and evolution (457-rev): NEW
SSP Watchdog: Hinz
SSP Proponent: None
Target Type(s): D (Ocean Crust with >400m sed.)

The major scientific objectives of this proposal are:
-to determine the duration and age of the formation of the Kerguelen-Broken Ridge igneous province.
- to understand the magmatic/volcanic processes and the mechanism of plateau growth and

the role of the Kerguelen Plume.
In the revised proposal (457-rev) eighteen sites along six dip transects are proposed. The proposed penetration into the igneous crust for all of the proposed sites, located in water depths varying between 300 m and 4600 m with sedimentary cover ranging from 0 m to 900 m, is 200 m with the exception of one site which lies on the flank of the plateau.
All sites are being judged as target types D and require high resolution seismic reflection, 3.5 khz data together with good velocity information. Grid of intersecting lines will be needed at some of the sites to control the two dimensionality of the structure present. Similarly gravity and magnetic information for the region is needed. Swath bathymetry data is required at site KIP18 which lies along the steep slope. This data is required to check for slope instability and micro-topographic features around the site that may be missed on seismic profiles but would make drilling unsafe or unrepresentative. From the present documentation and from the existing data in the data bank it is concluded that datasets for several of the proposed sites are far from complete. The proponents should also supply DB with a track map showing location of proposed sites on the existing data in DB.
SSP recognises that the drilling program is very ambitious (11,800m of planned drilling without counting double APC penetration). The proponents should prioritize their sites and deposit all required and recommended datsets for target D as listed in Joides Journal June 1994 together with as listed above.

SSP Consensus #23: There is a likelihood that most of the required data for proposal 457-rev for drilling on Kerguelen Plateau can be assembled to support a complete drilling leg. The lack of drilling time and lack of adequate data at some of the sites are very likely to require elimination of several sites from the present very ambitious 18 site drilling plan. Although site survey data for ODP Leg 120 are in the Data Bank, the dataset remains far from complete. Swath bathymetry is required at site KIP18. The mentioned new geophysical data from recent French cruises have not been deposited in the Data Bank. SSP awaits the announced revised version of the proposal and additional data to support the drilling on the Kerguelen Plateau.

6.5 Australia-Antarctic Discordance (426)

SSP Watchdog: Acting watchdog: Kastens, Permanent watchdog: Toomey
SSP Proponent: SSP/NSF liaison Shor has been involved in site surveys for this proposal
Target type(s): E: open ocean crust <400m sediment

No data is in hand for the Australia-Antarctic Discordance proposal. In response to an email inquiry from acting watchdog Kastens, lead proponent Christie has told us by email that a site survey cruise is scheduled aboard the Melville in Jan-Feb 1996. SSP refers the proponents to our minutes of April 1994, in which we offered detailed advice about data acquisition priorities for this site survey. Quoting from our April 1994 consensus: "...SSP will need seismic data of sufficient quality to accurately define the depth to basement, plus magnetic anomaly data of sufficient quality to lay out an array of holes tied to specific flowlines and isochrons."

Two cruises have recently been completed in the general area of the southeast Indian Ridge (1994-1995 austral summer). These two cruises were west of the area of the proposed ODP drilling. In the words of Christie: "when the isotope and trace element data begin to emerge, they will undoubtedly refine our view of what the "Indian" mantle looks like, but they will remain peripheral to the objectives of the drilling proposal." Christie's message also addresses a potential criticism: "why can't this be done by dredging?" Christie's answer is (1) drilling is limited to targets of opportunity, which are few and far between and not ideally situated, and (2) existing dredged samples are not sufficiently fresh to distinguish geochemical provinces. SSP encourages the proponents to submit geochemical data from existing dredges in the region as part of their effort to define the regional geochemical and geophysical setting.

We note that in their spring 1993 review, TECP stated that "detailed structural maps and true-scale cross-sections (balanced to the extent possible) need to be presented to provide better constraints and justifications for the drill sites." We don't agree. As long as the seismic data are clearly sufficient to define the depth of basement for operational planning, and to avoid anomalous regions such as fracture zones and seamounts, SSP will not expect to see detailed structural maps or balanced cross sections.

SSP Consensus #24: No data are in the Data Bank in support of the Australia-Antarctic Discordance proposal (426). A site survey cruise is scheduled for Jan-Feb 1996.

6.6 Nicaragua and Izu-Mariana convergent margins (471 & 472): NEW
SSP Watchdog: Scrutton
SSP Proponent: None
Target Type(s): C for all sites in 471 and in 472 D or A for site BON8A.

NOTE: This proposal is now separated into two and renumbered 471, Nicaragua, and 472, Izu-Mariana. At this SSP meeting it is considered as one proposal, however.

This proposal is to investigate the mass and chemical balance between input to a subduction system from the oceanic crust and output to and through the accretionary prism, to the arc and to the backarc region, with the balance of material being recycled into the mantle. Very tight controls on the quantity and nature of the materials involved is required. Two subduction zones have been selected for this study - Nicaragua because of the strong 10Be signature in the arc volcanics indicating efficient sediment recycling, and Izu-Mariana because of the simplicity and level of knowledge of the system and the strong geochemical contrast between the Izu and Mariana segments. The Izu segment was the subject of a previous proposal to establish a geochemical reference site in downgoing oceanic crust.

A three-site transect is proposed for the Nicaragua margin, the sites being grouped around the lower margin. Sedimentary sections, basement samples and fluid samples are required. SSP would categorise these sites as being target type C, Active Margin. At present the only data for these sites is one MCS profile, but a site survey proposal was submitted to NSF in

June '94 and should yield the data necessary to meet SSP requirements. Although high resolution seismic profiles are only recommended in this situation, for accurate knowledge of the budget in the sediment column SSP would urge the proponents to consider collecting this data type. Fluid sampling objectives, as exist here, require heat flow measurements, which should be collected by this survey.

In the western Pacific two drillsites are proposed on the downgoing plate, essentially as geochemical reference sites. The site close to the Izu subduction zone is BON8A and is sited on a good quality CONRAD MCS profile. The site is effectively on the abyssal plain and can be categorised as target type D. Again, SSP would urge the proponents to acquire high-resolution seismic data over the site in order to accurately document the sediment budget entering the trench. Moreover, if the proponents wish to pursue the paleoceangraphic objectives of this site they will have to consider acquiring data suitable to target type A, which includes high resolution seismic data. The site proposed off the Mariana arc is a reentry of 801C. For this proposal SSP would consider that the site survey data is likely to be complete for this site.

SSP would like the proponents to start depositing data in the Data Bank .

SSP Consensus #25: For the Nicaragua margin transect (471) to test mass and chemical balance there is still a lot of site survey data to be acquired. SSP awaits these data. For the Izu subduction zone (472), site BON8A, an MCS profile is available and should be supplemented with data appropriate to paleoceanographic targets which would aid the mass balancing work as well. The site survey data for 801C is likely to be complete; but for all sites SSP would like to see data being deposited in the Data Bank.

6.7 Tonga forearc: geodynamics, arc evolution and deformation (451-Rev2): NEW

SSP Watchdog: Scrutton
SSP Proponent: None
Target Types: C (Active margin)

This proposal entered the ODP system with a focus on the N-S geochemical variations along the currently-active Tofua arc. These variations would document the effects of changing slab components and successive mantle depletions on the erupted magmas consequent upon the southward propagation of back-arc rifting (Lau Basin) and the changes in underlying plate geometry. By merging proposals 446 and 451 there is now also a strong tectonic component. This focuses on the mechanisms of tectonic erosion, various aspects of the dynamics of the subduction and the hypothesis of decompression melting to arc petrogenesis.

Seven sites are proposed which, together with sites 840 and 841 (Leg 135), make up four transects at 15°, 18°, 22° and 23°S. The targets in the sedimentary cover are predominantly stratigraphic, with a view to interpreting movements of the arc basement as the system

evolved tectonically. There are also basement objectives at every site to interpret the history of volcanism. Typically 100-200m of basement penetration is planned beneath up to 500m of sediment. Two sites, TF2A and TF5A, are also proposed to sample hydrothermal alteration products and mineralisation. Sites are in water depths of 315m to 4531m. Seismic profiles through the sites locations show the drilling targets, with the exception of site TF7A where a steep slope makes confirmation of the 10m sediment cover difficult.

A site survey database of MCS, SCS, 3.5/12kHz profiles, sidescan sonar, magnetics and gravity and some sampling seems to be available. The sites are all in site survey category C and SSP would ask the proponents to prepare site survey data packages for the Data Bank using these guidelines. Swath bathymetry would seem to be the only required data type that is absent from the data available. The purpose of the swath data is to check for evidence of slope instability and micro-topographic features around the site that may be missed on 2D profiles but would make drilling unrepresentative or unsafe. However, with the exception of site TF7A SSP would be prepared to describe swath bathymetry as desirable rather than required. For site TF7A the steep slope location requires swath coverage. It is also necessary at this site to confirm the 10m sediment cover so that the need for a hardrock guide base can be eliminated. The proponents are urged to seek these data. Since all the sites are located in a hydrocarbon exploration area, it is likely that PPSP will require to see some heat flow data, although industry well temperature profiles might be sufficient for this.

The only data in the Data Bank pertinent to this proposal is ODP Leg 135 data. The proponents should start to deposit relevant data.

SSP Consensus #26: It is possible that the site survey requirements for Tonga Forearc proposal (451-rev2) can be satisfied by the existing data. The proponents should assemble data sets according to site survey target type C, Active Margin, with the proviso that swath bathymetry is only required at site TF7A, and only recommended elsewhere. They should also seek information on regional values of heat flow. Data submission to the Data Bank should proceed soon so that SSP can make a proper evaluation.

7. POTENTIAL FUTURE DRILLING: TECP

7.1 West Woodlark Basin (447-rev)

SSP Watchdog: Enachescu
SSP Proponent: none
Target Type(s): Sites ACE-1A,2A,4A,5A: B (passive margin); Site ACE-3A F (barerock)

This proposal is targeted to a small basin formed by present day active extension. The basin formation includes all the variations from continental rifting to seafloor spreading. A low-angle detachment zone and a possible metamorphic core complex-the Morsbey Seamount, are to be investigated by drilling. The role of low-angle faulting in continental extension and breakup is one of the most controversial subjects in geoscience world.Five locations are

documented, two of each have alternatives. With the exception of one (3A) these sites are judged as passive margin targets. Site 3A is barerock target.

SSP recognises that the program is at an advanced degree of maturity now and a substantial amount of MCS data has been deposited in the Data Bank since our spring 94 meeting where this proposal was considered.All proposed sites are feasible and strongly documented. However, from SSP perspective a few additional information and support are necessary for finalizing this proposal. Among them:

- Intersecting lines are required for all proposed sites in passive margin settings (sites 1a, 2A, 4A, 5A and B). From a recent communication with the proponents it is learnt that such cross line data will be collected during a funded cruise on EWING in Sept and Oct 95.
- Seismic velocity information is necessary for all passive margin sites. A depth converted seismic section or a geological cross-section would better represent the location profile for drilling sites.
- Site 3A is identified as barerock, but depending on its final position may drill between 20 and 580 m of sediment. The location clearly appears sedimented. The same feeling has been echoed by thematic panels. Video or photographic data with accurate navigation are needed to clarify the shape and nature of this site and to better document the scientific rational of the proposal. A core or dredge would be advisable. From the recent communication with this panel it is learnt that an Aus-Can cruise has been funded to this area where some photographic work is planned. Though water current information has been obtained for this region, it is advised that such information should be obtained for this site for the use of HRGB.

A few other suggestions were made by the panel during the discussion of this proposal and are:

- Magnetic modelling of the anomaly related to the seamount may be helpful.
- A location on the western flank of the seamount may be scientifically important for the validation of the detachment model.
- Site 1A will drill through an erosional channel and moving it to the east will avoid this and have the advantage of intersecting a thicker sequence in the downthrow block.
- Safety panel may have some problems with site 5A which appears to appears to intersect an area with a gas plume and mound at the water bottom. This may be a processing artifact on the newly processed data but must be checked before committing drilling at this location. It may need to be looked at carefully at some PPSP meeting.

SSP Consensus #27: SSP acknowledges that a nearly comprehensive data package supporting drilling in the West Woodlark Basin (447) now exist in the Data Bank. A few items like cross lines are yet to be supplied and it is understood that they will be collected some time this fall. These lines together with visual and coring data for site 3A, on top of the seamount, will complete the data package. One of the sites may need PPSP preview.

7.2 NARM Nonvolcanic: Ocean-Continent Transition off west Iberia (461-Add)

SSP Watchdog: Mountain
SSP Proponents: none
Target type: B: passive margin

No new data has been submitted to the Data Bank since our Nov '94 meeting. A "status report" was submitted to the JOIDES office and comprises the "Addendum" discussed at our April '95 meeting. The proponents informed the JOIDES office through this statement that: (1) Ar/Ar dates for gabbros from Site 900 are forthcoming; (2) drilling objectives may be modified in response to Leg 149 Scientific Results manuscripts now under review; (3) pre-stack migrated versions of profiles we have examined are being prepared; and (4) Discovery cruise 215 (July-Aug '95) plans to collect MCS, OBS, and deep-tow magnetic data in the S. Iberia Abyssal Plain.

SSP Consensus #28: SSP encourages the proponents of Return To West Iberia (461-add) to contact the principals of the upcoming Discovery cruise and request that if possible a seismic crossing of site IAP-7 be completed to provide improved 3-D control of basement morphology.

7.3 Taiwan Arc/continent collision (450-rev)
SSP Watchdog: permanent: Sibuet; acting: Scrutton
SSP Proponents: SSP/NSF liaison Shor has been involved in site surveys for this proposal.
Target Type(s): C: Active Margin for sites 1-5,7; D: Open Ocean for site 6

Since the discussion of this proposal in April 1994 there have been some significant improvements to the scientific background and rationale, although the drilling objectives remain the same. GPS measurements on Taiwan provide evidence for strain partitioning on different structures; onland structural studies have revealed extensional faulting in zones previously interpreted as compressional; facies models have been improved; fluid flow and pressures have been considered; and alternative models for the collision process have been developed. Some site revision has occurred and there are now four first priority sites and three second priority. A review of the existing site survey data and planned data collection is valuable.

Of the seven sites, six are categorised as Active Margin sites while site 6 on Phillipine plate crust to the east, is category D, Open Ocean. Although there is already a good grid survey over the sites, including 6-channel seismic profiles, swath bathymetry, sidescan sonar, 3.5kHz profiles, gravity and magnetic, only A4 extracts from the seismic profiles through the sites is available to SSP at the moment, and not all of these show the drilling target clearly. However, it would seem that the existing data, together with data from planned MCS, OBS cruises in 1995 and 1996 will virtually complete the database for SSP. The proponents are advised to check the requirements for the appropriate categories (C or D) to ensure that their database will be complete. SSP needs to see all these data before confirming their quality and completeness, however, and the proponents are urged to start submitting data to the Data Bank as was also emphasised in our April 94 meeting.

Some data that is not obviously available is heat flow at sites 1,4 and 5, where there are fluid flow objectives and PPSP would probably like to see this data, and bottom sample data at site 6 to characterise the seafloor where a reentry cone would be needed for the 1300m penetration. The proponents should seek these data. The proponents are reminded that they should make every effort to deposit all of this data as soon as possible for the panel to examine them during their July meeting.

SSP Consensus #29: SSP welcomes the well written proposal revision (450) on Taiwan Arc/continent collision and is optimistic that a complete site survey database for all the sites can be assembled. Forthcoming surveys should be tailored to the requirements for site survey at category C (sites 1-6) and D (7) sites and heat flow and bottom sample data should be pursued where appropriate. The proponents should start to submit data to the Data Bank.

7.4 Romanche Fracture Zone (468): NEW
SSP Watchdog: Kastens
SSP Proponents: None
Target Type(s): All sites: G (Topographically elevated feature);

This new proposal includes three sites from the crest of the Romanche Fracture Zone transverse ridge, plus one site from the crest of the Vema Fracture Zone. The primary scientific objective is to constrain the cause of vertical tectonics at fracture zone transverse ridges by examining the paleodepth/age history in the shallow water limestone cap on top of these two transverse ridges.

The Vema site (VE-3a) has been previously approved by SSP as the test site for the diamond coring system. The site designations for the Romanche sites have been slightly changed by the JOIDES office to conform with the new requirements for site designations, as follows: ROM1a: on top of Peak A; ROM2a: on top of Peak C; ROM3a: on top of Peak D.

No data package has yet been deposited for the Romanche sites; however, based on the proposal and accompanying reprint, there seems to be substantial documentation in existence. Sites ROM1a and ROM2a propose to penetrate about 400m of "semiconsolidated carbonates" and then 50m into oceanic basement. These sites will be judged against the site survey guidelines for Target type G: "Topographically elevated feature." The following data types will be required for sites ROM1a and Rom2a: seismic reflection of sufficient quality to discern the seismic facies and seismic stratigraphy within the carbonate cap, 3.5kHz, swath bathymetry, and descriptions of rock samples dredged in the vicinity. Based on the proposal and reprint, we think that all or most of this data exists. The following data types will be recommended for sites ROM1a and ROM2a: seismic velocity determination, side-looking sonar, photography or video, magnetics, gravity, sediment cores. Recommended data types should be submitted to the Data Bank if they already exist, but they need not be acquired if they don't already exist.

The "coring" box on the site summary forms has been left blank. In view of the fact that site VE-3 was scheduled for drilling with the diamond coring system and hard rock guidebase, SSP wonders whether the proponents plan to spud-in directly into the carbonates at sites ROM1a and ROM2a, or are the carbonates sufficiently lithified that the use of a bare-rock guidebase will be required. If use of a hardrock guidebase is proposed, then SSP will require visual data to ensure that the drape of unconsolidated sediment is sufficiently thin and the seafloor slope is sufficiently flat that guidebase emplacement will be feasible.

Site ROM3a is on the crest of the transverse ridge at Peak D, only about 50km east of site ROM-2a. However, the geological character of this site is entirely different. A seismic profile along this portion of the transverse ridge shows a thick section (>5sec twtt) of what appears to be intricately folded and faulted sediments. Dredged samples include siltstones, micritic limestones, radiolarian micrites, and chert. Site ROM-3a is proposed to drill 1000m into these unexpected and mysterious sediments. Site ROM-3a is also categorized as Target type "G: topographically elevated feature", but because of the different lithology and greater penetration depth, the required and recommended data types are somewhat different than sites ROM-1a and -2a. For Site ROM-3a, SSP will require a grid of intersecting seismic reflection lines, seismic velocity determination, 3.5kHz, swath bathymetry, and description of dredged rocks. Gravity, magnetics, and side-looking sonar are recommended data types.

SSP warns the proponents that deep penetration into a thick, highly-deformed sedimentary section, of unknown lithology, of unknown age, of unknown tectonic history, over crust of unknown type, is likely to cause problems with the safety panel. Steps that the proponents could take to help strengthen the safety case for site ROM-3a would include: (1) acquire crossing seismic lines to constrain the three-dimensional structure, (2) assemble heat flow data, which pertains to thermal maturation issues, (3) better document the ages and lithologies of dredged samples, especially any potential source rocks, (4) incorporate results from recent Eastern Equatorial Atlantic Transform drilling into their interpretation of the tectonic and geological history of Peak D, (5) examine magnetic data with an eye towards constraining oceanic vs continental nature of underlying crust, (6) move site ROM3a along strike away from pinchouts and structural highs.

SSP Consensus #30: Although no data package has yet been deposited for the new Romanche Fracture Zone (468) proposal, it appears from the proposal that quite a bit of pertinent data exists around the proposed sites. For sites ROM-1a and ROM-2a, on limestone caps, the proponents need to clarify their spud-in strategy, and provide visual data if a hard rock guidebase is needed. Site ROM-3a, proposed for 1000m penetration into a thick pile of deformed sediments of unknown origin, could present safety problems.

7.5 Peru Margin, Gas Hydrate and Vertical Tectonism (355-Rev5): NEW
SSP Watchdog: Camerlenghi
SSP Proponents: None
Target Types : C: Active margin

The proposal is to investigate the gas hydrate, tectonic history and fluid transport across the central Peruvian margin by drilling a set of holes. Proponents base the site survey package on the data already submitted to the Data Base for drilling ODP Leg 112. In addition, newly processed MCS lines have been submitted and improve substantially the seismic image of the margin where the drilling transect is proposed.
Given the strong objectives on fluid circulation, and gas hydrates, the panel recommends that the proponents evaluate and eventually submit heat flow data in addition to the old data in support of Leg 112. Furthermore, by merging old and new seismic data, an effort should be made to locate sites on crossing lines if possible.

Although all vital data appear to exist in the Data Base, the Panel reserves to check that these are in the Data Base and satisfy the new guidelines during the next meeting of July 1995 at Lamont. Authors are requested to re-evaluate the old data set and eventually submit new versions of maps (if available) and new data in the light of the new SSP guidelines.

SSP Consensus #31: All vital data for Peruvian margin (# 355-rev5), already submitted to the Data Base in support of ODP Leg 112, should be available. The panel recommends that proponents re-evaluate or submit new heat flow data in the light of the fluid and gas hydrates objectives.

7.6 Northern Mariana Back-Arc Basin (442)

SSP Watchdog: Tokuyama
SSP Proponent: SSP/NSF liaison Shor has been involved in site surveys for this program.
Target Type: C (Active margin)

At our April 1994 meeting, SSP noted that a swath bathymetric map covering the entire region of the northern tip of the Mariana Trough and MCS profiles (migrated section) passing through each proposed sites are required. A swath bathymetric map is very useful to understand small scale structures in the northern tip of the Marina Trough and also to decide the exact positions of the drilled sites in rough topographic region. MCS profiles (migrated section) passing through the each proposed sites are also very useful to determine a precise basement topography and structure.

However, a swath bathymetric map and MCS profiles have not been sent to ODP Data Bank. Proponents reply to SSP comment has been that it is difficult for US Navy to release the swath bathymetric map. If an available swath bathymetric map and MCS profiles do not exist, we recommend that an effort be made to carry out a geophysical survey which could collect these data. It is likely that a Japanese cruise will be in this area in the forseeable future and the proponents are encouraged to contact Dr. Tokuyama to explore the possibility if some MCS and swath bathymetry data could be collected at the proposed sites. No data has been supplied to the data bank in support of this proposal.

SSP Consensus #32: Judging from the Northern Marianas Rift proposal (442) a reasonable quantity of single channel seismic reflection data exist at most sites but

this data has not been deposited with the data bank yet. SSP had recommended that a swath bathymetric map covering the entire region of the northern tip of the Mariana Trough and MCS profiles (migrated section) passing through each proposed sites are required. SSP recommends that these data be acquired if already exit and sent to ODP Data Bank as soon as possible. For further acquisition of MCS data the proponents should contact ORI, Japan. Adequate data does not exist for this proposal in the DB.

8. POTENTIAL FUTURE DRILLING: SGPP

8.1 Saanich Inlet (473; LOI35): NEW

SSP Watchdog: Casey
SSP Proponents: none
Target Type(s): Paleo-environment - shallow water depths ~200m, APC

Although a proposal was not sent from the JOIDES office, we received a proposal from B. Bornhold entitled "High-resolution Holocene paleoenvironmental record, Saanich Inlet, B. Columbia, Canada." The proposal followed LOI 35 and arrived just prior to the SSP meeting. As the proposal is unconventional and consist of only one day of drilling to be coupled with the nearby Sedimented Ridges or Juan de Fuca Hydrothermal Projects that are already scheduled, the proposal was reviewed by SSP. LOI 35 was highly ranked by SGPP.

Three APC holes (S1, S2, and S3) are proposed in the Saanich Inlet. The proposal outlined the existing data in its support including shallow piston coring (upper 4 meters), high resolution seismic lines along Site S1, S2, and S3, and a variety of sedimentologic, paleontological, geochronologic and geochemical studies that indicate the inlet shallow stratigraphy is dominated by varved sequences of rhythmically laminated silt-clay (deposited in the Fall and Spring freshset) and diatoms (spring and summer blooms), interrupted by massive silt layers (up to 10 cm) interpreted as infrequent sediment gravity flows, that may be related to earthquakes that may have occurred historically in the region.

There is a trend toward more organic rich sediments from north to south in the inlet. Terrigenous clastics are more prevalent to the north near the Cowichan River. The inlet is bounded by a bedrock sill at its northern end that maintains anoxic conditions in the inlet. The upper sediments are gaseous and organic rich with up to 5% organic matter. A composite core of 38 meters, was drilled by a barge in the 1960s that indicates that the varved sequence is continuous to a glaciomarine shale and covers the Holocene back to the last glacial. The glaciomarine shale is overlain by sediments dated at 9000 years b.p. Penetrations proposed range from 100 to 120 meters by APC-2 coring which would allow continuous coring and records to be established over the last 12,000 years.

The authors have indicated that high resolution seismic data will be gathered at the Sites in the summer of 1995 in support of drilling. The proponents are encouraged to submit this data to the DB as soon as possible because two of ODP Legs 168 and 169 are now scheduled in this region.

It should be noted when conducting these seismic surveys that a grid of intersecting seismic profiles are recommended for each site S1, S2, and S3 and that sites should be away

from gas fingers identified in the seismic sections. Drilling in water depths less than 200 meters will require a shallow water hazards analysis (see Guidelines for Shallow Water Hazards Surveys, October 1994 report) and the proponents are encouraged to contact ODP-TAMU to discuss technical aspects. To avoid this issue the proponents may choose to locate sites SI-1 in water depth greater than 200 meters. Because of the potential short lead time and the fact that SGPP has rated the original LOI as a high priority, and for inclusion of this proposal in 1996 drilling, it is essential that the proponents deposit a completed data package with new seismic data by the July 1 deadline before SSP meeting and also for a possible pre-view by PPSP during their September meeting.

Although submissions of supporting data have been made to the DB by the proponents they were not available for review in Halifax at the April, 1995 SSP meeting. The data apparently consists of four SCS lines covering each site, bathymetry, Navigation, Buddemeir's (1969) report, a core report, and navigation charts. The seismic lines provided in the proposal do not appear to be of sufficient quality to judge the problems associated with gas in the section. These are important for SSP and Safety issues. The new seismic lines will prove important in this regard. The site SI-1 as proposed will require shallow water hazard site survey.

SSP Consensus #33: Some high resolution seismic, 3.5 kHz, and sediment core data for Saanich Inlet Proposal are in the DB and will be reviewed at the July SSP meeting. The proponents are encouraged to submit the additional high resolution seismic data, 3.5 khz data, and sediment core results at the proposed sites to be collected during a cruise this summer so that the data can be reviewed at the July SSP meeting. Track charts of all existing seismic data with Sites plotted are required. The proponents are encouraged to submit all this data to the DB as soon as possible because two of the ODP Legs are now scheduled and SSP and Safety panels need to review the data in July and September meetings respectively.
There are some important safety and sample issues to be addressed that are related to gas in the shallowest part of the section. The new seismic data will be essential for these reviews. One of the proposed site, SI-1 lies in water depth shallower than 200m and will either require shallow water hazards survey or moving this site to deeper water depths. As the drilling is proposed to be carried out in an inlet, it would be desirable if the proponents could supply information on the existing current in the region and an idea of the man made drilling hazards like cable etc in this region. It appears from the communications of the proponents that all the necessary data required by SSP for drilling could be available by the July SSP meeting.

8.2 New Jersey shelf (348)
SSP Watchdog: Kastens
SSP Proponents: Mountain
Target Type(s): all Sites A (Paleoenvironment)

The proposed sites on New Jersey shelf sites have been previously approved by SSP from a science perspective. Because the water depth at these sites is less than 200m, a shallow

water hazards survey is required. Such a survey is scheduled and funded for June-July 1995. SSP wishes the proponents luck with their hazards survey. SSP requests that the data from the hazards survey be deposited at the Data Bank in time for SSP's November meeting.

SSP Consensus #34: New Jersey II shelf (348) sites have been previously approved by SSP from a science perspective.

8.3 Deformation and Fluid Flow, Nankai Trough Accre. Prism (445 Rev): NEW
SSP Watchdog: Camerlenghi
SSP Proponents: Tokuyama
Target Types : C: Active margin

The proposal, return to Nankai Trough, addresses some fundamental questions about fluid flow within accretionary prisms and feedbacks between fluid flow and structural/sedimentary-facies architecture. The proponents are proposing that two transects each with three holes be drilled along this margin. They are proposing to equip four of the holes with CORK packages for continuous monitoring of fluid pressure and temperature and optional of fluid sampling and permeability determinations during revisitation of the sites with a submersible.

Proponents base the site survey package on the data already submitted to the Data Base for drilling ODP Leg 131 and DSDP Legs 31 and 87. Although all vital data appear to exist in the Data Base, the Panel reserves to check that these are in the Data Base and satisfy the new guidelines, during the next meeting of July 1995 at Lamont. Proponents are requested to re-evaluate the old data set and eventually submit updated maps and seismic lines and any new data to improve the quality of the data package in the light of the new SSP guidelines. Side scan mosaics existing in the Data Bank do not cover the western drilling transect. This should be deposited with the DB. Furthermore, by merging old and new seismic data, an effort should be made to locate sites on crossing lines if possible.

Given the strong fluid objectives of the proposal on the transect coinciding with previous DSDP drilling, the panel recommends that proponents submit in a comprehensive way the heat flow data pertinent to the transect.

SSP Consensus #35: All vital data for Nankai Trough (#445), already submitted to the Data Base in support of ODP Leg 131 and DSDP Legs 31 and 87, should be available. Side scan data for the western transect should be deposited with the data bank. The panel recommends that proponents re-evaluate or submit new heat flow data for the western transect in the light of the fluid objectives.

8.4 Great Australian Bight (367): NEW
SSP Watchdog: Enachescu
SSP Proponent: none
Target Type(s): B (Passive margin)

Drilling of a transect across the largest cool-water carbonate shelf slope presently existing

on the Earth off Australia is proposed. The transect will investigate a carbonate rich passive margin, the paleoceanography of the Southern Ocean, sea-level history, circulation patterns and parameters of deposition in cool water environment. Twelve sites are selected and documented in the proposal. All of these sites are judged to be of target type B (passive margin). Some MCS data has been supplied to the DB recently and a lot more is expected shortly.

SSP remarks the numerous revisions brought by the proponents in January 1995 revision and considers that the program is well presented and has generally advanced in ranking. It is rated within the top 8 proposals by OHP and SGPP. A large volume of industry data exists in support of drilling this transect. However, not all sites are clearly documented. Drilling at sites GAB10 to 12 is not feasible with JOIDES RESOLUTION in water depths of 42 to 54 m. Similarly drilling in water depths less than 200 m requires strict guidelines for site survey requirements (see Joides Journal October 1994). The proponents are, therefore, advised of relocating these sites in water depths of > 200m or plan to meet the guidelines. The proposal, therefore, needs to be re-evaluated by SSP with the new sites. A few requirements can be addressed now:

- Better seismic velocity information is necessary for all sites. The panel was concerned with under-estimation of carbonate seismic velocities and consequently the under-estimation of drilling depths. Velocity analyses from reflection and refraction and well log data must be submitted to substantiate the velocity used. A depth converted composite section or a regional geological cross-section in depth may better represent the general location for the drilling sites.
- Water current information is needed for shallow water drilling.
- The proponents should check that all required data for passive margin setting are supplied to the Data Bank. For most sites deep penetration SCS or MCS with grid of intersecting lines at the sites, and 3.5 kHz data are required while side looking sonar and detailed bathymetry, gravity and magnetic are recommended. Core data are recommended at those sites where re-entry cone is to be used.

Other suggestions meant to improve the proposal were made by the panel during the meeting:

- Magnetic maps and modelling may discriminate between the carbonate mounds and the volcanics.
- Some locations may be slightly moved in order to intersect more of the mounded facies.
- Two locations seem to be too close to the volcanic intrusions to be representative for carbonate lithologies.
- Better sampling of seismic sequences 3 and 5 is necessary.
- For seismic stratigraphic purpose, it will be better if all sites are located either on a single industry line or on a new regional line.

SSP Consensus #36: The sites located in water depths of less than 50 m in Great Australian Bight proposal (367) need to be shifted to deeper water as they cannot be drilled by JOIDES RESOLUTION. Sites located in water depths 100 to 200 m need to be shifted to deeper water depths or meet Shallow Water Hazards guidelines. Some data has been supplied to the Data Bank and more is expected. A site survey

cruise is planned to be carried out. The proposal needs to reviewed once all this data together with revision of sites are deposited in the Data Bank.

9. OTHER BUSINESS

9.1 ODP Long Range Plan (Srivastava, Ellins)

The latest draft of the ODP Revised Long Range Plan (LRP) will be discussed and its science objectives finalised at the April PCOM. A previous draft prepared for the PCOM annual meeting by PCOM's LRP subcommittee was the subject of much debate with respect to format and the balance of future ODP science themes. Following the annual meeting, discussions continued between the LRP subcommittee, JOIDES panel members, and JOIDES national and international groups. A second draft of the revised LRP was presented by subcommittee Chair, Brian Lewis, at the January EXCOM meeting . EXCOM recommended that the LRP subcommittee's highest priority should be the development of science themes and objectives, leaving consideration of management and funding issues to a subcommittee of EXCOM.

A meeting of the LRP subcommittee, which is now chaired by Rob Kidd, was held in Cardiff earlier this month in order to respond to EXCOM's recommendations and consider feedback received from the ODP community. Judy McKenzie, former SGPP Chair, has been added to the subcommittee in response to concerns expressed that the scientific interests of SGPP had not been adequately represented.

In the current draft version of the revised LRP the scientific goals of ODP are focused under the umbrella, "UNDERSTANDING OUR DYNAMIC EARTH". These goals are further divided into two thematic categories, entitled, DYNAMICS of EARTH'S ENVIRONMENT and DYNAMICS of EARTH'S INTERIOR. The Scientific objectives that are expressed under DYNAMICS of EARTH'S ENVIRONMENT include understanding 1) Earth's changing climate, 2) causes and effects of sea level change, 3) Fluids, Sediments and Bacteria , and 4) biological evolution. Scientific objectives included under DYNAMICS of EARTH'S INTERIOR are examining the 1) transfer of heat and material to and from Earth's interior, 2) deformation of Earth and earthquake processes, and 3) chemical exchanges between the solid Earth and seawater. New text continues to be written and diagrams modified to convey the science themes in a simple, straightforward and stimulating manner.

One of the successes of the most recent LRP subcommittee meeting was the drafting of an impressive set of ODP scientific accomplishments easily understood by lay readers. We will highlight these by placing them at the front of the final document.

Pending PCOM's approval of the draft of the revised LRP presented in April, a version stripped of technical jargon will be presented to EXCOM in July. The version prepared for the April PCOM meeting will be available from April 13 at the JOIDES FTP site (ftp ftp.cardiff.ac.uk in the Pub/JOIDES/LRP). JOIDES panel members, national ODP committees, and participants from global geoscience programs may review this draft and send

comments to PCOM members or the JOIDES Office by April 20. Following approval of the final draft of the revised LRP by EXCOM, JOI will refine the LRP with the assistance of a science writer and produce an accompanying glossy version by the end of 1995.

9.2 Feedback to proponents

A check list of items to consider for inclusion in the feedback to proponents is included as Appendix F. Watchdog letters should not be sent out until PCOM decides on the area of operation for 1997, which will happen the first week of May 1995. Proponents of the proposals which are included in the operation should be reminded of the July 1 deadline for submitting data items to the Data Bank for consideration at SSP July meeting.

SSP Action Item #4: Data Bank Manager Quoidbach to write to the Co-Chiefs of scheduled legs, reporting the sense of SSP discussion and enclosing the appropriate section of the draft minutes.

SSP Action Item #5: Watchdogs to write to the lead proponent of all other programs discussed, reporting the sense of the SSP discussion and enclosing the relevant section of the minutes. A copy of these letters to be sent to the ODP Data Bank. These letters can be sent by e-mail.

9.3 Any other items

9.3.1 PCOM Liaison to SSP.

Henry Dick suspects that he might be asked to be the PCOM liaison to IHP. If this occurs he will suggest that he be replaced by Greg Mountain as PCOM liaion to SSP. This would be agreeable to Greg.

9.3.2 Report of the Subcommittee on digital seismic data in the SSDB.

The SSP sub-group discussing the issue of digital seismic data in the Data Bank met in the Halifax Sheraton Thursday evening. Present at the meeting were Karl Hinz, Mahlon Ball, Angelo Camerlenghi, Larry Peterson, Roger Scrutton, Kim Kastens, Greg Mountain, Bruce Malfait and Dan Quoidbach. The sub-group felt that it was premature for the Data Bank to be dealing with the deposit and processing of large amounts of digital seismic data. Of higher priority should be improvements to the methods of compiling navigation track charts and reproducing colour swath bathymetric plots, and upgrading the Data Bank's data tracking system.

While it was recognized that the Data Bank should be moving in the direction of handling most data in a digital format, the consensus was that digital seismic data is not the best place to begin. The Data Bank has been gradually changing to digital methods for the production of navigation charts and for the duplication of colour swath bathymetry, and these efforts should continue. The Data Bank should find better methods of digitizing paper navigation charts for integration with digital navigation, and should work towards expanding the number of swath data formats that it can manipulate. In addition, better management of the existing paper

records is seen as a higher priority than getting new seismic data in a digital format. The sub-group recommends that SSP advise the Data Bank to thank JOI for making additional funds available to help the Data Bank move towards a more digital operation. In addition the Data Bank should communicate to JOI that SSP feels the funds will have more impact if used to better manage the existing paper data, and better handle navigation and swath bathymetric data, rather than to actively solicit new digital seismic records. The Data Bank should request permission to use the funds in this fashion rather than for the purpose originally envisioned by JOI.

Action Item #6: SSP advises the Data Bank to thank JOI for making additional funds available to help the Data Bank move towards a more digital operation. In addition the Data Bank should communicate to JOI that SSP feels the funds will have more impact if used to better manage the existing paper data, and better handle navigation and swath bathymetric data, rather than to actively solicit new digital seismic records. The Data Bank should request permission to use the funds in this fashion, rather than for the purpose of handling digital seismic data as originally envisioned by JOI.

APPENDIX A

ALVIN DIVE (Dr. Jay Miller)

EXECUTIVE SUMMARY

As a result of a recent offset drilling workshop (held by Dr. Tim Francis at ODP) and a recommendation from Site Survey Panel (SSP), Dr. Jay Miller, Staff Scientist, ODP, sailed as an Invited Investigator on an ALVIN dive series to the Mid-Atlantic-Ridge, south of the Kane Fracture Zone (MARK). This was the site of the recent offset drilling leg (Leg 153). A principal purpose of participation on this dive program was to investigate the potential for collaboration between the ALVIN submersible program and ODP, specifically in terms of technical and logistical requirements for detailed pre-drilling site surveys during fortuitously scheduled ALVIN dive series.

ODP Requirements

Drill sites

Sedimented sites: Located according to geology.

Exposed basement sites: Located according to geology and reentry template design.

- Sub-horizontal--sediment free--structurally coherent

Need to reoccupy a location with a spatial tolerance of less than 10 m.

Critical sediment thickness for deployment of various reentry templates is 1 to 3 m.

Markers

Detectable by the ODP seafloor close-up survey system.

Emplaced in a network with accurately determined relative range and bearing. Justified to at least one known, detectable reference point.

ALVIN requirements

Markers

Small, optimally no more than 25 cm across.

Lightweight, positively or neutrally buoyant.

Bridle and anchor system.

Easy to deploy.

5 or fewer per dive.

Navigation

3 currently utilized systems

- Submersible navigation (error can be as much as ± 100 m)
- Trackpoint-surface vessel/submersible interactive (optimally can relocate position to ± 20 m)
- Long-baseline, bottom-moored acoustic transponder net (optimally can relocate a position within a few m)

Submersible and trackpoint navigated sites are unlikely to allow rapid relocation by JOIDES Resolution. LBL nets, generate an accurate site map, which should allow rapid relocation. These

nets have an effective range of less than 2 km. If dive tracks are outside this range, new nets must be surveyed, at additional cost to dive program of ~$3000 each. The ALVIN group routinely recalls beacons after a survey, therefore, a long bottom life beacon, compatible with JOIDES Resolution systems, must be deployed and registered within the net prior to recall of the ALVIN group transponders in order to allow rapid relocation. Note that operational specifications of ODP transponders are significantly different than ALVIN transponders, and are not interchangeable.

Establishing drill site potential

ALVIN can accurately determine slope

- Downlooking sonar
- Electronic Geocompass

Sediment cover less than 0.75 m can be determined by probe, but this does not ensure stable basement. No mechanism is available to predict sediment thickness in the critical range of interest for drilling sites. From diving experience, in terranes of interest to offset drilling (bench-and-step slopes) sediment cover is minimal at the crest of a step, and increases with distance away from the step face. Optimal drill site locations are probably within a few tens of meters of the step face.

Results of dive program

Specific to potential engineering leg at MARK, no new drilling sites were positively located. Only two dives were scheduled in the area of interest (since this was very much ancillary to the originally funded dive program), and both were shortened due to power loss. Additionally, neither dive was navigated with a LBL net, as costs and time for this were not included in the original dive series proposal. A dive track in the gabbro massif (ODP sites 921-924) found one bench, potentially suitable for drilling, and a marker was successfully deployed. Relocation potential of this single marker is questionable. In the peridotite ridge (ODP site 920) in the depth interval from the median valley floor (3600 mbsl) to the drill site (3200 mbsl), no potential drill site was located. 50-100 m south of Site 920, however, at the same depth, the bench appeared to be suitable. These dives, as well as seafloor survey and drilling experience from Leg 158, indicate that there are sites on the gabbro massif and the peridotite ridge at MARK suited to setting a reentry template. This dive series also demonstrated, however, that finding suitable drill sites is a rather serendipitous undertaking, and that a full dive series (15-20 dives) is probably required to locate enough sites to satisfy drilling requirements.

Implications for coordinated efforts between ODP and ALVIN group

Requires some organizational entity to:

- Recognize highly ranked proposals in the ODP system that could benefit from or require specific site location.
- Stay abreast of current ALVIN schedule and recognize when ALVIN dives could be used to mark sites, in addition to science objectives.
- Convince ALVIN proponents to invest time and effort in site location
- Educate ALVIN proponents in site location and navigation requirements.
- Recommend or secure funding for LBL transponder nets.
- Ensure navigation and site data is sent to the ODP data bank as part of the site survey

package.
Site Survey Panel is probably the most applicable service panel in the ODP system.

Final Considerations

ODP contributions to collaboration might be:

1) Provide an ODP compatible beacon for deployment within the transponder net.

2) Provide a passive sonar reflector to be installed within the transponder net. This is much less preferable than a beacon.

3) Purchasing a Geocompass (estimated cost less than $3000) for routine deployment on the ALVIN, or offering use for dive series of interest. Additionally, this tool might be adapted for deployment from the ODP VIT camera system.

Finally, ODP should consider investigation of the potential of using ROV systems for drill site location and marking.

Introduction

During January and February 1995, I participated as an Invited Investigator on an ALVIN submersible program to the Mid-Atlantic Ridge, south of the Kane Fracture Zone (MARK). My scientific interest in this cruise involved collecting oriented samples from previously occupied Ocean Drilling Program drill sites (Leg 153) to constrain paleomagnetic and structural measurements from the core. Additionally, my involvement with this expedition included evaluation of the capabilities and limitations of the ALVIN as a vehicle for locating and marking potential drill sites and investigation of the requirements of more consistent collaboration between ODP and the ALVIN Group.

ODP recently held a workshop to review the logistic problems encountered on recent offset drilling legs, and to discuss strategy for improving return during future hard rock drilling programs. Two primary recommendations resulted from this workshop. 1) ODP should learn more about drilling in difficult environments, and 2) parties interested in offset drilling should find easier places to drill. Addressing the first of these recommendations, the workshop proposed scheduling an engineering leg to test and develop hard-rock drilling tools and strategies. Using the ALVIN as a site survey vehicle generally addresses both recommendations, and specifically addresses the proposed engineering drilling leg. Dr. Jeff Karson (Leg 153 Co-chief) noted during the discussion of the engineering leg that he had acquired funding for an ALVIN dive series to the MARK area, and, since this region was specifically targeted as a site for the engineering leg, suggested using some ALVIN dives to locate drill sites. This report, based on my participation in that dive series, is intended to address the concerns and requirements of ODP and the ALVIN group for future collaboration.

ODP Requirements

Drill sites

Drilling reentry sites in sedimented environments requires deployment of a skirted reentry cone with casing hanger. While geologic setting is the primary consideration for site location in these environments, use of this system requires a thick, yet friable sediment cover, such that a primary casing string can be emplaced by washing away the mud around the casing (jetting-in). In most ODP applications, specific sites are not so critical that a few meters to either side will affect drilling operations. In certain drilling programs, however, as in drilling hydrothermal mounds or seafloor sulfide deposits, tolerance for site location is likely to be within a few meters.

Hard rock drilling has perpetually been a logistically challenging undertaking. Due to bit wear, deep penetration (even a few hundred meters) absolutely requires the ability to perform multiple entries into a single hole. While ODP has successfully reentered open boreholes, even in hard rock, variable sea state and vessel stability make multiple unsupported reentries unlikely. Thus, initiating a reentry site in hard rock dictates establishing a suitable seafloor template prior to drilling.

The current design of the ODP hard rock base (HRB) imposes specific limits on site locations. For this template, drill sites must be sub-horizontal, sediment free, and structurally coherent. The first two of these restrictions are nearly mutually exclusive, as any horizontal surface on the seafloor is likely to be blanketed by at least a thin veneer of sediment. Moment-of-inertia calculations establish that the HRB, when unballasted, cannot support a bottom slope in

excess of 25°. Actual operational limits are closer to 15°. Furthermore, the three-legged design, while maximizing stability, maximizes slope as the HRB rotates two legs down slope after a single leg contacts the bottom. Again, moment-of-inertia calculations demonstrate that a two leg down slope, one leg up slope orientation is the least stable for the HRB. ODP is investigating redesign of the HRB, however, while this new design will be much less expensive and easier to deploy, it will not radically alter operational limits.

Sediment cover produces several operational difficulties. If the sediment is in excess of 1 m thick (the length of the HRB legs), free movement of the gimballed reentry cone can be restricted. This might be overcome by lengthening the legs, however, raising the center of gravity would reduce slope-related operational limits. A sediment blanket can also obscure local topographic variability that can tilt the guidebase and/or unstable basement that can cause HRB collapse during drilling operations.

Critical sediment depth for ODP operations is greater than 1 m, but less than 3 m. If the sediment cover is less than 1 m, and some indication exists that local basement is solid, either the existing HRB or some adaptation of a gimballed casing hanger and reentry cone can be deployed. If more than 3 m of sediment is present, a more conventional ODP skirted reentry cone can be emplaced by jetting-in a first casing string. This does not, however, overcome the difficulties of reentry when the basement has a fragmental carapace hidden beneath the sediment.

Offset drilling proposes to take advantage of tectonic windows that expose sections of lower oceanic crust and upper mantle at the seafloor. Owing to the forces that exhume and expose these rock bodies, the terranes where outcrops of interest are commonly found are structurally complex. Average slope in these environments is commonly at or near 30°. In detail, however, these slopes comprise a series of cliffs and benches of variable dimensions. The features responsible for this topographic variability are beyond the resolution of all but the most detailed bathymetric mapping. Successful drilling in this type environment, however, requires finding a suitably flat bench, with little or no sediment cover, ideally at the top of a large massif. Sites meeting these criteria might be only a few tens of meters across. Even locating an ideal platform or bench is no guarantee of drilling success, as fractures and faults within a massif can lead to premature termination of a drilling operation. Therefore multiple potential sites must be located to prepare for structural complexities that, while not identifiable prior to drilling, may curtail operations. Given these restrictions, finding suitable sites during surveys from the drillship has proven to be an inefficient use of the JOIDES Resolution. Inasmuch as the drill ship is not outfitted to efficiently locate sites to fit these requirements, the ALVIN represents an alternative vehicle, when surveys are undertaken in areas with potential ODP drill sites.

Markers

Locating any markers deployed by a pre-drilling survey program is dependent on several parameters. The site markers must be detectable by the ODP seafloor close-up survey system, the markers must be emplaced in a network with accurately determined relative range and bearing, and the drill sites must be justified to at least one known, detectable reference point.

Evaluating each of these in turn, the ODP seafloor close-up survey system comprises a black-and-white, fixed, downlooking video camera. This television camera is deployed via a vibration insulation system (hence called VIT) down the drillstring by cable. The field of view of this system is between 10 and 15 m, and the minimum practical target size is 25 cm. This

imaging system is further limited by its free rotation around the drillstring (causing image disorientation), the lack of visibility around reentry templates during deployment, and by a minimum free-working distance of greater than 5 m.

All markers must be placed within a network where relative range and bearing between the markers are known. Success in this type of operation was demonstrated on ODP Leg 158, where multiple markers, deployed by various research groups at different times, had been accurately positioned relative to a detailed bathymetric map produced on an ALVIN dive series. Once one of these markers was located by the VIT, it was a simple matter to use the dynamic positioning thrusters on the JOIDES Resolution to drive to the next marker. This was, however, a simplest case as all the markers were within a range of 200 m. In many operations, drill sites are likely to be separated by many hundreds of meters.

Finally, once the marker array has been deployed, it must be referenced to a point that can be located by the ODP dynamic positioning system. Inasmuch as marker arrays will be deployed well in advance of drilling operations (months to years), this requires a reference beacon with a commandable off-on transducer, which is compatible with ODP operations systems, be deployed and the marker array justified to that beacon.

ALVIN requirements

Markers

The most restrictive limitation on markers that can be deployed by the ALVIN is size. Of course, the larger the marker, the more visible it would be to the ODP downlooking drillstring camera. Basket dimensions, however, limit the size of markers to not much larger than 25 cm across. Any larger than this, and the markers not only become unwieldy, they can restrict access to sample bins. Any single dive has the potential of finding multiple sites, and the ALVIN can easily carry three markers this size. With judicious placement in the sample basket, as many as five markers might be carried on any single dive without significantly impacting a sampling program.

To optimize visibility from a downlooking camera, markers must be designed such that maximum surface area is parallel to the seafloor. A simple and inexpensive option for markers is a lid from a five-gallon plastic bucket, suitably marked with an alphanumeric character for identification. A three-point bridle fashioned from polypropylene rope ensures proper orientation of the marker once deployed. Weights for markers must be provided, as the support vessel for the ALVIN does not routinely carry any suitable material for this purpose.

ODP provided this dive program with syntactic foam markers. These markers, however, were too large (60x30x5 cm) to be placed in the ALVIN sample basket, and had to be modified with a rope bridle to set properly. Syntactic foam markers are very positively buoyant, and require significant weight to anchor increasing deployment difficulty. Also, Atlantis II does not routinely carry material suitable for anchors, and routine use of these types of markers would require provision for anchors. Ultimately, the markers provided by ODP were not deployed simply because they were too cumbersome, and are being returned.

ODP Engineer Leon Holloway has investigated passive sonar reflectors as site relocation tools. The basic design of these reflectors is an aluminum disk backed with syntactic foam. Three fundamental obstacles are inherent with these types of markers. First, size is critical. For these disks to be unambiguously imaged by ODP's downlooking sonar, they must be large. As

mentioned above, size restrictions would limit the number of these disks that might be carried on any single dive. Second, anchoring and deployment of syntactic foam markers is problematic. In the simplest case these could be deployed early in a dive, and weights added to increase submersible decent speed could be used as marker weights. This scenario has very limited application, however, only when the area of interest is small (100-200 m). On most dives mapping regions of interest for offset drilling, more than a kilometer of distance is commonly traversed. Going back to pick up markers and redeploy them is not a viable operational procedure. Finally, these reflectors will cost roughly $2000 each, not an insignificant investment considering that several markers per dive series are likely necessary to provide adequate coverage.

Navigation

As mentioned above, the field of view of ODP VIT is on the order of 15 m when the seafloor is clearly visible. Thus, quickly relocating specific sites with the Resolution requires that site locations are known within this limit. Repeated success in positioning the drillship over well-established GPS locations for site relocation suggests catenary effects, even in deep water, are either inconsequential or can be overcome. During Leg 158, the JOIDES Resolution successfully navigated between markers on the seafloor separated by as much as 100 m. It is likely, however, that sites in the environments of interest to offset drilling will be separated by hundreds of meters. Navigating between and locating markers with the specifications described above require precise locations be defined for each marker placed.

Three types of navigation are routinely employed by the ALVIN group. The least accurate of these methods involves navigation from the submarine. This is dependent on the support vessel GPS location, subsurface current effects as the submersible drops to the seafloor, and dive track navigation which is effectively dead reckoning. Plotting the dive track once the dive is completed requires estimation of drift during decent and potentially could be mispositioned by as much as 0° 0.05' (±100 m). While the orientation of the submersible relative to north can be retrieved from various recording systems on board the ALVIN, distance covered is at best an estimate of observers and pilot. Hence, any markers deployed during a dive using this type of navigation are going to be most difficult to relocate using systems currently available on board the drillship. Even a marker deployed at a known, GPS-fixed drop site, could well be outside the field of view of the ODP downlooking camera.

A second navigation system involves tracking the submersible from the support vessel, and can potentially yield recoverable dive tracks accurate to within 0° 0.01' (±20 m). This system is dependent on acoustically measuring the range and bearing to the submersible and calculating a position given pressure depth from the submersible. As pressure depth is not routinely recorded on the support vessel, this requires voice communication between the submersible and an operator on the surface vessel. If accurate depth is not input into the calculation at every iteration, multiple spurious points, generally well away from the true location of the submersible, are recorded. Continuous communication of depth between the submersible and the support vessel is not a viable alternative, as it is a heavy power drain, and the personnel in the submersible are generally much too involved with subsea operations to maintain it.

The third commonly used navigation system for the ALVIN group is a long baseline (LBL) transponder net. Two acoustic transponders, with recovery releases are deployed on 200

m tethers. These transponders are then carefully surveyed in a network of passes by the support vessel. Once one of these transponder nets is in place, the ALVIN can routinely return to any specific spot within the net, and its location is continually and accurately monitored from the surface vessel. While other navigational programs are provided as a routine service, this system requires a significantly greater contribution from the ALVIN group and hence requires additional cost to a dive program. Effectively, one transponder net (two beacons) is provided per dive series. LBL nets have an effective range of less than 2 km. In the event that dive tracks are separated by greater distances, multiple nets must be set. If more than one net is required, cost is on the order of $3000 per paired transponder net. Following a dive series, the ALVIN group recalls the transponders for future use. Currently, ODP and the ALVIN group use significantly different transponder systems. ODP requires much more powerful and long-lasting systems than the ALVIN group. An ODP compatible beacon that could be commanded on when the drillship reoccupied the site would need to be provided to the ALVIN group, for deployment and registration within the transponder net.

Establishing drill site potential

As defined earlier, potential sites for drilling must meet several criteria before a reentry template can be established. The ALVIN currently employs tools, or could be outfitted to employ tools, specifically adapted to quantifying the nature of the seafloor in terms of these requirements. The slope of the seafloor can be determined by two routine operations. First, regional slope (over a platform several tens of meters across) can be measured using the ALVIN downlooking sonar. General bottom slope can easily be estimated by rotating the submersible parallel to the strike of a surface, and imaging the sonar on an internal monitor. Second, local slope can be accurately measured through use of a tool maintained by Duke University, the Geocompass. This tool is a prototype that employs a sealed compass and two perpendicular inclinometers that is set directly on the seafloor. The Geocompass is connected by an umbilical cord to a monitoring and recording system in the submersible, and is deployed and recovered using one of the ALVIN manipulators.

Visual sediment thickness estimates are generally biased. The only way to be sure of sediment thickness is to poke a tool through it. While the ALVIN could be equipped with a probe to estimate depth of sediment on potential dive sites, the maximum penetration possible from a neutrally buoyant vehicle is generally less than 1 m, even in wet mud. This might be useful to test for sediment thickness much less than 1 m, but any sediment accumulation greater than about 0.75 m would yield the same ambiguous result. Additionally, manipulator use is the single largest power drain in the submersible. Short-wavelength seismic experiments are a potential future tool, but, to my knowledge, as yet cannot resolve the difference between 1 and 3 m of sediment, which is the critical thickness for drilling operations.

Results of dive program

Dives were short due to battery problems, which prevented absolutely locating previous sites, however, the amount of man-made debris indicated we were very close. There is no doubt in my mind that with more time, there would be no problem finding old sites. These dives were unnavigated, and old drill site locations were found based on ODP GPS fixes only. If the reverse is true (i.e. ODP can reoccupy old ALVIN positions on GPS fix only) we know we can get close

to ALVIN navigated site markers.

During the two dives in the vicinity of ODP drill sites, we collected several oriented samples from both gabbro and peridotite outcrops. During the traverse crossing ODP Site 920 in the depth interval between 3600 and 3200 mbsl (the valley floor and the shallowest part of the dive track), the only likely target was the platform drilled by ODP. This platform is sediment-covered, slopes no more than 15°, and is at the top of a 50+ m high scarp (indicating structural continuity). However, since this was the same platform drilled on Leg 153, no new markers were set.

Near the gabbro sites, a single new marker was set. The new marker was placed on the flattest part of the scarp, but the bench was lightly sediment-covered, still somewhat steeply dipping (>15°), and the structural continuity of the underlying massif is undetermined. These dives, as well as seafloor survey and drilling experience from Leg 158, indicate that there are sites on the gabbro massif and peridotite ridge at MARK suited to setting a reentry template. This dive series also demonstrated, however, that finding suitable drill sites is a rather serendipitous undertaking, and that a full dive series (15-20 dives) is probably required to locate enough sites to satisfy drilling requirements.

As an added benefit, this investigation has demonstrated the utility of ALVIN in complementing ODP science objectives after drilling. Due to hole instability, no logging data were acquired during Leg 153, so structural and paleomagnetic data could not be referenced. During this dive series, using the Geocompass, we collected several oriented samples from the same massifs drilled. Assuming that the dive samples yield reliable data, these samples can be used to reorient the cores from Leg 153.

Implications for coordinated efforts between ODP and ALVIN group

From an idealistic perspective, the potential for collaboration between ODP and the ALVIN group and the return on such efforts could be extraordinary. Logistically, however, managing such an arrangement will take a great deal of foresight. Since both programs operate on single fiscal year plans and we recognize that ODP cannot fund submersible programs solely for site location, some entity must undertake the responsibility of organization. This would entail previewing the schedule for ALVIN dives and recognizing highly ranked proposals within the ODP system that, while not yet on the drilling schedule, could benefit from site location by ALVIN. Additionally, proponents for ALVIN programs need to be educated on specifics of site requirements (where to put the markers), the utility of cooperation (why they should dedicate dive time), and, if possible, should be funded by ODP for additional navigational nets as required. Ultimately, someone must ensure that navigation and site location data is sent to the ODP data bank as part of the site survey package. SSP is the logical service panel in ODP to assume oversight responsibility.

Other contributions ODP might consider when favorable dive series are recognized include: 1) Provide an ODP compatible beacon for deployment within the transponder net. 2) Provide a passive sonar reflector to be installed within the transponder net. This is much less preferable than a beacon. 3) Purchase a Geocompass (estimated cost less than $3000) for routine deployment on the ALVIN, or for use on dive series of interest. Additionally, this tool might be adapted for deployment from the ODP VIT camera system.

One final recommendation results from this report. While the ALVIN appears to offer an

alternative to specific site survey applications, it is still a relatively expensive operation. In that site surveys may require extensive use of power, science objectives (sample collection) may be compromised. Since ALVIN programs are only funded based on science objectives, it may be problematic convincing proponents to commit to collaboration. One much less expensive, and potentially more utilitarian site survey tool might be a remotely operated vehicle.

Given the significantly lower cost and longer bottom time capabilities of ROV's, it may be in ODP's interest to invest in ROV programs to potential drill sites. This type of strategy may require significantly less foresight, particularly if surveys can be funded when highly ranked proposals have made it into the fiscal year prospectus.

Appendix B

SSP Watchdog Assignments Scheduled Legs									
Leg	*Proposal Name*	*Prop. No.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov 1994 (Lamont)*	*APRIL 1995 (BIO)*
158	TAG Hydrothermal System	361-Rev2	Moore	Toomey	Toomey	Quoidbach	Quoidbach	Toomey/ Quoidbach	Miller
159	Equatorial Atlantic Transform	346-Rev3	Camerlenghi & Sibuet	Sibuet	Sibuet	Sibuet/ Quoidbach	data set complete	data set complete	Miller
160	E. Mediterranean (Med Ridge & Med Sapropels)	330-Rev 391-Rev	Farre Kidd	Farre Kastens	Farre Kastens	Farre/ Quoidbach	Farre/ Quoidbach	Quoidbach	data set complete
161	W. Mediterranean (Alboran & Med. sapropels)	323-Rev2 391-Rev	Kastens Kidd	Kastens Kastens	Kastens Kastens	Kastens/ Quoidbach	Kastens/ Quoidbach	Quoidbach	data set complete
162	N. Atlantic Arctic Gateways II	NAAG	Hinz	Hinz	Srivastava	Srivastava	Peterson/ Quoidbach	Peterson/ Quoidbach	Peterson/ Quoidbach
163	NARM volcanic II (East Greenland	NARM-V Add2	Scrutton	Terhu	Scrutton	Kidd	Terhu	Scrutton	Scrutton/ Quoidbach
164	Gas Hydrate	423-rev	Mountain	Camerlenghi	Camerlenghi	Quoidbach	Camerlenghi/ Quoidbach	Quoidbach	Camerlenghi / Quoidbach
165	Caribbean - Ocean History	434	proposal not yet submitted	proposal not yet ranked	Kastens (Cariaco)		OHP: Mountain	OHP: Mountain	Mountain/ Quoidbach
166	Bahamas Transect (sea level & fluid)	412-Add	Sibuet	no data package	Sibuet	Sibuet	Sibuet	Sibuet	Enachescu/ Quoidbach
167	California Margin	386-Rev, 422-Rev	Kidd	Camerlenghi	Camerlenghi	Lykke-Andersen	Camerlenghi/ Tokuyama	Tokuyama	Camerlenghi /Quoidbach

SSP Watchdog Assignments Scheduled Legs									
Leg	*Proposal Name*	*Prop. No.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov 1994 (Lamont)*	*APRIL 1995 (BIO)*
168	East Juan de Fuca hydrothermal	440	not yet submitted	not yet submitted	not yet submitted	Srivastava	Srivastava	Srivastava/ Casey	Casey/ Quoidbach
169	Sedimented Ridges II	SR-DPG	Hinz	Hinz	Srivastava	Srivastava	Srivastava	Srivastava/ Casey	Casey/ Quoidbach
170	Costa Rica acc. wedge	400, 400-Rev	Moore	Camerlenghi	not discussed: not in FY 95 prospectus	Lykke-Andersen	Camerlenghi	Peterson	Tokuyama

SSP Watchdogs
Highly-ranked Unscheduled Proposals

SR '93	*FR '93*	*SR '94*	*FR '94*	*SR 95*	*Title*	*Prop.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov. 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov. 1994 (Lamont)*	*April 1995 (BIO)*
L-4					Red Sea	086-rev	Scrutton	Scrutton	not in FY95 prospectus	not ranked	not ranked	not ranked	Not ranked
T-5		T-6			N. Australian margin	340-rev	Scrutton	out of geo-graphic area	not in FY95 prospectus	Kidd	out of geo-graphic area	out of geo-graphic area	Not ranked
				L-1	Return to 735B (Atlantis II FZ)	300-rev	Srivastava	Srivastava	Srivastava	Srivastava/ Quoidbach	out of geo-graphic area	out of geo-graphic area	Casey
		S-1, O-3, (tie)		S-3	New Jersey Sealevel II	348-add				Kastens	Farre	not in prospectus	Kastens
O-3		O-6, S-7		O-1	Benguela Current	354-Rev, 354-Add	Farre	Farre	not in FY 95 prospectus	Farre	out of geo-graphic area	out of geo-graphic area	Hinz
				T-5	Peruvian Margin /Gas Hydrate	355-Rev5	--------	--------	-------	-------	--------	--------	Camerlenghi
				S-6	Australian Bight Carbonate	367	------	-------	-------	-------	--------	--------	Enachescu
			T-4		Vema Fracture Zone (science)	376-rev3	subsumed by DCS test	subsumed by DCS test	subsumed by DCS test	subsumed by DCS test	subsumed by DCS test	Toomey	not in FY96 prospectus
					DCS Engineering (Vema FZ: VE3)	376-Rev2	Kastens	Kastens /Toomey	Toomey	data set complete	data set complete	data set complete	not in FY96 prospectus
O-6	O-2	O-7	O-3	O-4	NW Atlantic drifts (Bermuda/ Blake Bahama)	404, 404-Rev,Rev2	Mountain	Mountain	Mountain	Mountain	Mountain	Mountain	Mountain

5/30/95 9:53 am

SSP Watchdogs
Highly-ranked Unscheduled Proposals

SR '93	*FR '93*	*SR '94*	*FR '94*	*SR 95*	*Title*	*Prop.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov. 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov. 1994 (Lamont)*	*April 1995 (BIO)*
			O-4	O-5	Blake Plateau & Blake Nose	404add 462				not yet submitted	discovered in DB cubbyhole	Mountain	Mountain
O-13					North Atlantic Climatic variability	406	ranked too low	ranked too low	not in FY95 prospectus	partially merged into NAAG II	partially merged into NAAG II	partially merged into NAAG II	partially in Leg 162
L-12, O-4		L-1, O-1	O-1, L-6, S-6	L-2	Caribean	384rev3, 408-R2, 411, 415-Rev	Mountain	not discussed: no data package	not discussed: not in FY95 prospectus	Mountain	LITH: Hinz	LITH: Scrutton	Hinz
L-1					Evolution of oceanic crust	420	Srivastava	out of geo-graphic area	not in FY95 prospectus	ranked too low	ranked too low	ranked too low	ranked too low
		L-5		L-5	Australia-Antarctic Discordance	426	ranked too low	ranked too low	not in FY95 prospectus	Kastens	out of geo-graphic area	out of geo-graphic area	Kastens
O-7					South Florida Margin sealevel	427	Farre	Farre	not in FY95 prospectus	ranked too low	ranked too low	ranked too low	ranked too low
O-2		O-3 (tie)			Sub-Antactic SE Atlantic transect	430	Camerlenghi	no data package	not in FY95 prospectus	Peterson	out of geo-graphic area	out of geo-graphic area	partially merged with 464
				L-6	Izu-Mariana Mass Balance	(435-Add2), 472	--------	-------	--------	--------	-------	------	Scrutton
				S-7	Nicaragua	(435-Rev), 471	--------	--------	---------	--------	--------	--------	Scrutton

5/30/95 9:57 am

SSP Watchdogs
Highly-ranked Unscheduled Proposals

SR '93	*FR '93*	*SR '94*	*FR '94*	*SR 95*	*Title*	*Prop.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov. 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov. 1994 (Lamont)*	*April 1995 (BIO)*
		O-5			Southwest Pacific Gateway	441	not yet submitted	not yet submitted	not yet submitted	Peterson	out of geo-graphic area	out of geo-graphic area	Peterson
		T-5		T6	Mariana back-arc basin	442	not yet submitted	not yet submitted	not yet submitted	Tokuyama	out of geo-graphic area	out of geo-graphic area	Tokuyama
				S-4 T-7	Nankai defor. & fluids	445-Rev	-------	------	-------	------	--------	--------	Camerlenghi
		T-1		T-1	W. Woodlark Basin	447	not yet submitted	not yet submitted	not yet submitted	Farre	out of geo-graphic area	out of geo-graphic area	Enachescu
				L-3	Ontong Java Plateau origin	448							Tokuyama
		T-3		T-3	Taiwan arc/cont collision	450	not yet submitted	not yet submitted	not yet submitted	Sibuet	out of geo-graphic area	out of geo-graphic area	Scrutton
				L-7	Tonga Forearc	451-Rev2							Scrutton
				L-4	Kerguelan Plateau	457-Rev							Hinz
T-11					Non-volcanic margins II (NARM/ Newfoundland)	NARM-NV	ranked too low	ranked too low	not in FY95 prospectus	not ranked	not ranked	not ranked	not ranked
T-2	T-4	T-4	T-3	T-2	NARM non-volcanic (Iberian margin II)	NARM-NV 461,461-add	Mountain	Mountain	Mountain	Mountain	Mountain	Mountain	Mountain
				O-3	Southern Ocean Paleo.	464	-------	------	----	-----	-----	----	Peterson

5/30/95 10:01 am

SSP Watchdogs
Highly-ranked Unscheduled Proposals

SR '93	*FR '93*	*SR '94*	*FR '94*	*SR 95*	*Title*	*Prop.*	*April 1993 (Trieste)*	*July 1993 (Lamont)*	*Nov. 1993 (Lamont)*	*April 1994 (Brest)*	*July 1994 (Lamont)*	*Nov. 1994 (Lamont)*	*April 1995 (BIO)*
				O-6	SE Pacific Paleoeanography	465	--------	------	-----	-----	-----	------	Peterson
				T-4	Romanche FZ	468	----------	--------	-------	------	-------	------	Kastens
				S-1	Saanich Inlet	473	----------	--------	-------	--------	--------	---------	Casey

Future Watchdogs: Australia-Antartic Discordance (426) : Doug Toomey
Romanche FZ (468): Doug Toomey

5/30/95 10:19 am

Appendix C

THEMATIC PANELS' GLOBAL RANKINGS - SPRING 1995

Panel	LITHP		OHP		SGPP		TECP	
Rank	Number	Title	Number	Title	Number	Title	Number	Title
1	300	Return to 735B	354	Benguela Current	(LOI 35) 473	Saanich Inlet	447	Woodlark Basin
2	411	Caribbean Basalt Province	441	SW Pacific Gateway	generic	Antarctic generic	461	Iberia NARM
3	448	Ontong Java Plateau	464	Southern Ocean paleoceanography —	348	New Jersey margin	450 (471)	Taiwan arc-continent collision
4	457	Kerguelan Plateau	404	Late Neogene paleoceanography	445	Nankai	468	Carbonate cap drilling at the Romanche FZ
5	426	Austrlian Ant. Discordance	462	Blake Plateau and Blake Nose	354	Benguela Current	355-	Gas hydrates/Peru margin (tectonic erosion)
6	(435) 472	Izu-Mariana mass balance	465	SE Pacific paleoceanography	367	Cenozoic Carbonates in the Great Australia Bight	442-	Mariana back-arc basin
7	451	Tonga forearc	348	New Jersey margin	(435) 471	Nicaragua mass balance	445	Nankai Trough (defor. & fluids)
8	420	Evolution of oceanic crust	367	Cenozoic Carbonates in the Great Australia Bight	424 TIE w/467	CORK Site 395A	451	Tonga Forearc
9	(435) 471	Nicaragua mass balance	449	Mesozoic Weddell Basin	467 TIE w/424	W Med sea level changes/ Golf du Lyon	LOI 48	Physical properties/ LWD
10	442	Mariana Trough rifting	452	Antarctic Glacial History and SL change	355	Gas hydrates/ Peru Margin	466	GAB continental margin
11	376	Vema offset section drilling	79	Mesozoic Somali Basin	420	Evolution of oceanic crust (Clipperton FZ)	LOI 44	Japan Trench observatory

Panel	LITHP		OHP		SGPP		TECP	
Rank	Number	Title	Number	Title	Number	Title	Number	Title
12	438,469	Reflectors in oceanic crust ArgoAbyssal Plain	427	South Florida margin sea level	455	Laurentide Ice Sheet sediment fluxes	334	Galicia margin
13	generic	Red Sea (generic)	253	Ancestral Pacific	generic	Red Sea (generic)	LOI 41	Stress-strain observatory system /Costa Rica
14	431	Western Pacific sesimic network.	444	Joban margin sea level fluctuations	453	Bransfield Strait Antarctica	469	Argo Abyssal Plain (dipping reflectors)
15	425	Mid-Atlantic Ridge offset drilling			LOI 48	LWD Central America	431	W. Pacific seismic network
16	LOI-44 TIEw/468	Japan Trench observatory			LOI 45	LWD- East Coast North America	300	Return to 735B
16	468 TIE w/LOI-44	Carbonate cap drilling at Romanche FZ						
17	447	Woodlark Basin			435	Mariana-Izu mass balance		
18	generic	Deep drilling near 504B			332	Florida escarpment seeps		
19	461	Iberia NARM			450 ~~(471)~~	Taiwan arc-continent collision		
20	463	Shatsky Rise			444	Joban Margin Sea Level Fluctuations		
21	453	Bransfield Strait Antarctica			449	Weddell Basin (Cretaceous black shales)		

Panel	LITHP		OHP		SGPP		TECP	
Rank	Number	Title	Number	Title	Number	Title	Number	Title
22	466	GAB continental margin			436	Neogene Campeche sea level		
23					427	Sth Florida Margin Sea Level		

NOTE: LITHP & SGPP are considering Proposal 435 in two parts: Mariana - Izu mass balance and Nicaragua
Proposal 450 -Rev was mistakenly logged initially as new proposal 471.

Appendix D

SITE SURVEY PANEL : APRIL 1995

BUDGET

FINAL 1995 PROGRAM PLAN BUDGET WILL BE $45.8M
INCLUDES NEW MONEY AND 1994 CARRY-FORWARD.

1996 TARGET BUDGET IS $44.9 M

NEXT VERSION OF THE LONG-RANGE PLAN TO BE REVIEWED BY PCOM IN APRIL

REVIEWS

ODP COUNCIL REVIEW FOR 1999-2003 PERIOD TO BE COMPLETED IN EARLY 1996.

INDIVIDUAL COUNTRIES (FRANCE, UK) DOING OWN REVIEWS

PERFORMANCE EVALUATION COMMITTTEE REVIEW TO BE COMPLETED IN MID-1995

SCIENCE ITEMS OF INTEREST

VSP SUPPORTED FOR GAS HYDRATES LEG (164)

TAG INSTRUMENT RECOVERIES SUCCESSFUL

BOREHOLE AND ION SCIENCE MEETINGS HELD

SPRING 1995 PANEL RANKINGS

NSF/ODP FIELD PROPOSALS
[ ] = FUNDED
R ( ) = UNDER REVIEW

OHP RANKINGS

Benguela Current 354/4
SW Pacific 441
?? [Southern Ocean 464] ??
Late Neogene Paleo 404/2
Blake Plateau and Nose 462
SE Pacific Paleo 465
USSAC [New Jersey Margin 348]
OCEANUS JUNE 95

Aust. Bight 367/2
Mes. Weddel Sea 449
Antarctic Glac.&SI 452
Mes. Somali Basin 79
S. Florida 427
Ancestral Pacific 253
Joban Margin 444

LITH PANEL RANKINGS

R (735b 300)
Caribbean Basement 411
R (Ontong Java 448)
Kerguelan 457
[Antarctic disc. 426] MELVILLE JAN 96
Izu-Mariana mass Bal. 435
R (Tonga Forearc 451)

Evol. Ocean Crust 420
Nicaragua mass balan. 435
N. Mariana Trough rift 442
Vema offset section 376
Deep reflectors 438/469
RED SEA
W Pacific Seismic Net 432
R (Offset drill 15-20 425)
Japan Trench OBSERV. 468
Woodlark 447
Deep Drilling ner 504B
Iberia 461
Shatsky 463
Bransfield St. 453
Aust lower Plate 466

SGPP RANKINGS

Saanich Inlet loi35
Antarctic Generic
USSAC [New Jersey 348]
Nankai 445
Benguela 354
Austalia Bight Carbs. 367
R (Nicaragua 435)

Cork 395 424
Golf du Lyon 467
Peru Margin 355
Evol. of Crust 420
Laur. ice sheet 455
RED SEA
Bransfield st. 453
LWD Central America LOI48
East Coast Hazards LOI45
Mariana IZU 435
Florida Seeps 332
Taiwan 471
Joban Margin 444
Weddell Sea 449
Campeche 436
S. Florida Sea Level 427

TECP RANKINGS

USSAC [Woodlark 447] ??
R (Iberia 2 461)
[Taiwan 471] EWING AUG. 95
Romanche FZ 468
Peru Tectonic Erosion 355r
Mariana Back Arc 442rev
Nankai def. & fluid 445

Tonga 451/2
Phys. Props. LOI48
S. Australia Margin 466
Japan Trench Observ. LOI44
S Reflector 334/3
Stress-Strain Obs. LOI41
Dipping Reflectors 469
W. Pacific Seismic Net 431/2
735B 300/rev

APPENDIX E

LEG 158 (Dr. Susan Humphris)

1) Site Readiness

The active hydrothermal mound at TAG had been very well studied prior to Leg 158. Given that we were trying to place all the drill holes on a feature 200 m in diameter, the needs in terms of Site Survey were somewhat different from other Legs. The two most vital pieces of data and information that we had proved to be the very high-resolution (2 m contour) map that I and Marty Kleinrock had generated from the AMS-120 sidescan survey just two months pre-drilling, and the markers that had been placed on the mound in 1993 that we had located on our map during photographic runs on the same pre-drilling cruise. Without these, we would have had considerable difficulty locating our position on the mound. With these, we were able to navigate very well between sites and therefore spent very little time surveying. For Legs that require precise positioning of Holes relative to bottom features, a detailed map and seafloor markers are invaluable.

In terms of drilling conditions, I do not think there is any other work that could have prepared us for the nature of the subsurface of the mound (which below the upper few meters was unlike any of the samples that had been previously collected from the surface of the mound). Although the interior was completely brecciated, the dominant type was a pyrite breccia consisting of massive pyrite clasts in a matrix of pyrite sand cemented by a small amount (<10% by vol.) of anhydrite. It is highly unlikely that either an on-bottom seismic experiment or an electromagnetic experiment would have been able to differentiate this material from massive pyrite. The very high abundance of anhydrite in the narrow upflow zone may have been detectable by seismics; however, given the very high influx of seawater into the mound, EM probably would not have been able to
distinguish it. It should also be noted that some of our best recovery was in this anhydrite-rich zone (up to 65% with the motor-driven core barrel), so drilling in this region was not a problem.

2) Use of the HRB

Our experience with using the HRB was far from satisfying! Before deploying it, we ran a jet-in test that penetrated only 0.5 m, a series of XCB cores that demonstrated the existence of a hard layer between 2-5 mbsf (that later proved to be chert), and an APC at the water-sulfide interface that bent in half. Hence it was decided that the HRB would be appropriate. The levels on the corners of the guidebase during the first three attempts to set it on the seafloor registered slopes of >15°, which was considered too steep (even though it is advertised as being able to deal with slopes of up to 20°). On the 4th attempt, it was level; however, the running tool would not release, so it had to be pulled back to the surface. A second attempt landed it on a slope registering 8° and drilling continued down to about 30 m at which fresh basalt was encountered. Since drilling in basalt was not the goal of the cruise, we decided to move the base to another location nearer the center of the mound.

The HRB was picked up very efficiently and moved, and finally (after several tries) set down on a slope of about 8°. After drilling to 30 mbsf, we decided to pull out and put in casing while drilling conditions were still good. However, as we pulled out, we noticed that the HRB was now showing an angle of 20° so, rather than risk the possibility that it would fall over when we pulled out, we chose to continue drilling. Due to an operational problem at a depth of 50 mbsf, we had to pull out of the hole, at which point HRB registered an angle of >20°. On trying to reenter (to ensure that we would be able to after a pipe trip), the guidebase fell over. Later in the cruise, we retrieved it without difficulty.

It appears to me that the HRB does not meet the needs of most drilling in the seafloor. We were told repeatedly that the angles were too steep; however, it is unlikely that there are many (if any) parts of the seafloor for which the HRB was designed that would be flat enough for its use. TAG has a flatter and more even surface than any pillow basalt terrain for which the HRB was designed. In our case, I think that the HRB became unstable due to undermining during the drilling operations.

3) Other Suggestions

Our greatest success at drilling with good recovery was with the motor driven core barrel (MDCB), and for hydrothermal legs, this tool should be carried with the intention that it will be used. On Leg 158, it was on board -- but its use was not expected during our leg. Consequently, spares were in short supply, but the Special Tools Engineer did a great job in keeping it going. However, if its use is planned, then it is important the drilling objectives are reassessed because it is a much slower technique than XCB or RCB.

Susan E. Humphris
Dept. of Geology & Geophysics
Woods Hole Oceanographic Institution
Woods Hole, MA 02543
Tel: 508-457-2000 ext. 3451
Fax: 508-457-2150
Email: susan@copper.whoi.edu

APPENDIX F

SSP Feedback to proponents

o the name and contact information of the watchdog,

o a copy of the section of the draft minutes dealing with the proposal,

o copies of the SSP worksheets, if the data package is sufficiently mature to enable the watchdog to fill out worksheets.

o the target types within the SSP guidelines against which each site will be evaluated,

o for each data type classified as "X*" or "Y*", an indication of whether SSP will or will not require this particular data type for these particular sites,

o an indication of additional data types that SSP might require in support of secondary or non-standard drilling objective in circumstances not well covered by SSP guidelines,

o an indication of any potential safety issues,

o for sites in areas of hydrocarbon exploration or production, a reminder that data from commercial wells in the area will eventually be needed for safety review

o for sites in <200m water depth, a reminder of shallow water drilling hazard survey requirements

o for sites in heavily travelled areas or near shore sites, a reminder that information on potential manmade hazards (cable routes, dump sites) will be needed for operational planning

o advice on other investigators who may have relevant data in the region,

o advice on survey ships that may be able to visit the area.

o reminder of timing of next data deadline and next SSP meeting.

o mention about the need to place suitable markers if a HRGB is planned to be used and that the proponents should be in contact with TAMU engineers, in particular with Jay Miller, about it. Enclose a copy of the guidelines on marking these sites using submersibles as outlined by Jay Miller from TAMU.

o Send a copy of your watchdog letter to Dan Quoidbach, ODP Data Bank.

o Send the watchdog letter to the lead proponent of the proposal. Ask Shiri for advice if there is not a single obvious lead proponent with whom to communicate.

April 1995

ODP Site Survey Worksheet: Passive Margin

Proposal name:	WOODLARK BASIN	Proposal #:	447
Site:	5A	Water depth (m):	3070
Area:		Proposed sed. penetration (m):	1450
Latitude:	9°42.75	Proposed basement penetration: (m):	400
Longitude:	151° 36 E	APC/XCB/RCB/re-entry?	
Worksheet revision history:			

This site has been assessed under the Site Survey guidelines for Target Type "B", defined as "Greater than a few hundred meters penetration on a passive margine." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*	desirable			
2	Deep penetration seismic reflection	X	vital		Yes	Yes
3	Seismic velocity	X	vital	needs velocity information	No	No
4	Grid of intersecting seismic lines	X	vital	needs MCS cross-lines		
5a	Refraction (surface source)	Y,X*	desirable			
5b	Refraction (deep source)		desirable			
6	3.5 kHz	X	vital		Yes	Yes
7	Swath bathymetry	Y, X*	desirable			
8a	Side-looking sonar (shallow towed)	Y,X*	desirable			
8b	SLS (near-bottom towed)	Y, X*	desirable			
9	Photography or Video					
10	Heat flow	Y,X*	desirable	regional data	Yes	Yes
11a	Magnetics	Y	desirable	Good coverage	Yes	Yes
11b	Gravity	Y	desirable	Good coverage	Yes	Yes
12	Sediment Cores	Y,R	desirable	some cores in the area	Yes	Yes
13	Rock Sampling	Y	desirable			
14	Water Current data	X*	not req			
15	OBS microseismicity					

SSP comments:

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

Brad Clarke

April 1995

ODP Site Survey Worksheet: Passive Margin

Proposal name: WOODLARK BASIN	Proposal #: 447
Site: ACE 3A	Water depth (m): 360
Area:	Proposed sed. penetration (m): 20
Latitude: 9°48.6' S	Proposed basement penetration: (m): 90
Longitude: 151 32.4 E	APC/XCB/RCB/re-entry?
Worksheet revision history:	

This site has been assessed under the Site Survey guidelines for Target Type "B", defined as "Greater than a few hundred meters penetration on a passive margine." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*	desirable	may be required for this location	No	No
2	Deep penetration seismic reflection	X	desirable		Yes	Yes
3	Seismic velocity	X	vital	needs velocity information	No	No
4	Grid of intersecting seismic lines	X	vital	need dip cross-line	No	No
5a	Refraction (surface source)	Y,X*	desirable			
5b	Refraction (deep source)		desirable			
6	3.5 kHz	X	desirable		Yes	Yes
7	Swath bathymetry	Y, X*	vital	MR-1 hungry	Yes	Yes
8a	Side-looking sonar (shallow towed)	Y,X*	desirable			
8b	SLS (near-bottom towed)	Y, X*	desirable			
9	Photography or Video		vital		No	No
10	Heat flow	Y,X*	desirable	regional data	Yes	Yes
11a	Magnetics	Y	desirable	good coverage	Yes	Yes
11b	Gravity	Y	desirable	good coverage	Yes	Yes
12	Sediment Cores	Y,R	may be required	some cores in area.	No	No
13	Rock Sampling	Y	vital		No	No
14	Water Current data	X*	vital	required due to shallow water	N	N
15	OBS microseismicity					

SSP comments: This site is essential for the proposal and most of the additional data suggested in the watchdog report. Similar recommendation valid for the alternative ACE-3B site.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

Emeleus Sea

April 1995

ODP Site Survey Worksheet: Passive Margin

Proposal name: KIRIBATI BASIN	Proposal #: 447
Site: ACE-24	Water depth (m): 3000
Area:	Proposed sed. penetration (m): 1800
Latitude: 9°41.5'S	Proposed basement penetration: (m): 1000
Longitude: 151° 36 E	APC/XCB/RCB/re-entry?
Worksheet revision history:	

This site has been assessed under the Site Survey guidelines for Target Type "B", defined as "Greater than a few hundred meters penetration on a passive margine." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*	desirable			
2	Deep penetration seismic reflection	X	vital		Yes	Yes
3	Seismic velocity	X	vital	needs velocity information	No	No
4	Grid of intersecting seismic lines	X	vital	needs MCS cross-lines	No	No
5a	Refraction (surface source)	Y,X*	desirable			
5b	Refraction (deep source)		desirable			
6	3.5 kHz	X	vital		Yes	Yes
7	Swath bathymetry	Y, X*	desirable			
8a	Side-looking sonar (shallow towed)	Y,X*	desirable			
8b	SLS (near-bottom towed)	Y, X*	desirable			
9	Photography or Video					
10	Heat flow	Y,X*	desirable	regional data	Yes	Yes
11a	Magnetics	Y	desirable	Good coverage	Yes	Yes
11b	Gravity	Y	desirable	good coverage	Yes	Yes
12	Sediment Cores	Y,R	desirable	Some cores in the area	Yes	Yes
13	Rock Sampling	Y	desirable			
14	Water Current data	X*	not required			
15	OBS microseismicity					

SSP comments:

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

Emeleus

APPIT 1993

ODP Site Survey Worksheet: Passive Margin

Proposal name: WOODLARK BASIN	Proposal #: 447
Site: ACE-1A	Water depth (m): 2325
Area:	Proposed sed. penetration (m): 1050
Latitude: 9°34 85	Proposed basement penetration: (m): 200
Longitude: 151°35.5' E	APC/XCB/RCB/re-entry?
Worksheet revision history:	

This site has been assessed under the Site Survey guidelines for Target Type "B", defined as "Greater than a few hundred meters penetration on a passive margine." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*	desirable			
2	Deep penetration seismic reflection	X	vital		Yes	Yes
3	Seismic velocity	X	vital	needs velocity information	No	No
4	Grid of intersecting seismic lines	X	Vital	need cross-lines (MCS)	No	No
5a	Refraction (surface source)	Y,X*	desirable			
5b	Refraction (deep source)		desirable			
6	3.5 kHz	X	vital		Yes	Yes
7	Swath bathymetry	Y, X*	desirable			
8a	Side-looking sonar (shallow towed)	Y,X*	desirable			
8b	SLS (near-bottom towed)	Y, X*	desirable			
9	Photography or Video				Yes	Yes
10	Heat flow	Y,X*	desirable	regional data	Yes	Yes
11a	Magnetics	Y	desirable	Good coverage	Yes	Yes
11b	Gravity	Y	desirable	Good coverage	Yes	Yes
12	Sediment Cores	Y,R	desirable	Some cores in area	Yes	Yes
13	Rock Sampling	Y	desirable			
14	Water Current data	X*	not required			
15	OBS microseismicity					

SSP comments:

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

Thorleson

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P7	Water depth (m): 5200 m
Area: Seaward of the trence (reference site)	Proposed sed. penetration (m): 250
Latitude: 79°26.3'W	Proposed basement penetration: (m): --
Longitude: 11°57.6'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS lines 1018 and 1017	X	X
3	Seismic velocity	X				
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site is located at low angle crossing between lines 1018 and 1017. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P6	Water depth (m): 4400 m
Area: Lower slope (BSR)	Proposed sed. penetration (m): 750
Latitude: 79°03.8'W	Proposed basement penetration: (m): --
Longitude: 11°40.0'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
3	Seismic velocity	X				
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P5	Water depth (m): 3600 m
Area: Mid slope (BSR)	Proposed sed. penetration (m): 600
Latitude: 78°56.6'W	Proposed basement penetration: (m): --
Longitude: 11°34.3'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
3	Seismic velocity	X		P-wave velocity profiles on BSR	X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P4	Water depth (m): 3700 m
Area: Mid slope (BSR)	Proposed sed. penetration (m): 750
Latitude: 78°55.7'W	Proposed basement penetration: (m): --
Longitude: 11°33.6'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
	Seismic velocity	X		P-wave velocity profiles on BSR	X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P3	Water depth (m): 2500 m
Area: Lima Basin	Proposed sed. penetration (m): 800
Latitude: 78°46.0'W	Proposed basement penetration: (m): --
Longitude: 11°26.5'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
3	Seismic velocity	X				
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P2	Water depth (m): 2200 m
Area: Lima Basin	Proposed sed. penetration (m): 800
Latitude: 78°40.1'W	Proposed basement penetration: (m): --
Longitude: 11°23.0'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
3	Seismic velocity	X				
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Peru Margin/Gas hydrates	Proposal #: 355-Rev. 5
Site: P1	Water depth (m): 2000 m
Area: Lima Basin	Proposed sed. penetration (m): 700
Latitude: 78°33.1'W	Proposed basement penetration: (m): --
Longitude: 11°18.7'S	APC/XCB/RCB/re-entry? not clear from proposal
Worksheet revision history: AC April 6 '95.	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*				
2	Deep penetration seismic reflection	X		MCS line 1018	X	X
3	Seismic velocity	X				
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*				
5b	Refraction (deep source)					
6	3.5 kHz	X				
7	Swath bathymetry	X				
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*				
9	Photography or Video	Y				
10	Heat flow	Y,X*				
11a	Magnetics	Y				
11b	Gravity	Y				
12	Sediment Cores	Y,R				
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on site survey package used for drilling Leg 112.In addition, (pre-stack migration?) of line 1018, part of line 1017 and part of line CDP1 have been submitted to DB in two versions, AGS and true amplitude. The site seems to be located on line 1018. Uncertainty exists because figures with site lication on the seismic profiles in the proposal have no caption. Submitted profiles have no site location. No crossing line has been submitted.

In the July '95 meeting at lamont, the old package of Leg 112 must be accurately checked to verify existing data.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: WNT-3A	Water depth (m): 4710
Area: Nankai through (proto-thrust zone)	Proposed sed. penetration (m): 1250
Latitude: 31°48.55'N	Proposed basement penetration: (m): --
Longitude: 133°53.10'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: WNT-2A	Water depth (m): 4490
Area: Nankai through (frontal thrust and décollement)	Proposed sed. penetration (m): 1700
Latitude: 31°50.70'N	Proposed basement penetration: (m): --
Longitude: 133°51.30'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
3	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
10	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required: X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: WNT-1A	Water depth (m): 4850
Area: Nankai through (reference site)	Proposed sed. penetration (m): 1250
Latitude: 31°44.25'N	Proposed basement penetration: (m): 50
Longitude: 133°56.5'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
3	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
10	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: ENT-3A	Water depth (m): 4710
Area: Nankai through (proto-thrust zone)	Proposed sed. penetration (m): 1000
Latitude: 32°20.30'N	Proposed basement penetration: (m): --
Longitude: 134°57.25'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
3	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
10	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: ENT-2A	Water depth (m): 4790
Area: Nankai through (seaward of propagating décollement tip)	Proposed sed. penetration (m): 900
Latitude: 32°19.30'N	Proposed basement penetration: (m): --
Longitude: 134°58.05'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
3	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
10	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for igh temperature environments

ODP Site Survey Worksheet: Active Margin

Proposal name: Nankai Margin	Proposal #: 445 Rev
Site: ENT-1A	Water depth (m): 4780
Area: Nankai through (reference site)	Proposed sed. penetration (m): 800
Latitude: 31°15.25'N	Proposed basement penetration: (m): 50
Longitude: 135°01.10'E	APC-XCB-RCB-re-entry
Worksheet revision history: AC April 6 '95;	

This site has been assessed under the Site Survey guidelines for Target Type "C", defined as "Greater penetration than a few 100m on an accretionary wedge, fore-arc or sheared margin." See Joides Journal, vol.20, no2, for more information.

	DATA TYPE	GUIDELINES general	GUIDELINES this site	DESCRIPTION OF DATA	exists	in DB
1	High resolution seismic reflection	Y,X*			X	
2	Deep penetration seismic reflection	X			X	
3	Seismic velocity	X			X	
4	Grid of intersecting seismic lines	X				
5a	Refraction (surface source)	Y,X*			X	
5b	Refraction (deep source)					
6	3.5 kHz	X			X	
7	Swath bathymetry	X			X	
8a	Side-looking sonar (shallow towed)	Y				
8b	SLS (near-bottom towed)	Y,X*			X	
9	Photography or Video	Y				
10	Heat flow	Y,X*			X	
11a	Magnetics	Y			X	
11b	Gravity	Y			X	
12	Sediment Cores	Y,R			X	
13	Rock Sampling	Y				
14	Water Current data	X*				
15	OBS microseismicity					

SSP comments: Proponents rely on the site survey package submitted to support drilling ODP Leg 131 and DSDP Legs 31 and 87. Apparently all the required data exist. At the next July 1995 meeting the old packages must be checked to verify that the data are actually available, expecially for the western transect (highest priority) where DSDP Sites have been drilled. Crossing lines must be checked.

X= required; X*=may be required for specific sites; Y=recommended; Y*=may be recommended for specific sites; R=required for re-entry sites; T = required for high temperature environments