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(April 7, 1992)

JOIDES Site Survey Panel Meeting, LDGO, April 1992

EXECUTIVE SUMMARY

JOIDES SITE SURVEY PANEL MINUTES

APRIL 1-3, 1992

Lamont Doherty Geological Observatory

Palisades, New York

Members: Kidd, Rob (UWCC, Cardiff, UK) - Chairman
Farre, John (EXXON, Houston, USA)
Hinz, Karl (BGR, Hannover, Germany)
Hirata, Naoshi (Chiba University, Chiba, Japan)
Kastens, Kim (LDGO, Palisades, USA)
Larsen, Birger (DGS, Copenhagen, Denmark/ESF)
Louden, Keith (Dalhousie Univ., Halifax, Canada)
Moore, Greg (HIG, Honolulu, USA)
Mountain, Greg (LDGO, Palisades, USA)
Pautot, Guy (IFREMER, Brest, France)
Treu, Ann (OSU, Corvallis, USA)
von Herzen, Dick (WHOI, Woods Hole, USA)

Liaisons: Baldauf, Jack (Texas A & M, USA)
Ball, Mahlon (PPSP, USGS, Boulder, USA)
Blum, Peter (JOIDES Office, UTIG, Austin, USA)
Brenner, Carl (Site Survey Data Bank:LDGO, USA)
Watkins, Joel (PCOM, TAMU, College Station, USA)
Malfait, Bruce (NSF/ODP Office, Washington, USA)

The main charge for the Spring'92 Site Survey Panel meeting was:

1. Detailed assessment of submitted data for FY'93 North Atlantic drilling;
2. Initial assessment of proposals for potential FY'94 drilling taking account of the recent Spring thematic panel global rankings.

Discussions at LDGO and assessment of the data packages submitted and of the ranked proposals resulted in the following consensus items:

SSP Consensus 1: At this Spring'92 meeting SSP will consider initial assessments of the top 25 "drillable" proposals from the thematic panel's global rankings of March 1992.

SSP Consensus 2: Drilling into tectonic windows is a new strategy, and the community is still in the process of learning what kinds of survey data are useful or vital. SSP invites continued input from the **Offset Drilling Working Group**, and from proponents, surveyors and Co-Chiefs involved in early offset drilling legs. SSP anticipates continued problems over requests to drill deep holes (>500m) at sites where there is no sub-bottom data; proponents are urged to explore all possible techniques for obtaining clues to subbottom structure and igneous stratigraphy prior to drilling.

SSP Consensus 3: For Leg 145 N.W. Pacific Neogene SSP reiterates its recommendation that the co-chief scientists ensure that high quality seismic lines are run over the NW-1A, 3A and 4A drillsites by JOIDES RESOLUTION prior to drilling.

SSP Consensus 4: There was no visit to Hess Deep on Leg 140 but the full data package that was compiled pre-cruise by co-chief Henry Dick should be submitted to the Data Bank as part of the package for Leg 147 and potential future Hess Deep Legs.

SSP Consensus 5: For Leg 149 NARM-Non Volcanic Margins most data are in the Data Bank. However, SSP noted two deficiencies in the data submitted (i.e. 3.5 kHz profiles and core data) that are known to exist. Because these data relate to setting of cones for re-entry, proponents are asked to submit 3.5 kHz profiles or equivalent and core data as soon as possible. Proponents are also asked to provide details on how they estimated sound velocities at each projected site.

SSP Consensus 6: The proponents of Leg 150 New Jersey Margin Sea Level are urged to examine the industry sparker/boomer lines for indications of shallow gas pockets before the next PCOM meeting. SSP should consider amending the guidelines to require sparker/boomer data

for drilling in extremely shallow water. The proponents are reminded of the need to submit the remaining "required" data types (3.5kHz and seismic velocities) as well as any available data of the "desirable" types to the Data Bank before August 1.

SSP Consensus 7: Much of the required data for the NAAG I Leg 151 drilling, including alternate sites, is now in the Data Bank. These minutes record where proponents are asked to submit minor items of site specific data. SSP make the following specific recommendations:

- 1) NAAG proponents should reconsider placement of drill sites at or near Yermack Plateau in the light of new Arctic IV data.
- 2) New Polarstern data for YERM-2, YERM-3 and FRAM-1A and 1B sites should be processed to clarify whether BSR's exist.
- 3) The possibility of BSR's is flagged for PPSP attention and TAMU is alerted to the potential of strong currents at a number of these sites.

SSP Consensus 8: Most survey data has been lodged in the Data Bank for NARM-Volcanic Margin drilling on the East Greenland Margin, Leg 152. SSP provided advice on leg lines to be collected on the upcoming Larsen cruise and requests that collection of 3.5 kHz and core data important to operational considerations be pursued by proponents (White cruise summer '93?). A compilation of sonobuoy velocity data relating to TD estimates is requested. TAMU is again alerted to the importance of obtaining water current data.

SSP Consensus 9: SSP thanks the proponents for the excellent MCS data recently submitted to the Data Bank in support of Alboran Sea drilling, and encourages deposition of additional "required" and "desirable" data types as soon as the merger of proposals 323/rev and 399 is completed. SSP is concerned about the possible presence of Messinian evaporites, which could pose a safety problem; we consider that the burden of proof remains on the proponents to make a case that drilling in the deep Alboran Basin has a reasonable chance of reaching the proposed early and middle Miocene objectives without being stalled by Messinian evaporites.

SSP Consensus 10: Proponents of the Mediterranean Ridge proposal 330 have revised their drilling strategy into shallow and deep objectives. SSP considers that update by August of data in the Data Bank from previous Mediterranean drilling legs will probably result in a sufficient package for shallow drilling objectives. Yet to be acquired MCS data will be required in support of any new deep objective proposal.

SSP Consensus 11: Almost all the data is collected and available in support of Equatorial Atlantic proposal 346-Rev2 and processing will be complete by summer 1992. SSP recommends that PPSP take an opportunity to pre-review this data package with proponent J. Mascle at its London meeting, which could ascertain whether heat-flow data is a requirement.

SSP Consensus 12: SSP reiterates its contention that there exists already a substantial database on TAG that could be compiled as an initial site survey package in support of proposal 361-Rev. Proponents are urged to begin lodging these data with the Data Bank even though some key data is still to be collected on cruises proposed for 1993.

SSP Consensus 13: A sufficient data set for the proposed eight shallow APC/XCB sites on Ceara Rise is likely to be available after September '92 although existing data in proposal 388 is poor. SSP will be thus unable to comment further in August but can arrange for a review of the new data by an SSP member, probably in November.

SSP Consensus 14: Based on the proposal only, it seems that all necessary site survey data is available to support Continental Margin Instability proposal 059 Rev. SSP awaits deposition of this Site Survey data package at the ODP Data Bank for further review in August.

SSP Consensus 15: SSP awaits submission by the August 1 deadline of data in support of specific drillsites in the Mediterranean Sapropels proposal 391. It notes that there is a reasonable chance that sufficient data may already exist in Europe and in the Data Bank from previous Mediterranean drilling.

SSP Consensus 16: SSP awaits a compiled package of existing MARK (Proposal 369 Rev) data to be deposited in the Data Bank but notes that other data to image the deeper structure may still be required to meet the objectives posed.

SSP Consensus 17: SSP urges that a preliminary package of existing Vema FZ, proposal 376-Rev, data should be lodged with the Data Bank but notes that potentially critical sidescan data will not come available until a cruise in 1993.

SSP Consensus 18: Most of the necessary data probably exists or will be collected in 1992 for NAAG-II additional Arctic Gateways drilling and may be ready for assessment in Spring 1993 but not for August assessment. The proponents are urged to begin submitting identified as existing but still outstanding data to the ODP Data Bank.

SSP Consensus 19: SSP was generally impressed with data submitted to the Data Bank in support of the Newfoundland Basin DPG proposal (NARM-DPG). They flagged minor deficiencies (lack of sediment core and water current data) that may be required for operations. SSP recommends that PPSP carry out a pre-review of these sites and NB-1 in particular. The Panel provided proponent Srivastava with advice on the design of tracks for a summer 1992 survey cruise and PPSP's input should also be sought before that cruise.

SSP Consensus 20: Most data required in support of proposed Voring Plateau (NARM II) drilling appears to exist and may reside in the Data Bank. Proponents are urgently requested to update this data package by August 1. No data has been submitted for SE Greenland sites in this

Non-Volcanic margins proposal. No problems are anticipated gathering data for EG66-2 but EG66-1 may be problematic because of its thick sediment cover (possibly problematic to operations) and present lack of 3.5 kHz and core data in the area.

SSP Consensus 21: There is adequate data with which to frame the Western North Atlantic Drifts proposal 404 and to locate the optimal core locations, but the requisite data search has yet to be done. The identification of optimal drill site locations on high-resolution SCS and 3.5 kHz records requires special expertise that may be best supplied by a third proponent on this proposal; the proponents are encouraged to enlist the contribution of such a person.

SSP Consensus 22: SSP is impressed by the apparently extensive dataset that exists in support of shallow drilling on the Amazon Fan. The Panel recommends that the proponents not only complete their processing of existing 40 cu. in. airgun records in support of Amazon Fan proposal 405 but also investigate whether further SCS data can be collected on the upcoming Mountain Ceara Rise cruise in September 1992. SSP is concerned about sites AF-4 and 5, aiming to penetrate a major debris flow unit, which have only single crossing lines along with a group of relatively deep sites (AF-7-11) which again have no crossing lines.

SSP Consensus 23: The quality of the seismic data offered for the sites in North Atlantic Climate Variability proposal 406 is at present insufficient for the drilling proposed, but satisfactory data can probably be compiled from old DSDP surveys or from IOSDL (UK) files. Proponents are urged to carry out this compilation prior to the August 1 deadline for data submission.

SSP Consensus 24: The geophysical data outlined in the proposal for studies of the Benguela Current and the Angola/ Namibia upwelling system (354 Rev) are apparently insufficient in terms of SSP's guidelines, although the Panel notes that there is a potential for much more compilation of existing data from South Africa and institutions outside Europe. SSP recommends that the proponents plan upcoming site survey activities to satisfy its guidelines and notes that abundant SCS and 3.5 kHz or Parasound lines will be required to select sites in this area unaffected by erosion and mass wasting.

SSP Consensus 25: For the North Barbados Ridge Proposal 414 SSP notes that two of the proposed sites to penetrate the decollement are at the locations of ODP Leg 110 sites 671 and 672 and thus there are no further survey requirements. One of the sites, NBR-3, is also planned to penetrate the decollement but further survey data in support of this site is likely to be required for August 1. However, a 3-D seismic cruise scheduled for June '92 is probably going to fill in any required data gaps.

SSP Consensus 26: SSP will contact the two sets of proponents involved in KT boundary proposals 403 and 415 directly and urge that they consolidate their proposals into one submission for purposes of compiling

the Site Survey Data package. SSP underscores the need to reduce as much as possible the chance that the K/T boundary event is missing at any site

SSP Consensus 27: The status of survey data for Sedimented Ridges II (DPG Report) drilling is unchanged since previous SSP assessment. The Panel is still recommending additional heat flow and near-bottom sidescan data be collected in Escanaba Trough, but most other site survey requirements have already been met.

SSP Consensus 28: SSP eagerly awaits the results of the upcoming Dorman deep source/deep receiver refraction experiment, both to evaluate the potential for future Hess Deep II scientific drilling at and to evaluate the utility of this techniques as a site survey tool for tectonic windows. SSP endorses the MCS, Parasound, magnetics and gravity surveys proposed for the Sonne in fall of 1992, and encourages the deployment of OBS's for seismic refraction measurements during this experiment if at all possible.

SSP Consensus 29: For the California Margin proposal 386 Rev most of the required data appears to exist and the Panel notes that three of the sites are projected re-drillings of old DSDP sites. SSP looks forward to reviewing the full data package compilation at its August 1 meeting, and urges proponents to investigate before the availability of crossing SCS lines for each site.

SSP Consensus 30: A nearly complete data set appears to exist for Middle America Trench Proposal 400, including 3-D MCS and swath mapping data. SSP urges proponents to obtain heatflow data which may be required for safety evaluation and in support of fluid flow objectives.

SSP Consensus 31: There are no site survey requirements for further drilling at Site 504B.

SSP Consensus 32: For the Santa Barbara Basin one-site proposal (409), SSP considers that more effort is required in compiling the survey data package for this drilling, particularly since there may be operational and safety problems in drilling in this area. Proponents are urged to submit the data to the Data Bank as soon as possible and notes that 3.5 kHz lines may be required for safety review.

SSP refrained from making any revisions of its Survey Guidelines to take account of Tectonic Window and BSR drilling at this time, judging any modifications to its February '92 (JOIDES Journal) set to be premature since more information is required in a number of areas

The next meeting of SSP is planned to take place at LDGO on 4-6 August immediately after the August 1 deadline for submission of data in support of proposals for FY'94 drilling. Proposals which successfully pass these assessments will become candidates for the 1994 Prospectus to be decided by PCOM at its mid-August meeting.

SSP LDGO, APRIL '92 - ACTION ITEMS

Action Item 1: Kidd to write to PCOM Chairman expressing SSP's feeling that Kastens should complete her four year term and not rotate off the Panel after effectively only 2 years.

Action Item 2: Brenner to write a policy statement for publication in JOIDES Journal on the various levels of access to data in the Data Bank that emphasises that some data can be proprietary and in any case proponents are informed and asked to comment on requests for their submitted data. The draft to be E-mailed to all SSP members for comment.

Action Item 3: Kidd to write to Leg 140 co-chief Henry Dick requesting him to update the Hess Deep site survey data package by submitting his compilation of French and other survey data to the Data Bank.

Action Item 4: Baldauf for the Science Operator at TAMU is directed to find out what government agencies must approve drilling on the N.J. Margin, and what data if any must be submitted in support of an application for permission to drill.

Action Item 5: TAG watchdog Louden to write to proponent Thompson noting SSP's suggestion that a compilation of existing data in that area would be a useful beginning to the survey data package for this potential drilling target. This letter should be copied to Dr. Peter Rona, who is known to hold much of these data.

Action Item 6: Brenner is requested by watchdog Kidd to carry out a data search for Leg 42A and Leg 13 data in the Data Bank that might be useful in supporting Mediterranean Sapropels proposal 391.

Action Item 7: Vema FZ watchdog Hirata to write to proponent C. Mevel requesting that a compilation of existing data be submitted to the Data Bank.

Action Item 8: Newfoundland Basin watchdog Mountain to write to proponent Srivastava with advice on the design of tracks for an upcoming summer MCS cruise. Chairman Kidd to write to PPSP Chair recommending pre-review of the Newfoundland sites and also input on the cruise planning.

Action Item 9: Amazon Watchdog Kidd to write to PPSP Chair recommending pre-review of AF sites 4 and 5 which may present gas and therefore safety considerations.

Action Item 10 Mountain to write a letter to proponents of Proposals 403 and 415 outlining potential problems that SSP sees inherent in the two approaches and urging them to assemble a single, complete data package.

Action Item 11: All SSP members/watchdogs to write to their respective proponents to report on the LDGO assessments stressing the

importance of meeting SSP's requirements by the August 1 deadline for data submission, if their proposals are to be considered for FY'94 drilling.

Action Item 12: Kastens to circulate draft Site Survey Guidelines for Tectonic Windows into Oceanic Crust ("Offset Drilling") to all SSP and ODWG members.

Action Item 13: Blum to ensure that JOIDES Journal carries a note on site designations in revised proposals.

Action Item 14: Brenner to recomplile E-mail addresses listing, and circulate to all Panel members.

Action Item 15: Kidd to write to PCOM Chairman with SSP's recommendation that Kim Kastens assume the Chairmanship of Site Survey Panel in 1993.

Action Item 16: Kidd to write to PCOM Chairman advising him that the next meeting of SSP should be at LDGO on August 4 to 6, and outlining procedures for reporting to the PCOM the following week.

JOIDES SSP MEETING: LDGO, PALISADES

1-3 APRIL 1992

AGENDA

1. PRELIMINARY MATTERS

Introductions (Kidd)
Logistics (Brenner)
Tokyo Meeting: Minutes changes and Matters Arising (Kidd)
PANCHM/PCOM + charge for this meeting (Kidd)
General Status of Submitted Data (Brenner)
Status of Latest Thematic Panel Rankings (Blum)
New Watchdog Assignments

2. REPORTS

PCOM (Watkins)
JOIDES (Blum)
TAMU (Baldauf)
PPSP (Ball)
DATA BANK (Brenner)
OFFSET DRILLING (Kastens)
NSF FUNDED SURVEYS (Malfait)

3. UPDATES ON SCHEDULED LEGS - FY'92

Legs 143/144 Atolls & Guyots (Baldauf)
Leg 145 N. Pacific Neogene (Larsen)
Leg 146 Cascadia (Louden)
Leg 147 Hess Deep (Brenner)
Leg 148 Engineering DCS II B (Baldauf)

4. BREAK FOR 'WATCHDOGS' TO EXAMINE SUBMITTED DATA

5. STATUS OF N. ATLANTIC SCHEDULED LEGS - FY'93

Leg 149 Iberian Abyssal Plain - NARM I (Mountain)
Leg 150 New Jersey Margin Sea Level (Kastens)
Leg 151 Atlantic Arctic Gateways, NAAG I (Larsen)
Leg 152 East Greenland Margin - NARM II (Mountain)

6. POTENTIAL 1994 DRILLING: N. Atlantic Prospectus Proposals

1. Alboran Sea (Kastens): 323-Rev + 399
2. Mediterranean Ridge (Farre): 330
3. Equatorial Atlantic Transform Margin (Pautot): 346-Rev2
4. TAG hydrothermalism (Louden): 361-Rev.
5. Ceara Rise (Hinz): 388
6. MAP continental margin instability (Farre): 059-Rev3

7. Mediterranean sapropels (Kidd): 391
8. MARK area (Hirata): 369-Rev
9. Vema Fracture Zone (Hirata): 376-Rev.
10. North Atlantic Arctic gateways II (Larsen): NAAG-DPG
11. Non-volcanic margins II - Newfoundland (Mountain): NARM-DPG
12. Volcanic margins II - Vøring/E. Greenland (Trehu): NARM-DPG
13. NW. Atlantic drifts (Mountain): 404
14. Amazon Fan (Kidd): 405
15. N. Atlantic climate variability (Larsen): 406
16. Benguela Current & S. Atlantic upwelling (Farre): 354-Rev.
17. North Barbados Ridge (Trehu): 414
18. KT-boundary, Gulf of Mexico (Mountain): 403-Rev

7. POTENTIAL 1994 DRILLING: NON ATLANTIC

- (i) Sedimented Ridges II (Louden): SR-DPG
- (ii) Hess Deep II (Kastens): 375
- (iii) California Margin (Kidd): 386-Rev.
- (iv) Middle America Trench (Moore): 400
- (v) Deepening 504 B (von Herzen): 410
- (vi) Santa Barbara Basin (Moore): 409

8. OTHER BUSINESS

Feedback to Proponents (Kidd)
SSP Guidelines (Kastens, Kidd)
E-mail communications (Kidd)
Panel Chairmanship/Membership (Kidd)
Next Meeting

1. PRELIMINARY MATTERS

Introductions (Kidd)

Chairman opened the meeting at 0915, Wednesday 1st April and welcomed new members Ann Trehu and Greg Mountain and also guest liason Bruce Malfait of NSF. He commented on the continued absence of Zverev, the Russian representative, and that Kate Moran had chosen not to attend this meeting. Karl Hinz would be attending but would not arrive until this evening.

Logistics (Brenner)

Carl Brenner outlined logistical items regarding meeting rooms and the accessibility of data packages for watchdog examination. Kidd noted that he planned to break early on this afternoon to allow watchdogs time for preparation of introductory assessments of submitted data packages for FY'93 drilling and for reading of new proposals now highly ranked by the thematic panels. Other items including meal arrangements were related by Brenner and Mountain. Kidd commented on the usual arrangements for preparation of items for the minutes which for this meeting he hoped to draft for PCOM on the coming Saturday before leaving LDGO. He asked members to ensure that correct proposal numbering was used throughout along with declarations of when proponents were members of SSP.

Tokyo Meeting: Minutes changes and Matters Arising (Kidd)

Members were asked for any changes required to the draft Tokyo SSP minutes dated 28/9/91. None were requested and Kidd said these would be finalised and distributed at LDGO.

Kidd led the discussion of matters arising from the Tokyo minutes by dealing with PCOM's responses to the Oct'91 consensus items.

PCOM had responded to Tokyo consensus items 2 and 3 by agreeing to the coordinated scheduling of Thematic Panels and SSP meetings which would provide ~1.7 yrs leadtime from SSP's first sight of a new proposal and ~1.3 yrs from first examination of submitted data. Larsen commented that this was still not enough leadtime where SSP needed to advise proponents that more survey work was required and they then had to aquire shiptime. It might also preclude one role of SSP which has been to help proponents with good science ideas but little experience of how to aquire survey data (e.g. for many paleoenvironmental targets). Kidd felt that the leadtimes were workable since many proposals would keep coming

back if there was strong thematic support and gradually we could help to improve such proposals for later rounds. Discussion ensued on SSP's role in influencing the funding of survey cruises where data packages were deemed insufficient. Kidd commented on the different perceptions of this in the US and the partner countries but there was general agreement that SSP should be prepared to make recommendations to proponents for survey work that they might then use in support of their searime proposals.

PCOM accepted SSP's request (consensus 8) for Kastens to become liason to the Offset Drilling Working Group and she would present a report later in this meeting.

On item 23, PCOM did not identify backup FY'93 legs since, in consideration of each candidate leg in Austin, they scheduled only those legs SSP "expected" to have sufficient data submitted for this Spring SSP meeting. Kidd commented that in subsequent years the new meetings schedule would allow firm assessment by this stage by SSP.

PCOM accepted SSP's suggestion (consensus 24) of 4-year terms for SSP members but, in also accepting its nomination of Mountain (action item 10), they had suggested restricting Kastens' period on the Panel, presumably because of institutional considerations. SSP members spoke against this decision since there was the potential now to lose sidescan expertise and the makeup of this panel should anyway be based on expertise first.

Action item 1: Kidd to write to PCOM Chairman expressing SSP's feeling that Kastens should complete her four year term and not rotate off the Panel after effectively only 2 years.

PANCM/PCOM + charge for this meeting (Kidd)

Kidd had previously circulated to members a report on the PANCM/PCOM meetings in December and there was no further discussion of these.

The main charge for this LDGO Spring meeting was summarised thus:

1. Detailed assessment of submitted data for FY'93 North Atlantic drilling;
2. Initial assessment of proposals for potential FY'94 drilling taking account of the recent Spring thematic panel global rankings.

General Status of Submitted Data (Brenner):

A listing of data submitted in support of the proposed FY'93 legs was circulated by Brenner (Appendix 1). Data packages would be accessible in the Data Bank that afternoon.

Status of Latest Thematic Panel Rankings (Blum)

A listing of Global rankings by the 4 thematic panels was presented by Blum (Appendix 2). He commented on those asterisked which were not considered drillable in '94 by the panels themselves for reasons often unconnected with the status of survey data. He suggested a cut-off for SSP assessments at rank 7 which would have the benefit of including all those still in consideration from the NAP and also include the same number of "drillable" candidates from each Panel. There was general agreement, with the proviso that Vema at no. 8 in the LITHP column was added.

SSP Consensus 1: At this Spring'92 meeting SSP will consider initial assessments of the top 25 "drillable" proposals from the thematic panel's global rankings from March 1992.

New Watchdog Assignments

Kidd considered an outline by Blum of the list of proposals to be assessed as potentials for '94 and asked for volunteers where watchdogs were still required. Some other adjustments were made and the final watchdog assignments are as in Appendix 3.

2. REPORTS

PCOM (Watkins)

PCOM met in Austin, TX, 4-7 December 1991. The main item on the agenda was the JOIDES RESOLUTION ship track for 1993. PCOM approved the following legs and objectives for the period 26 November 1992 - 22 November 1993.

Leg	Objective
147	Hess Deep - Exposed lower crust and upper mantle
148	Engineering (Test DCS-IIB)*
149	North Atlantic Rifted margins - Non-volcanic
150	New Jersey Sea Level and Cenozoic Sea Level changes
151	North Atlantic Arctic Gateways
152	North Atlantic Rifted Margins - Volcanic

*Hole 504B is the alternate if DCS-IIB not ready to test.

PCOM examined the readiness for drilling of highly ranked proposals, approving only those that were well documented with survey data. Leg 148 is an engineering leg whose future depends on results from DCS testing during Leg 142. In the event that serious DCS problems are encountered, Leg 148 may be redirected to Site 504B.

PCOM continues to recognize the importance of returning to the eastern Pacific when the DCS is operational but it appears unlikely that this will

occur in 1993. PCOM also considered the possibility of scheduling Leg 153 as an engineering test, with MARK and TAG as prominent candidates, but decided that scheduling this leg was still premature.

JOIDES (Blum)

In February 1992, there were about 100 active drilling proposals in the JOIDES system. Thematic panels had been charged to globally rank about 15 of those active proposals that were in their thematic interest. They could also include in their ranking lists "generic" programs of high priority that were not represented by drilling proposals at the time of the meetings. The panels were also charged, for the first time in the JOIDES planning history, to flag "drillability" or "not drillable" for proposals/programs in contention for FY 1994.

The general idea of this charge is to provide a medium- to long-term planning signal with the priority assigned to proposals/programs, while at the same time preliminary assessments are given regarding thematic maturity of proposals/programs. Proposals/programs considered "not drillable" by thematic panels will not be included in "Prospectus 1992", and SSP does not need to take action on these at this time.

The compiled, complete global ranking '92 list is attached (Appendix 2).

Thematic panels request SSP action on proposals/program they label "drillable". SSP assessments will naturally be preliminary at this meeting. They will be updated after the August 1 site data and proposal submission deadline, and a report is needed by PCOM for its August meeting, when highly-ranked, drillable proposals/programs will be selected for the Prospectus 1992. A more detailed assessment is requested for the thematic panels' fall meetings, when Prospectus 1992 proposals/programs will be prioritized.

A cut-off from the global ranking list is necessary to reduce the number of proposals/programs to be monitored by SSP. By experience, ranks below 5 of each panel are very unlikely to rise to the top for the next FY to be scheduled. The cut-off was proposed between ranks 7 and 8, except for LITHP rank 8 which is now also included, for the following reasons:

- each thematic panel has one "not-drillable" proposal/program within the top 7 ranks (not monitored by SSP)
- the remaining 6 ranks are programs in the Atlantic or East Pacific (after excluding "Return to 735B"), targeted by the 4-year general ship track defined by PCOM for 1994
- Some programs require much less than one leg drilling (eg. 391, Med. Sapropels; 409, Santa Barbara Basin) or might be included into the 1993 drilling program (eg. 410, Deepening 504B)

- Some programs are likely be postponed for FY 1995 drilling by the thematic panels (eg. NAAG II; NARM II or III?)
- The set now chosen by SSP includes all North Atlantic Prospectus 1991 programs.

TAMU (Baldauf)

1) **ODP/TAMU Reorganization:** ODP/TAMU has recently reorganized the technical staff and data base departments. Reorganization of the technical staff consists of sailing two computer system managers during each cruise. System managers will sail on an A, B, C rotation. These positions were made available by sailing one less electronics technician per cruise and by eliminating a supervisor position. In addition, funds were obtained to sail one additional technical specialist for each cruise starting in FY93. Departmental reorganization consists of combining the Database group (previously in Science Operations) and the computer group (previously in Science Services) into a new ODP/TAMU department. ODP/TAMU is currently seeking an individual to manage the new Information Handling Department.

2) **Leg 142:** Of the 356 total on-site days less than 10% were spent coring with the DCS. All seafloor hardware problem areas from Leg 132 were remedied. The major short fall of the DCS was the active/passive secondary heave compensation system. The software for the heave compensation worked fairly well in standby mode, but once the feed/approach bottom mode was engaged, the system could not keep the required weight-on-bit (WOB) within limits. The result was that the diamond bits repeatedly received shock loadings and were destroyed. In addition to the software problems, the system load cell would not give the H/C system the accurate string weight data needed to control WOB. To a question from Kidd, Baldauf reported that less than 10 meters of core was recovered on this leg. The entire secondary heave compensator must be tested at full scale prior to use of the DCS again at sea.

3) **Operational Schedule:** ODP operations schedule (17 December 1991, see Appendix 4) most likely will be revised following the upcoming PCOM meeting. Possible changes include Leg 148 becoming 504B rather than an Engineering DCS Leg and a change in port calls with new port calls for Leg 149 (Lisbon to Lisbon) and 150 (Lisbon to St. John's).

4) **Staffing:** 1020 shipboard participants have sailed on JOIDES RESOLUTION during Legs 101-142. Staffing is complete for Leg 145 and 146. Staffing will commence for Leg 147 in April. Staffing for Legs 148-152 will occur this summer.

Leg 146 pre-cruise meeting is scheduled for mid April; the Leg 147 pre-cruise meeting is scheduled for late June.

Co-chief scientists have been appointed for Legs 147 (Catherine Mevel/Kathy Gillis); 149 (Dale Sawyer and Bob Whitmarsh); 151 (Greg Mountain and Ken Miller).

Staff Scientists for upcoming cruise are John Firth (144), Tom Janecek (145), Bob Musgrave (146), Jamie Allen (147) Laura Stokking (148), Andy Fisher (149), Tom Janecek (150), John Firth (151), A.N. Other (152).

5) **Response to SSP on Tokyo Action Item 4:** SSP had requested an analysis of estimated pre-cruise versus actual drilled depths for Leg 139. Sedimented Ridges I. An initial analysis FAXed from TAMU was examined and commented on (Appendix 5) providing SSP with a "feel" for the problems in assigning depths to drilling targets in this particular environment.

PPSP (Ball)

PPSP reviewed results of the Leg 141, Chile Triple Junction drilling in an attempt to understand observations related to the three BSR penetrations on this leg. No solid hydrates were recovered and no lithology variations were seen in cores that could be identified as sources of BSRs. Salinity lows that could be attributed to clathrate melting were encountered. Unfortunately, no logs were run. At this time, available information derived from the BSR drilling, is ambiguous and PPSP is not ready to advise SSP on recommendations for changes in its survey guidelines.

Cascadia and Oregon sites were reviewed and approved, with a few exceptions where proposed locations were structurally high. The Atlantic Margin transect off New Jersey was previewed. The plan for this leg involves drilling in water depths shallower than 50 m. These shallow-water depths significantly increase the potential danger of a gas blowout. Steps are being taken to obtain site specific, high-resolution data from the Minerals Management Service for exploration wells along the shelf transect. SSP discussion ensued on the fact that the problem of shallow gas potential arose for proponents after SSP had advised them of operational problems of shallow water drilling but not included this factor. Should SSP require Sparker or Boomer records as part of their guidelines for shallow water margin drilling? It was agreed to return to this under Item 8 on SSP guidelines. It was generally noted that SSP's system of advising pre-review by PPSP of some proposals was continuing to work well.

Ball noted that PPSP wishes to commend Rob Kidd and SSP; and express its admiration and appreciation for Rob's leadership in the conduct of SSP affairs. More than anyone else, Rob has effectively argued for adequate lead time in performance of SSP and PPSP duties. PPSP looks forward to continued, close cooperation with SSP.

Data Bank (Brenner)

Brenner stated that he thought the JOIDES Journal should publish a policy statement regarding data submissions to the Site Survey Data Bank. There is still some concern on the part of many drilling proponents that their data will not be "protected" and will instead be sprayed over the scientific community at large once they make submissions to the Data Bank. Brenner felt that there were still too many proponents that do not understand the proprietary status of data submissions.

In light of this, Brenner reviewed present policies for the SSP. Data submitted in support of drilling is considered proprietary to the drilling Program and is made available to panels and members of the drilling community on a need-to-know basis only. For example, SSP and PPSP members receive data packages in order to carry out their mandated tasks, and the Science Operator and shipboard participants are also given full access. The Data Bank never publishes data, and does not allow would-be proponents to see data submitted by other proponents without first receiving permission from the proponent(s) who submitted the original data set.

One issue that has not historically been defined clearly is data availability *after* the site survey data set has been published. Brenner stated that it was his personal belief that site survey data ought to be freely available once they are published in the *Initial Reports or Scientific Results* volumes, but that he did not feel that the JOIDES community in general endorsed such a policy; further, his primary concern was that proponents have absolute confidence that the Data Bank would protect their data. As a result, he has never allowed access even to published data without first checking with the scientist who submitted them.

After some discussion, it was decided that community confidence in the "safety" of their data at the Data Bank was crucial to ensuring that the data submission process continued to work well. In light of these concerns, SSP decided to continue the present stringent policies on data access, and encouraged Brenner to write a policy statement that reflected present practices.

Action Item 2 : Brenner to write a policy statement for publication in JOIDES Journal on the various levels of access to data in the Data Bank that emphasises that some data can be proprietary and in any case proponents are informed and asked to comment on requests for their submitted data. The draft to be E-mailed to all SSP members for comment.

Offset Drilling Working Group (OD-WG) (Kastens)

SSP member Kim Kastens attended the February 3-6 meeting of the Offset Drilling Working Group at RSMAS as a liason. The goal of the Offset Drilling Working Group is "...to deal with a complex laterally heterogeneous

ocean crust and shallow mantle by drilling key *partial* sections in tectonic windows in lower crust and upper mantle formed at different spreading rates and in different tectonic settings..." The word "offset" seems to have a double meaning, referring both to "*offset*" drilling, where the ship is moved laterally to obtain access to different parts of a stratigraphic section and thus build up a composite section at multiple drillholes, and also to "*offset*" section drilling, where the ship drills (possibly only a single hole) into a piece of crust which has been offset tectonically. Because of the ambiguity in the term "offset," SSP will refer to this drilling environment as "Tectonic Windows into Oceanic Crust/Mantle."

The Offset Drilling Working Group has identified the following characteristics as critical to span the range of crustal accretion environments: (a) fast vs. slow spreading rate, (b) near plume vs. distant from plume, and (c) center of magmatic cell vs. edge of magmatic cell. Ideally, they would like to obtain a complete composite section of crust and upper mantle in each combination of environments. Realistically, they have identified twelve sites with known lower crust/upper mantle exposure which vary widely with respect to characteristics (a), (b) and (c). The "long short list" of sites comprises: Vema FZ, Mid-Atlantic Ridge at Kane FZ (MARK), Hess Deep, 15°20'N FZ, Atlantis II FZ, King's Trough. An additional six promising sites are: Pito Deep, Endeavour Deep, Garrett FZ, Siqueiros FZ, Blanco FZ, and Oceanographer FZ. Of these, only Vema FZ, MARK and Hess Deep are currently being tracked by SSP watchdogs. None of the others appears to be a contender for drilling before FY 1995.

The Offset Drilling Working Group made some progress on setting conceptual priorities. Recognizing that many sites have already sampled the extrusive oceanic carapace, and that Site 504B has sampled the dike layer, the Offset Drilling Working group seeks to sample dike/gabbro transition(s), long section(s) of gabbro, gabbro/ultramafic transition(s), and long section(s) of upper mantle ultramafics. Long section(s) of gabbro and long section(s) of ultramafics are recommended as the first targets, because suitable sites are easier to find. Note that this is a change in strategy from ODWG's earlier minutes which stressed the layer 2/3 transition and the Moho. This change in strategy is important to SSP; because "Moho," "Layer 2, and "layer 3" are seismically-defined terms, drilling these targets would require documenting that the appropriate seismic discontinuities do in fact exist at a known and achievable subbottom depth at the proposed drillsite. A long section of mantle ultramafics was given a slightly higher priority than a long section of gabbro, because one long gabbro section already exists from site 735B and no long ultramafic section has yet been recovered. Candidate sites for a long ultramafic section are Hess Deep, King's Trough, All FZ, Vema FZ, Oceanographer FZ, MARK, and 15°20'N FZ.

The Offset Drilling Working Group also discussed site survey needs for tectonic window drilling. A high resolution bathymetric map, near bottom visual observations, geological sampling, and high quality surface magnetics

were considered vital; MCS, side-looking sonar, gravity and OBS refraction were recommended; and OBS microseismicity, near bottom source/receiver seismic refraction, and near bottom magnetics were considered desirable under some circumstances. (See discussion of "guidelines" below; these suggestions were modified slightly and incorporated into Draft SSP guidelines for tectonic window drilling.)

SSP discussed the recurring problem of proposals for offset-type crustal drilling where there is no subsurface data and the only information on lateral structure or compositional variability comes from a surface geological map. Although SSP could imagine circumstances under which such a plan would be defensible (e.g. drilling a long ultramafic section of upper mantle), in general SSP will be reluctant to approve such programs.

SSP Consensus 2: Drilling into tectonic windows is a new strategy, and the community is still in the process of learning what kinds of survey data are useful or vital. SSP invites continued input from the Offset Drilling Working Group, and from proponents, survey specialists and Co-Chiefs involved in early offset drilling legs. SSP anticipates continued problems over requests to drill deep holes (>500m) at sites where there is no sub-bottom data; proponents are urged to explore all possible techniques for obtaining clues to subbottom structure and igneous stratigraphy prior to drilling.

NSF Funded Surveys (Malfait)

Malfait was asked to provide an update on the status of NSF funded cruises some of which are now crucial to SSP's advice on certain proposals. He provided information on funded and scheduled 1992 field programs and their dates (Appendix 6) and proposals relevant to ODP that are now funded and are to be scheduled for 1993 (Appendix 7). He also commented on the status of US and partner countries' renewal of the ODP contract. The UK and Australia had already confirmed their plan to sign a new MOU and France, Germany and Japan were reporting positive official and unofficial signs to do so.

3. UPDATES ON SCHEDULED LEGS - FY'92

Legs 143/144 - Atolls & Guyots (Baldauf)

Leg 143 is currently underway following a successful port call. Five sites are scheduled for operations. Site ANE-1 located in the lagoon at Anewetok Atoll is scheduled to determine if JOIDES Resolution can be kept positioned for drilling in shallow (about 30 m) of water. Seven sites are scheduled for Leg 144. Hole 801C is an alternate site for this leg.

Leg 145 - N. Pacific Neogene (Larsen)

Site PM-1, A, B, C Patton Murray Seamount and NW-1A, NW-3A and NW-4A were approved at the SSP meeting in Hannover October 1989. The seismic data are poor for the NW sites, but were still judged as sufficient for the paleoceanographic drilling objectives as long as high quality seismics are run by the drillship on arrival and departure of the sites.

NW-3A was dropped at the pre-cruise meeting, OSN-2 is not being installed in NW-1A.

SSP Consensus 3: For Leg 145 N.W. Pacific Neogene, SSP reiterates its recommendation that the co-chief scientists ensure that high quality seismic lines are run over the NW-1A, 3A and 4A drillsites by JOIDES RESOLUTION prior to drilling.

Detroit Seamount: At the SSP meeting in Tokyo October 1991, SSP requested that information on new positions for sites on Detroit Seamount (PCOM 20-22 August 1991 minutes Appendix 12), as picked by the assigned co-chief Dave Rea, was given to the panel before final SSP approval. The new positions and seismic sections in trackmaps were sent by Rea to Larsen in order to reach the PCOM meeting in December. The data seem now sufficient from a SSP point of view for the paleoceanographic objectives for all four sites (DS-1, DS-2, DS-2A and DS-3). DS-1 and DS-3 have basement objectives as well. SSP notes that the basement is not clearly imaged on the copies of the seismic lines in the Data Bank for these sites.

Leg 146 - Cascadia (Louden)

Cascadia Margin (Leg 146) has undergone safety review by PPSP. Site VI-5 on the upper margin was not approved for drilling through the BSR because it lies on a structural high. However, all other sites on both the Vancouver and Oregon Margins were approved with only minor repositioning. Some of these often have been selected as alternates for drilling through the BSR.

Leg 147 - Hess Deep (Brenner)

Brenner reported that some new data had been received in the Data Bank for Hess Deep from Leg 147 co-chief Kathy Gillis, including Nautile Dive charts (no navigation or sample descriptions) and a SeaBeam map (based on Scripps and German data). Further French data is expected to be submitted soon by the other Leg 147 co-chief Catherine Mevel. It is known however that additional data may have been compiled by Henry Dick, after USSAC-funded visits to various institutions (including France), to carry with him to JOIDES RESOLUTION.

SSP Consensus 4: There was no visit to Hess Deep on Leg 140 but the full data package that was compiled pre-cruise by co-

chief Henry Dick should be submitted to the Data Bank as part of the package for Leg 147 and potential future Hess Deep Legs.

Action Item 3: Kidd to write to Leg 140 co-chief Henry Dick requesting him to update the Hess Deep site survey data package by submitting his compilation of French and other survey data to the Data Bank.

SSP will discuss later (Item 7ii) implications of two cruises scheduled this year to visit Hess Deep, since these are not likely to relate to Leg 147 "reconnaissance drilling" objectives.

Leg 148 - Engineering DCS II B (Baldauf)

It was reported that difficulties with the DCS may result in Leg 148 becoming a further visit to Site 504B for deepening. There are no site survey complications of this move.

4. BREAK FOR 'WATCHDOGS' TO EXAMINE SUBMITTED DATA

5. STATUS OF N. ATLANTIC SCHEDULED LEGS - FY'93

Leg 149 - Iberian Abyssal Plain - NARM I (Mountain)

GAL-1 is not scheduled for drilling on Leg 149 and was not considered by SSP. Site survey adequacy was evaluated for the Iberian sites IAP-1, -2, -3, -3B, -4, and -5, (Appendix 8) and two deficiencies were noted: 3.5 kHz profiles and piston/gravity cores have been collected in the region, but have not been deposited in the Data Bank. Regarding the former, proponents should consider that full-size reproductions of echogram profiles across each drillsite are a minimum requirement. For cores, visual descriptions and sedimentological analyses are needed. Furthermore, SSP strongly urges the proponents to provide details of how they estimated sound velocity and calculated TD's at each site. Lastly, SSP points to the benefit to all concerned if a useful (larger than page-size) track chart with site locations were prepared and sent to the Data Bank along with the regional magnetics as an overlay at this same scale. The Lusigal and Sonne 75 MCS profiles comprise as especially high-quality data set. Though only near-trace monitors of the latter cruise have as yet been delivered to the Data Bank, SSP looks forward to seeing fully processed lines at its next meeting. Should incorporation of this new MCS data set result in adjusting site locations, the proponents are reminded to adhere to ODP guidelines and consider any of these as new sites.

SSP Consensus 5: For Leg 149 NARM-Non Volcanic Margins most data are in the Data Bank. However, SSP noted two deficiencies in the data submitted (i.e. 3.5 kHz profiles and core data) that are known to exist. Because these data relate to

setting of cones for re-entry, proponents are asked to submit 3.5 kHz profiles or equivalent and core data as soon as possible. Proponents are also asked to provide details on how they estimated sound velocities at each projected site.

Leg 150 - New Jersey Margin Sea Level (Kastens)

The New Jersey margin (a.k.a. Mid-Atlantic Transect) is a transect of sites across the shelf and upper slope designed to examine sealevel fluctuations in the early to middle Miocene. The primary data set is an MCS grid on the shelf and SCS/Hydrosweep grid on the slope, collected by G. Mountain and colleagues aboard the *Ewing*. Preliminary processing of this data set has been completed since our last meeting, and this data set has been deposited at the data bank. Comparison of the Data Bank data package with the guidelines for passive margin drilling shows that the following required data types are missing: 3.5 kHz and seismic velocity information. In addition, the following desirable data types have not been deposited: refraction, side-looking sonar, heatflow, magnetics and gravity, and core descriptions.

Old issues: (1) At our last meeting we examined one processed seismic line. Tentative sites had been located along this line, but the proponents anticipated that the sites might have to be relocated on one of the more southerly lines because the line under discussion crossed a structural high (the "Great Stone Dome") which could present a safety problem. At the preliminary safety review, PPSP did not regard the Great Stone Dome as a problem, and consequently the sites will NOT be shifted to another line. (2) At our last two meetings, we had requested information on water currents at the shallow sites. A report on winds, storms, tides and currents prepared by the proponents in collaboration with a physical oceanographer has been submitted to the Data Bank. (3) At our last meeting we urged the proponents to carry out more intensive processing of MCS data near the sites. The proponents have received funding to do so.

New issues: (1) At the preliminary safety review, PPSP raised the issue of pockets of gas in the shallow subbottom which could be too small and/or too shallow to detect in the MCS data. If the ship encountered such a gas pocket in extremely shallow water depths, it would be possible for the water column to lose buoyancy and the ship to sink. PPSP requested higher frequency seismic data (e.g. sparker or boomer) to look for such gas pockets. The proponents have recently obtained a large quantity of old data of these types collected by industry and submitted to the Minerals Management Service covering the general vicinity of the NJ transect. These data have not yet been sorted out, but it is unlikely that lines will exactly cross the proposed sites. SSP is distressed to realize that at this late date, with the leg already on the drilling schedule, we find that there is an

urgently needed data type which we have never even discussed. SSP needs to be alert to this issue for future legs in shallow water. (2) An SSP member raised the possibility that a data package (possibly including environmental data) will be required to obtain permission to drill from one or more U.S. governmental agencies. The Science Operator at TAMU is directed to find out what government agencies must approve drilling on the N.J. Margin, and what data if any must be submitted in support of an application for permission to drill.

SSP Consensus 6: The proponents of Leg 150 New Jersey Margin Sea Level are urged to examine the industry sparker/boomer lines for indications of shallow gas pockets before the next PCOM meeting. SSP should consider amending the guidelines to require sparker/boomer data for drilling in extremely shallow water. The proponents are reminded of the need to submit the remaining "required" data types (3.5kHz and seismic velocities) as well as any available data of the "desirable" types to the Data Bank before August 1.

Action Item 4: Baldauf for the Science Operator at TAMU is directed to find out what government agencies must approve drilling on the N.J. Margin, and what data if any must be submitted in support of an application for permission to drill.

Leg 151 - Atlantic Arctic Gateways - NAAG I (Larsen)

This proposal is based on the NAAM-DPG report (JOIDES Journal XVIII No. 2, 38-50) which combines proposal 305, 320 and 336. The main objective is to investigate the changes of water exchange between the Arctic Ocean and the Atlantic through glacial and non-glacial times, as influenced by the development of the gateways in the Fram Strait and across the Scotland-Iceland-Greenland Ridge. In order to keep the program flexible enough to respond to changing ice conditions, it is important that both the prime drilling sites mentioned on the DPG report as well as an ample selection of alternate meet the SSP requirements. It is a pleasure to note that the bulk of the required data is now in the Data Bank.

1) The northernmost site **ARC2A** (alternate to YERM 5). A seismic line shot from iceflow **FRAM IV** and sparse sediment data (X-ray pictures) are in the Data Bank. The basement is deep and poorly imaged. Migration of the section is highly desirable. The data are sufficient for the drilling of the sediments, the difficult conditions taken in consideration. Proponent **Kristoffersen** suggests two alternate sites on the northern Yermack Plateau - but only core data are provided. SSP feels that the proponents should reconsider a drilling sites on or near the northern Yermack Plateau in the length of the new Arctic IV data.

2) **YERM 1**. Seismic and core data, but not high frequency data in Data Bank. However, data seem sufficient for drilling.

3) **YERM 2**. The position of the site has been changed on the new Polarstern data. A new designation (**YERM 2A**) and a new Site Summary form are needed. BSR may be present - the new Polarstern data should be processed in order to clarify this. Data seem to be sufficient for drilling.

4) **YERM 3, 4, 5**. Data seem sufficient for drilling but again the possibility of a BSR should be clarified by processing of Polarstern data.

5) **FRAM 1A, 1B, 2** (NAAG II program). Sufficient MCS data in the Data Bank. Coring data, Seabeam maps and 3.5 kHz which have been collected by Polarstern **ARK IV/3** are not in the data package in the Data Bank. The possibility of a BSR should be clarified. Data seem sufficient for drilling - but some data are not in the Data Bank.

6) **GREEN 1**. MCS line **Green 1-89** is in the Data Bank **Vema 2802** SCM line not in Data Bank, but no track maps. Detailed assessment not possible. Probably sufficient data for drilling. The position of the site in relation to the magnetic anomalies should be documented in order to assess the paleogene objectives.

7) **GREEN 2**. Position not fixed. Parasound data and core in Data Bank from Polarstern proposal based on **Vema** data, which is not in the data package but may be present in **Lamont**. The proponents are urged to provide a proper data package for this site. **J. Mienert (GEOMAR)** may traverse the area with **POSEIDON** in 1992 but not with seismic equipment.

8) **EGM1**. MCS lines and track map, parasound and core station (with no recovery) in Data Bank. Hydrosweep data not provided. Data seem sufficient for drilling but high resolution 3.5 kHz or equivalent along the slope is desirable in order to understand the contourites.

9) **EGM2**. The MCS lines **NGT 39** and **41** not in Data Bank but will be provided by **Karl Hinz** soon. Parasound data is in the Data Bank. Hydrosweep has been collected by Polarstern. Core data OK. Probably enough data for drilling - but data not seen by SSP.

10) **EGM3**. No data in the Data Bank. MCS line **NGT46** will be provided by **Karl Hinz** soon. 3.5 kHz or equivalent and core data needed. Probably enough data for drilling if core data is provided.

11) **EGM4**. MCS data in Data Bank. No core or high resolution data. These may be collected by **POSEIDON** 1992.

12) **JCEP-4**. Data in Data Bank but no track map so assessment not possible. Data probably sufficient for drilling. According to **Karl Hinz** the extent and thickness of four seismic units probably related to the onset and development of glaciation have been mapped along the East Greenland shelf. SSP considered that this material should be included in the data package for a final adjustment of the East Greenland sites. The possibility

of BSR and hydrocarbon potential should be evaluated by PPSP for all the sites.

SSP Consensus 7: Much of the required data for the NAAG Leg 1 drilling including alternate sites is now in the Data Bank. These minutes record where proponents are asked to submit minor items of site specific data. SSP make the following specific recommendations:

- 1) NAAG proponents should reconsider placement of drill sites at or near Yermack Plateau in the light of new Arctic IV data.
- 2) New Polarstern data for YERM-2, YERM-3 and FRAM-1A and 1B sites should be processed to clarify whether BSR's exist.
- 3) The possibility of BSR's is flagged for PPSP attention and TAMU is alerted to the potential of strong currents at a number of these sites.

Leg 152 - East Greenland Margin - NARM II (Mountain)

Survey data pertaining to sites EG63-1 through -4 were examined and three deficiencies were noted by the panel (Appendix 9): 3.5 kHz echograms, regional piston/gravity core information, and evaluation of bottom currents. Knowledge of the latter was thought to be especially critical to operational needs at site EG63-1. A cruise by the Greenland Geological Survey (B. Larsen, possible Co-Chief) is scheduled for summer '92, but unfortunately will not address these shortcomings. Instead, the planned expedition will collect 12-channel airgun profiles that will image the uppermost 1000 m of section. SSP urges that each proposed site be crossed in the strike (margin-parallel) direction, and that the key dip line GGU81-08 be duplicated. A cruise led by R. White is likely in summer '93 (immediately before scheduled drilling) during which the 3.5 kHz echograms and surficial sediment cores could be collected; SSP stresses the importance of these data types to the operational needs concerning spudding in and setting a re-entry cone. The proponents are strongly encouraged to provide the Data Bank (and thereby TAMU operations as well) with detailed work-up of the TD estimates based on their velocity analyses of the sonobuoy data.

SSP Consensus 8: Most survey data has been lodged in the Data Bank for NARM-Volcanic Margin drilling on the East Greenland Margin. SSP provided advice on leg lines to be collected on the upcoming Larsen cruise and requests that collection of 3.5 kHz and core data important to operational consideration be pursued by proponents (White cruise summer '93?) A compilation of sonobuoy velocity data relating to TD

estimates is requested. TAMU is again alerted to the importance of obtaining water current data.

6. POTENTIAL 1994 DRILLING: ATLANTIC PROPOSALS

1. Alboran Sea (Kastens): 323-Rev + 399

SSP member Kidd is proponent of 323-Rev.

At our last meeting SSP considered two proposals for this region: Proposal 323/rev (Comas et al) proposed one leg of drilling in the Alboran Sea (the westernmost arm of the Mediterranean Sea) to understand the opening history of this enigmatic basin, plus one leg of drilling in the Gulf of Cadiz (the arm of the Atlantic immediately west of the Straits of Gibraltar) to understand the history of water circulation between the Atlantic and Mediterranean. Proposal 399 (Watts and Platt) proposed one leg of drilling in the Alboran Sea for tectonic objectives. The SSP watchdog (Kastens) has received word from proponent Comas that the Alboran portion of proposal 323/rev and proposal 399 are going to be combined into a common revision proposing one leg of drilling in the Alboran Sea; the Gulf of Cadiz objectives from proposal 323/rev will be peeled off into an independent proposal.

Since our last meeting, the ODP Data Bank has received a large deposition of MCS data and some well log data in the Alboran Sea from proponent Comas. SSP examined representative examples of this MCS data, and found it to be of excellent quality. Because the impending merger of proposals 323/rev and 399 will involve moving and deleting some sites, SSP chose not to invest time in examining this data set on a site by site basis. Comparison of the Alboran Basin data in the Data Bank with the SSP guidelines for passive margin drilling shows that the following required data types have not yet been deposited in the data bank: 3.5kHz data, seismic velocity determinations for drilling time estimates. In addition, the following "desirable" data types have not yet been deposited: SCS, refraction, swath bathymetry, side-looking sonar, heatflow, magnetics and gravity, and core descriptions. The watchdog believes that all of the required and much of the "desirable" data for the Alboran sites exists. No data for the Gulf of Cadiz sites has been deposited in the Data Bank. SSP encourages continued deposition of "required" and "desirable" data types as soon as the selection of sites has stabilized.

In an earlier meeting, SSP had expressed concern about the possibility of encountering Messinian (uppermost Miocene) evaporites, which could pose a safety problem. We had asked the proponents to document their statement (proposal 323/rev page 22) that Messinian evaporites are absent. In response, proponent Comas has submitted log data from commercial wells on the Spanish continental shelf showing that Messinian evaporites were not encountered. However, SSP notes that during the Messinian drawdown many areas of the shelf were areas of erosion or non-deposition.

while evaporites were deposited in adjacent deep basins and in deep basins throughout the Mediterranean. Thus SSP does not consider that the absence of evaporites in commercial wells on the shelf ensures that evaporites will not be encountered in the deep basin sites proposed for ODP drilling. The burden of proof remains on the proponents to make a case that drilling in the deep Alboran Basin has a reasonable chance of reaching the proposed early and middle Miocene objectives without being stalled by Messinian evaporites.

SSP Consensus 9: SSP thanks the proponents for the excellent MCS data recently submitted to the Data Bank, and encourages deposition of additional "required" and "desirable" data types as soon as the merger of proposals 323/rev and 399 is completed. SSP is concerned about the possible presence of Messinian evaporites, which could pose a safety problem; we consider that the burden of proof remains on the proponents to make a case that drilling in the deep Alboran Basin has a reasonable chance of reaching the proposed early and middle Miocene objectives without being stalled by Messinian evaporites.

2. Mediterranean Ridge (Farre): 330

SSP member Kastens is involved in site survey cruise.

Major Scientific Objectives:

- (1) Tectonic
 - define tectonic style of the Mediterranean Ridge (MR) and compare with other accretionary prisms
 - define role of salt in deformation mechanics
 - examine deep structure of mud diapir
- (2) Sedimentary/Geochemical
 - influence of salt seal on fluid composition and flow role and composition of gasses beneath salt seal
- (3) Ocean History
 - origin/significance of Plio/Quaternary sapropels, pre-Messinian stratigraphy and paleoceanography.

Drilling strategy was to drill two transects across MR + two extra sites = 8 sites. three sites: MR-2, 6 and 7 are shallow penetration (above the Messinian salt). Five sites: MR-1, 3, 4, 5, 8 penetrate through the salt layer.

At the Tokyo meeting, SSP stated that it saw no problem with assembling a suitable site survey package for the shallow sites, but expressed concern that MCS seismic data quality might not be sufficient to image the pre-Messinian strata and hence that the sites could not be drilled.

Since the Tokyo meeting, Cita and others have revised their drilling strategy and will re-submit a modified proposal that will break the drilling

program into two legs: shallow and deep. With receipt of the revised proposal and existing site survey data at the ODP Data Bank, SSP anticipates no problem with assembly of a suitable package for the shallow sites.

We await the new deep drilling proposal and access to recently acquired and yet-to be acquired MCS seismic data before commenting on the viability of the deep drilling program.

SSP Consensus 10: Proponents of the Mediterranean Ridge proposal 330 have revised their drilling strategy into shallow and deep objectives. SSP considers that update by August of data in the Data Bank from previous Mediterranean drilling legs will probably result in a sufficient package for shallow drilling objectives. Yet to be acquired MCS data will be required in support of any new deep objective proposal.

3. Equatorial Atlantic Transform Margin (Pautot): 346-Rev2

The main target of this proposal is the study of the evolution of a rift-transform margin. In this peculiar environment the proposal will address the contact between oceanic and continental crust, the creation of a marginal ridge and adjacent synsedimentary deformations in the marginal basin. Thermal exchanges between a southern drifting spreading center and continental crust will also be investigated.

Seven sites are proposed, to be drilled on locations: on the marginal ridge, in the margin basin and in the Guinea abyssal plain. Almost all relevant data is ready for submission to the Data Bank (**Appendix 10**).

A Seabeam bathymetric map is available.

A Multichannel seismic survey was carried out and processing was applied for all sites on 24 channels (1 to 4 between 4 to 96). Lines across sites IG2, IG2 bis, IG4 are now processed with 96 folds stack and migration. Complementary lines across other sites are in course of processing with same 96 stack and will be available in summer 1992.

Refraction profiles are in course of processing. The profiles carried out the oceanic domain are now processed and will be presented at the Edinburgh EGS Meeting in April 1992. Other refraction profiles, on the marginal basin, will be processed this summer to calculate the velocities in the sedimentary cover.

A diving cruise with Nautile is scheduled in June-July 1992. Fifteen dives are projected along the slopes of the marginal ridge.

No heat flow measurements are yet available in this area.

In conclusion, the data set now available and the processed data will be complete by summer 1992 and should provide a high quality proposal for the SSP assessment.

Heat-flow measurements and core data may still be required.

SSP Consensus 11: Almost all the data is collected and available in support of Equatorial Atlantic proposal 346 Rev. 2 and processing will be complete by summer 1992. SSP recommends that PPSP take an opportunity to pre-review this data package with proponent J. Mascle at its London meeting which could overlain whether heat-flow data is a requirement.

4. TAG hydrothermalism (Louden): 361-Rev.

SSP member Von Herzen is a proponent.

No data has been received by the Data Bank, so comments made at the Tokyo SSP meeting still hold concerning deficiencies in site survey data (Appendix 11). Several ODP related proposals are being prepared for review by NSF and the results of this competition will be known by our future SSP meeting, at which time we can make our recommendations.

SSP Consensus 12: SSP reiterates its contention that there exists already a substantial database on TAG that could be compiled as an initial site survey package in support of proposal 361 Rev. Proponents are urged to begin lodging these data with the Data Bank even though some key data is still to be collected on cruises proposed for 1993.

Action Item 5: TAG watchdog Louden to write to proponent Thompson noting SSP's suggestion that a compilation of existing data in that area would be a useful beginning to the survey data package for this potential drilling target. This letter should be copied to Dr. Peter Rona, who is known to hold much of these data.

5. Ceara Rise (Hinz): 388

SSP member Mountain is involved in site survey cruise.

A 17-days site survey by R/V MAURICE EWING is scheduled for Autumn 1992. Single-channel seismic measurements, using a timed airgun array with a total volume of 1,350 cu. in., in parallel with Hydrosweep measurements are planned along 33 dip-lines running across the eastern flank of the Ceara Rise. The dip-lines are spaced 11 km apart, and they will be tied by 6 lines along strike.

In addition it is planned to deploy about 10 sonobuoys for refraction seismic studies, and to carry out sampling using a 20 m long piston corer.

SSP Consensus 13: A sufficient data set for the proposed eight shallow APC/XCB sites on Ceara Rise is likely to be available after September '92 although existing data in proposal 388 is poor. SSP will be thus unable to comment further in August but can arrange for a review of the new data by an SSP member, probably in November.

6. MAP continental margin instability (Farre): 059-Rev3

SSP member Kidd is a proponent.

The proposal plans to test hypotheses that ocean basin sedimentation is controlled by eustasy. The main scientific objectives are:

- 1) to confirm whether turbidites are deposited during rises and falls in sea level (triggered by continental margin instability)
- 2) to examine provenance of turbidites - 4 distinct sources identified
- 3) to examine redox history of basin/sediments and study diagenesis and maturation of buried organic matter.

Four APC/XCB sites are proposed in Madeira Abyssal Plain: MA1-4 - 1300 meters total sediment penetration proposed. No basement penetration. This represents paleoceanography (Target "A") category in the guideline matrix and all necessary data appears to exist.

SSP Consensus 14: Based on the proposal only, it seems that all necessary site survey data is available to support Continental Margin Instability proposal 059 Rev. SSP awaits deposit of this Site Survey data package at the ODP Data Bank for further review in August.

7. Mediterranean sapropels (Kidd): 391

This proposal was included in the NAP for 1993 drilling despite being a "concept proposal" that was not supported by survey data. Efforts are currently being made by proponents to gather together existing data to identify the drillsites for possible FY '94 drilling. Some of the shallow penetration sites that may be proposed for the Mediterranean Ridge (Proposal 330) may cover the needs of some of the locations in this proposal. Other required locations in the Western Mediterranean and Aegean may be supported by existing data from previous Mediterranean drilling legs.

SSP Consensus 15: SSP awaits submission by the August 1 deadline of data in support of specific drillsites in the Mediterranean Sapropels Proposal 391. It notes that there is a reasonable chance that sufficient data may already exist both in Europe and in the Data Bank from previous Mediterranean drilling.

Action Item 6: Brenner is requested by watchdog Kidd to carry out a data search for Leg 42A and Leg 13 data in the Data Bank that might be useful in supporting Mediterranean Sapropels proposal 391.

8. MARK area (Hirata): 369-Rev

There has been little change since the Tokyo SSP meeting to become available. SSP still expects additional site survey, including the just completed planned sidescan sonar cruise by Scripps. Deep source seismic surveys may prove to be desirable but are still considered experimental and not generally available.

The Japanese submersible, Shinkai 6500 is scheduled to visit MARK in 1994 in a JAMSTEC/WHOI collaborative diving project.

SSP Consensus 16: SSP awaits a compiled data package for existing MARK (Proposal 369 Rev) to be deposited in the Data Bank but notes that other data to image the deeper structure may still be desirable.

9. Vema Fracture Zone (Hirata): 376-Rev.

SSP member Kastens is involved in site survey cruise.

Again there is no change to SSP's comment as carried out in Tokyo. The Kastens cruise planned for 1993 should provide important critical data from sidescan.

SSP Consensus 17: SSP urges that a preliminary package of existing Vema FZ data should be lodged with the Data Bank but notes that potentially critical sidescan data will not come available until a cruise in 1993.

Action Item 7: Vema FZ watchdog Hirata to write to proponent C. Mevel requesting that a compilation of existing data be submitted to the Data Bank.

10. North Atlantic Arctic gateways II (Larsen): NAAG-DPG

Hinz is a minor proponent on this proposal and has been involved in recent survey cruises.

Most of the NAAG data package was discussed under Item 5 - Leg 151.

Lack of track maps prevent a proper evaluation of the data for GREEN 1-2 and the ICEP 1-4 sites. Data for GREEN-2 and EGM 2-3 is not in the Data Bank but will arrive soon. NIFR-1 is OK. The position for SIFR-1 site is not recorded for the Data Bank, additional seismics will probably be collected by POSEIDON this summer. No MCS data exists for the selection of the Denmark Strait site. It may be collected during August-September 1992 by a Danish ship, but it is not the prime objective of the cruise. Rüdiger Heinrich (GEOMAR) has proposed a new site on the East Greenland shelf in the Denmark Strait but no formal proposal exists. The data provided are clearly insufficient at present.

SSP Consensus 18: Most of the necessary data probably exists or will be collected in 1992 for NAAG-II and may be ready for assessment in Spring 1993 but not for August assessment. The proponents are urged to begin submitting identified outstanding data to the ODP Data Bank.

11. Non-volcanic rifted margins II - Newfoundland (Mountain): NARM-DPG

Hinz is a member of the NARM -DPG.

SSP evaluated the survey adequacy of proposed Sites NB-1, -4A and 7A. (Appendix 12) SSP flagged two deficiencies: surficial sediment core information and analysis of bottom currents, both of which are needed for these deep re-entry sites. Thus far, the first two of these sites are located on C2510 MCS lines 3 and 4; the third is on Atlantic Geoscience Center Line 85-04. The superior quality of the latter prompts SSP to encourage the proponents to deliver as many of this generation of profiles to the Data Bank as appropriate. A letter from proponent Shiri Srivastava was discussed in which he sought SSP comment on the design of an additional MCS cruise that he will lead in summer '92. In particular, he requested guidance on optimal line spacing and regional coverage. SSP felt that present image quality and definition of structural complexity at NB-1 is inadequate, and is pleased to see this may be improved greatly by the upcoming survey. However, the need for comment from PPSP on track layout is clearly needed for this site in particular, less so for the other two, and a letter to Srivastava outlining this strong SSP recommendation will be written by G. Mountain; R. Kidd will alert PPSP by a similar letter sent to Chairman M. Ball. Detailed descriptions of the methods used to derive TD estimates from sonobuoy experiments are strongly urged. Additional survey data (refractions, heat flow, cores and SCS) may be collected in summer '93 by Tucholke, Holbrook (both WHOI) and Loudon (Dalhousie). The former plans will be reviewed for support by NSF in summer '92. These data would be a valuable augmentation to the existing data. There was considerable discussion regarding the uncertainty of what constitutes acoustic basement in the region from NB-4A to -7A. It was noted by some panel members that the possibility of deep basalt sills or flows could not be ruled out and may easily be confused with true petrologic (crystalline) basement. It was noted that the AGC cruise in summer '92 could use 8000 cu. in. airgun arrays that may be able to image stratified sediments beneath any suspected flow/sill. K. Loudon offered that in this and other such enigmatic situations, SSP may need to require drilling as an additional survey requirement!

SSP Consensus 19: SSP was generally impressed with data submitted to the Data Bank in support of the Newfoundland Basin DPG proposal. They flagged minor deficiencies (lack of sediment core and water current data) that may be required for

operations. SSP recommends that PPSP carry out a pre-review of these sites and NB1 in particular. The Panel provided proponent Srivastava with advice on the design of tracks for a summer 1992 survey cruise and PPSP's input should also be sought before that data.

Action Item 8: Newfoundland Basin watchdog Mountain to write to proponent Srivastava with advice on the design of tracks for an upcoming summer MCS cruise. chairman Kidd to write to PPSP Chair recommending pre-review of the Newfoundland sites and also input on the cruise planning.

12. Volcanic rifted margins II - Vøring/E. Greenland (Trehu): NARM-DPG

Hinz is a member of the NARM-DPG.

The proposed Vøring Plateau holes are located on the "quasi" conjugate margin to SE Greenland, Sites EG63-1 to EG63-3 (ie. located at the distance from the predicted center of the Iceland hotspot at the time of break-up, but to the north rather than the south). The proposed sites are designed to complement holes drilled during ODP Leg 104. The scientific rationale was discussed during the October, 1991 Tokyo meeting. Although no new data have been submitted to the Data Bank for this proposal, extensive regional documentation exists from Leg 104.

The two SE Greenland holes (EG66-1 and 2) proposed for a second volcanic margins NARM leg are located along the flow line of hotspot affected oceanic crust drilled across the Reykjanes Ridge during DSDP Leg 49 and extend this transect onto the continental margin. No data have yet been submitted to the Data Bank. The proposed holes lie on seismic lines GGU-82-1 and GGU-82-2, which are shown (page-size) in the proposal and should be submitted to the Data Bank, along with other supporting data. At this time, we do not anticipate problems with Site EG66-2. EG66-1, however, may be problematic, as mentioned in the proposal, because of the very thin (and possibly absent) sediment cover in this region and the possible nature of this sediment (ie. glacial cobbles).

SSP Consensus 20: Most data required in support of proposed Vøring Plateau drilling appears to exist and may reside in the Data Bank. Proponents are urgently requested to update this data package by August 1. No data has been submitted for SE Greenland sites in this Non-Volcanic margins proposal. No problems are anticipated gathering data for EG66-2 but EG66-1 may be problematic because of its thick sediment cover (possibly

problematic to operations) and present lack of 3.5 kHz and core data in the area.

13. NW. Atlantic drifts (Mountain): 404

This proposal seeks to drill into a sediment drift on the northern Bermuda Rise where high sedimentation rates provide the opportunity to recover millennial-scale paleoceanographic histories of the western North Atlantic back into the Neogene. Four APCs are to be drilled to 300 m each at this one site at 4500 m water depth; to extend knowledge to the histories of several water masses, 8 additional sites (with 4 holes of 250 m at each site location) are proposed in a depth transect on the Blake-Bahama Outer Ridge. This latter transect will range from 4750 m to 2250 m water depth. The primary objectives are to determine detailed histories of deep- and intermediate- water formation and their impact on sediment flux in the western North Atlantic. Additional information will be gained concerning sediment drift evolution, secular variations in the magnetic field, the causes of fine-scale seismic reflectors, the formation of gas hydrates, paleoceanography of the earlier Neogene where these strata crop out on the flanks of the BBOR, and the detailed structure of the late Pliocene and younger oxygen and carbon isotopic cycles in the North Atlantic.

SSP Consensus 21: There is adequate data with which to frame this program and to locate the optimal core locations, but the requisite data search has yet to be done. The identification of optimal drill site locations on high-resolution SCS and 3.5 kHz records requires special expertise that may be best supplied by a third proponent on this proposal; the proponents are encouraged to enlist the contribution of such a person.

The need for continuous sedimentation is paramount to these drilling objectives, and SSP stresses that despite their high accumulation rates, some positions within drift deposits experience discontinuities due to slumping or locally intensified currents. Furthermore, while placing several BBOR sites on MCS lines provides excellent regional correlation of deeply buried strata, for purposes of 250 m holes designed to recover high-resolution features the goals would be served better with high-quality, small-volume airgun or water gun records. The proponents are encouraged to contact R. Kidd and possibly include in their final compilation of survey data reference to a GLORIA survey across the BBOR that was conducted by him and IOS.

14. Amazon Fan (Kidd): 405

This proposal by Flood et al. is third in the SGPP ranking. There are no data yet deposited in the Data Bank but much is already at LDGO and the proponent has offered to begin depositing his data package.

The main themes of the proposal are:

Fan Growth Patterns and Sediment Facies Distributions;
Testing Vail/EXXON Conceptual Deep Water Sequence
Stratigraphy Model;
Continental Climatic Record in Fan Deposits;
Equatorial Paleocirculation.

The drilling objectives are as follows:

1. Determine the stratigraphy of the major fan complex units;
2. Determine the lithology and facies of the acoustic fan units and examine how these are affected by external (sea level)/internal (channel avulsion) processes;
3. Sample proximal levees of a series of channel/levee systems;
4. Sample distal levees for their record of surface circulation in the eastern Equatorial Atlantic;
5. Determine the overall response of the Equatorial Atlantic to glacial/interglacial cycles, climate, sea level, tectonics, etc.

There is an extensive database for this fan region including:

SCS: watergun and small airgun (40 cu. in.);
3.5 kHz;
GLORIA;
Seabeam;
Coring.

The proponents note a number of safety/operational considerations:

All sites are beyond the 2000 m contour and outside Brazilian territorial claims, but much of the background data has been collected in association with Petrobras scientists;
BSR's are known to exist in the proximal lower canyon section of the fan;
A mud diapir field extends along the lower continental slope;
Gas has been a feature of many of the cores taken in the upper fan region.

The proponents have a strategy for drilling that is based on a detailed knowledge of the fan channel sequencing from regional sidescan and SCS records. They also record some success in setting up detailed stratigraphies

for cores from the overbank levee settings. Their strategy calls for up to 19 drill sites including:

6 APC/XCB sites to 150-200 m;
4 using the above and RCB to 250-300 m;
1 deep site to 625 m; and
8 short APC sites to 30-50 m, some of which will require vibrocore for sands.

Key sites AF1-2-3 to 625 m, 170 m, 180 m, respectively, are to date the oldest fan sediment units and do not appear to present survey problems.

Sites AF-4 (160 m) and AF-5 (270 m) are where the fan sediments are covered by the Western Debris Flow. Because of this areas proximity to the diapir field and the known occurrence of gas in the cores, these sites should be flagged for PPSP consideration. As to surveys, SSP notes that there are no crossing SCS lines.

Site AF-6 is to examine channel avulsions and has a projected TD of 250 m: no obvious survey problems.

Sites AF-12 (30 m) and AF-15 (50 m) are to examine sediment facies around Channel 1: again, no survey problem.

Sites AF-7 (350 m), AF-8 (175 m), AF-9 (350 m), AF-10 (150 m) and AF-11 (125 m) are (not so) short holes and none have crossing SCS lines.

The remaining sites, AF (13, 14, 16, 17, 18, 19) are shallow holes in distal levees. None have crossing but their short hole nature suggests there are no further requirements here.

The proponents acknowledge that they still need to carry out the processing of existing 40 cu. in. airgun data, and SSP concurs with this, and they also will carry out further stratigraphical studies on cores before making a final choice of sites.

SSP Consensus 22: SSP is impressed by the apparently extensive dataset that exists in support of shallow drilling on the Amazon Fan. The Panel recommends that the proponents not only complete their processing of existing 40 cu. in. airgun records in support of Amazon Fan proposal 405 but also investigate whether further SCS data can be collected on the upcoming Mountain Ceara Rise cruise in September 1992. SSP is concerned about sites AF-4 and 5, aiming to penetrate a major debris flow unit, which have only single crossing lines along with

a group of relatively deep sites (AF-7-11) which again have no crossing lines.

Action Item 9: Amazon Watchdog Kidd to write to PPSP Chair recommending pre-review of AF sites 4 and 5 which may present gas and therefore safety considerations.

15. N. Atlantic climate variability (Larsen): 406

Recent detailed investigations of high sedimentation rate marine cores show that rapid oscillations (decades to centuries) such as those observed in Greenland ice cores also exist in the marine record. Also found in the late Quaternary marine record are events with longer repeat times (~ 10,000 years) which are believed to relate to surges of the eastern Laurentian ice sheet. These records of variations in lithology and fossil content on the scale of tens of centimeters require very detailed study. The goals of this proposal are to recover high sedimentation rate cores to determine whether such oscillations have characterised the marine record throughout the three million year record of northern hemisphere glacial/interglacial cycles, and thus to obtain information on the variability and dynamics of surface and Upper and Lower Atlantic Deep Water.

The drilling strategy is to locate sites at existing piston core locations. Two sites are proposed in a depth transect west of the Mid Atlantic Ridge; two sites plus one alternate in the Feni Drift and one on the Hatton Bank, west Rockall Plateau near DSDP site 552. All are to be double APC/XCB holes to around 300 m TD.

The proponents recognise that the seismic lines quoted in their proposal are of poor resolution. SSP will require high resolution SCS for this type of drilling, and the Panel urges the proponents to seek better seismic lines which are known to exist around Rockall Plateau. Data is known to exist from investigations connected with DSDP Leg 94 drilling. If the data is not in the Data Bank it may reside in the files at IOSDL in the UK.

SSP Consensus 23: The quality of the seismic data offered for the sites in North Atlantic Climate Variability proposal 406 is at present insufficient for the drilling proposed, but satisfactory data can probably be compiled from old DSDP surveys or from IOSDL (UK) files. Proponents are urged to carry out this compilation prior to the August 1 deadline for data submission.

16. Benguela Current & S. Atlantic upwelling (Farre): 354-Rev.

In order to reconstruct the histories of the Benguela Current and the coastal upwelling of the region between 5° S and 32° S of the west African continental margin, the proponents propose to drill 6 transects totalling 23 APC/XCB sites off Angola and Namibia. Neogene history is the emphasis. The position and intensity of the Benguela Current and coastal upwelling have important links with world climate. Lastly, sediment diagenesis and early maturation of organic matter will be studied.

Of the 23 sites described, water depths range from 300-2200 m. Sediment penetration ranges from 200-1600 m per sites for a total proposed sedimentary recovery of 13,700 m (assuming single APC/XCB). Clearly this proposal will need refinement to allow for a more reasonable proposed sediment recovery.

Available geophysical data are apparently not sufficient for site selection. SSP recommends that the proponents carefully plan upcoming site survey activities to satisfy SSP requirements as listed at the JOIDES Journal, February 1992. For the deep penetration sites (>1000 m), MCS seismic data will be necessary. Also, for all sites, abundant SCS seismic and high resolution seismic (3.5 kHz or Parasound) will be required to select sites unaffected by erosion and mass wasting. Proponents are reminded that a complete site survey package must be received at the ODP Data Bank at Lamont prior to August 1st, 1992 for consideration for the FY 1994 ship schedule.

SSP Consensus 24: The geophysical data outlined in the proposal for studies of the Benguela Current and the Angola/Namibia upwelling system (354 Rev) are apparently insufficient in terms of SSP's guidelines, although the Panel notes that there is a potential for much more compilation of existing data from South Africa and institutions outside Europe. SSP recommends that the proponents plan upcoming site survey activities to satisfy its guidelines and notes that abundant SCS and 3.5 kHz or Parasound lines will be required to select sites in this area unaffected by erosion and mass wasting.

17. North Barbados Ridge (Trehu): 414

This is a proposal to drill three holes along the transect occupied during ODP cruise 110. The primary objective of the program is to log and case the holes in order to measure fluid flow along the decollement using the new borehole seal system used successfully on Leg 139 to obtain a time series of fluid flow and composition. Although no new site information has been submitted to the Data Bank, documentation from Leg 110 is available. Because proposed sites NBR-1 and NBR-2 are at the same location as 671 and 672 from Leg 110, and since both of those holes were deep enough to

penetrate the decollement, there does not appear to be a problem achieving the objectives of this proposal. The remaining question concerns the depth to the decollement at site NBR-3. A depth-to-basement of 1300 m, and required hole depth of 900 m is quoted, but no evidence is given for this estimate. Although it seems likely that the decollement is reachable at this site, evidence for this estimate is desirable for planning purposes. We anticipate that the planned 3-D seismic imaging cruise scheduled for summer 1992 should address this concern as well as better defining the factors contributing to a cross-transect component of fluid flow.

SSP Consensus 25: For the North Barbados Ridge Proposal 414 SSP notes that two of the proposed sites to penetrate the decollement are at the locations of ODP Leg 110 sites 671 and 672 and thus there are no further survey requirements. One of the sites, NBR-3, is also planned to penetrate the decollement but further survey data in support of this site is likely to be required for August 1. However, a 3-D seismic cruise scheduled for June '92 is probably going to fill in any required data gaps.

18. KT-boundary, Gulf of Mexico (Mountain): 403-Rev and 415

These two proposals take slightly different tacks on the same issue - examining the sedimentology and geochemistry of K/T boundary deposits that may include debris from the Chicxulub impact structure on the Yucatan peninsula. This structure has been suggested as the site of the extraterrestrial impact that produced a widely documented Iridium anomaly and which may have triggered a series of global extinction events. Proposal 403 will concentrate on proximal deposits to the north and more distal debris in the SE Gulf of Mexico near DSDP Sites 536 and 540. Proposal 415 looks to the Caribbean for one proximal site and 5 increasingly distal sites that are spread E and SE to as far as about 2500 km from the impact site.

The two most proximal sites GMKT-3 and -4 in proposal 403 were selected to sample the ejecta blanket itself; the additional sites -5 and -6 down the Campeche Escarpment will sample and date possible erosional channels and slump blocks generated by the impact. Each is located on a UTIG MCS line. Sites GMKT-1 and -2 could recover reworked K/T boundary impact material at about 300 and 80 m bsf, respectively. The proponents note that core recovery has improved since these sites were first drilled on Leg 77, and they propose to redrill these two sites without the need for additional survey data.

Proposal 415 in the Caribbean sets out four major objectives: (1) to establish the distribution of K/T boundary impact debris that the

proponents have previously examined in Haiti; (2) to determine if indeed these debris came from the Chicxulub impact; (3) to evaluate the dispersal mechanisms for these strata; and (4) to use stable isotopic analysis to infer paleoenvironmental conditions straddling the K/T boundary. Additional benefits may include improved understanding of K/T records through recovery of these low-latitude, open-marine sections, as well as further study of the character of basement in the Caribbean. Site 1 is 300 km east of the impact structure and could recover the ejecta blanket itself. Sites 2, 5 and 6 are newly proposed locations; sites 3 and 4 are the same as CAR-5 and -3, respectively, which were previously proposed to the ODP Caribbean Working Group in 1985. Site 5 is located on an L-DGO single channel seismic line; all the rest are on MCS lines. These lines for sites 1, 2 and 6 are from UTIG; those for sites 3 and 4 are from IFP-CNEXO.

It was noted that thematic panels have come down on both sides of whether or not to recommend forming a Detailed Planning Group to assemble a single proposal out of 403 and 415. SSP continued this debate by discussing the need to unify the two sets of objectives and survey needs. It was resolved as follows.

SSP Consensus 26: SSP will contact the two sets of proponents involved in KT boundary proposals 403 and 415 directly and urge that they consolidate their proposals into one submission for purposes of compiling the Site Survey Data package. SSP underscores the need to reduce as much as possible the chance that the K/T boundary event is missing at any site

Action Item 10 Mountain to write a letter to proponents of Proposals 403 and 415 outlining potential problems that SSP sees inherent in the two approaches and urging them to assemble a single, complete data package.

SSP notes several inherent issues that should be addressed by the proponents: (1) deep erosion on the Campeche Escarpment may have occurred near the K/T boundary regardless of any impact event; detailed and well-planned surveying must be designed to reduce the ambiguity that may arise from simply locating and drilling erosional features. (2) Plate reconstructions at the K/T boundary, especially south of the Cayman Trough, must be provided if information is to be derived about the distribution of impact debris. (3) Similarly, estimates of prevailing wind directions at the K/T boundary should be provided so that the value of sites currently ESE of Yucatan can be evaluated as potential records of the impact event. SSP underscores the need to reduce as much as possible the chance that the K/T boundary event is missing at any site. If this target surface is found to be a disconformity, a lot of effort will have been wasted. The burden is on the proponents to assemble especially reliable correlations to

known occurrences of intact boundary records before drilling. Any derivative proposal that proponents of 403 and 415 may develop should: (1) unify the objectives; (2) assemble a complete data package; (3) determine the likelihood of recovering an intact K/T boundary at each site; (4) justify why a marine record recovered by ODP would be superior to one found on land; and (5) consider the three issues noted above.

7. POTENTIAL 1994 DRILLING: NON ATLANTIC PROPOSALS

(i) Sedimented Ridges II (Louden): SR-DPG

No new data has been received by the Data Bank since our previous considerations of the Sediment Ridges DPG two-leg program. Our previous minutes from Hannover (Oct. 90) and College Station (May 91) SSP meetings recommended additional heat flow and near bottom side-scan measurements in Escanaba Trough. We are not aware of any additional data having been collected, so these recommendations still stand. Some additional concerns were discussed concerning the recognition of volcanic basement, given the limited quality of existing single-channel reflection data and the presence of sills as found during Leg 139 drilling. However if the drilling objectives remain sampling details of hydrothermal deposits above volcanic basement, these uncertainties should not be significant to the site survey requirements.

SSP Consensus 27: The status of survey data for Sedimented Ridges II (DPG Report) drilling is unchanged since previous SSP assessment. The Panel is still recommending additional heat flow and near-bottom sidescan data be collected in Escanaba Trough, but most other site survey requirements have already been met.

(ii) Hess Deep II (Kastens): 375

Hess Deep is scheduled for the drilling of one site on Leg 147. The single site will be located on a small east-west striking "intra-rift ridge" in the center of the deep, on which gabbro outcrops have been documented by submersible sampling. Hess Deep II is a "generic concept" rather than an existing proposal. The concept is basically that one hole will not exploit all of the possibilities of this tectonic window, and that a second drilling leg would be valuable.

The ODP Data Bank has no data package for Hess Deep. This drilling represents one of the first instances of a new strategy to create composite sections of the lower oceanic crust and upper mantle by drilling offset sections into tectonically-exposed windows. This new strategy will require different kinds of data packages (see "Guidelines" discussion below) from the traditional sedimented sites drilled by DSDP and ODP, and the development of a comprehensive, useful data package will require cooperation among SSP, the ODP Data Bank, the co-Chiefs for Leg 147, the proponents for Hess II, and investigators collecting new data at Hess Deep.

SSP notes with pleasure that L. Dorman of Scripps Institution of Oceanography has a scheduled near-bottom source/near-bottom receiver seismic refraction experiment at Hess Deep. We eagerly await the results of this cruise both to evaluate the prospects of scientific drilling at Hess Deep and to evaluate the utility of this technique as a site survey tool for tectonic windows. In addition, there is a likelihood that the *Sonne* can invest up to a week of survey time at Hess Deep in September 1992, using MCS, Parasound, magnetics and gravity. K. Hinz described a tentative plan for this survey, featuring tracks extending from Hess Deep out into undismembered crust to north and south; this strategy was endorsed by SSP. There is also a possibility that OBS's can be deployed for a refraction experiment during the *Sonne* cruise; SSP strongly encourages this course of action.

SSP Consensus 28: SSP eagerly awaits the results of the upcoming Dorman deep source/deep receiver refraction experiment, both to evaluate the potential for future scientific drilling at Hess Deep and to evaluate the utility of this techniques as a site survey tool for tectonic windows. SSP endorses the MCS, Parasound, magnetics and gravity surveys proposed for the *Sonne* in fall of 1992, and encourages the deployment of OBS's for seismic refraction measurements during this experiment if at all possible.

(iii) California Current (Kidd): 386-Rev.

The themes of this proposal are largely paleoceanographic:
 Changes in the Californian Current through time;
 The response of productivity (upwelling) to changes in climate; and
 Changes in the calcite compensation depth (CCD) in the North East Pacific.

Two of the sites are placed to examine tectonic objectives, namely spreading around the Gorda Ridge. The proposal suggests along-margin north-south transect of sites teamed with two west-east transects, one off Cape Mendocino and the other off Cape Conception. Sites CA2, 5 and 6 are located near old DSDP sites 173, 34 and 36 respectively, with re-drilling being justified by the need for high resolution non-RCB core recovery. All sites are selected from pelagic highs or distal fan locations. The proponents argue that the extensive GLORIA database collected by USGS in the EEZ-SCAN surveys allow for optimum choice of distal fan settings that would provide the necessary stratigraphic cores.

In the proposal most of the sites are chosen from EEZ-SCAN airgun records which are single-channel and digitally collected and so could be processed if necessary. Each site has GLORIA coverage and 3.5 kHz records were collected simultaneously with the SCS. Cores are available from each of the selected sites as evidence of their suitability for these high resolution studies, and as noted above three of the sites have been drilled previously in DSDP. SSP noted that no crossing SCS lines were offered for the sites although in this region some may exist.

SSP Consensus 29: For the California Margin proposal 386 Rev most of the required data appears to exist and the Panel notes that three of the sites are projected re-drillings of old DSDP sites. SSP looks forward to reviewing the full data package compilation at its August 1 meeting, and urges proponents to investigate before the availability of crossing SCS lines for each site.

(iv) Costa Rica Accretionary wedge (Moore): 400

This proposal calls for drilling 4 sites across the Costa Rica section of the Middle America Trench. The proposal was ranked #7 by TECPAN in its Spring '92 "Global" ranking. The objectives are to determine fluid flow patterns, nature of deformation mechanisms, and distributions of deformation and dewatering throughout an accretionary prism. The advantages of drilling off Costa Rica are:

(1) there are no terrigenous turbidites; (2) there is a thick sedimentary apron capping the accretionary prism; and (3) the proponents have an excellent 3D seismic data set over the area.

The proponents have not yet submitted a site survey data package. However a nearly complete data set exists for this area: (1) 1982 seabeam, digital single-channel seismic, and 3.5 kHz data; (2) 1987 2-D and 3-D MCS data; (3) 1992 Hydrosweep data and samples. Regional gravity and magnetics data and a few refraction lines are also available.

The Panel urges the proponents to obtain heat flow data from the Costa Rica margin which should be very helpful in guiding drilling for fluid flow objectives. It notes that heatflow data may be required for safety evaluation.

SSP Consensus 30: A nearly complete data set appears to exist for Middle America Trench Proposal 400, including 3-D MCS and swath mapping data. SSP urges proponents to obtain

heatflow data which may be required for safety evaluation and in support of fluid flow objectives.

(v) Deepening 504 B (von Herzen): 410

There is the potential that deepening Site 504B by 100 metres or so could penetrate the Layer 2/3 boundary. Temperatures in the hole at present are close to 200°C so logging is getting difficult and core recovery is dropping off. There is a potential with the current state of DCS development that this drilling could be carried out on Leg 148.

SSP Consensus 31: There are no site survey requirements for further drilling at Site 504B.

(vi) Santa Barbara Basin: 409

This proposal to obtain APC cores from a single site in the Santa Barbara Basin was ranked #6 by SGPP. The objective is to obtain a complete 200-m section through Quaternary sediments for high-resolution paleoclimatic/paleoceanographic studies. Originally the site was included in Proposal 386 before it was revised.

The proposed site is on or near several industry seismic lines, but no data have yet been deposited with the Data Bank. Mud logs from existing drill sites have been requested by the proponents from EXXON, but the Panel notes that all of these mud logs would have been taken below 200 m downhole.

The consensus of the Panel is that this site is not yet drillable. The proponents are urged to get the data into the Data Bank. 3.5 kHz lines may be required for safety review.

SSP Consensus 32: For the Santa Barbara Basin one-site proposal (409), SSP considers that more effort is required in compiling the survey data package for this drilling, particularly since there may be operational and safety problems in drilling in this area. Proponents are urged to submit the data to the Data Bank as soon as possible and notes that 3.5 kHz lines may be required for safety review.

8. OTHER BUSINESS

Feedback to Proponents (Kidd)

Chairman Kidd advised all SSP Watchdogs now to write to their respective proponents to report on the LDGO assessments and to stress to them the importance of meeting the August 1 deadline for data submission to the Data Bank if their proposals are to be considered for FY'94 drilling.

Action Item 11: All SSP members/watchdogs to write to their respective proponents to report on the LDGO assessments stressing the importance of meeting SSP's requirements by the August 1 deadline for data submission, if their proposals are to be considered for FY'94 drilling.

Watchdogs will copy to proponents those items from these minutes that refer to them and will amplify where necessary advice on where the Panel has identified other sources of data.

In summary, Kidd noted that almost all of the 25 proposals given initial assessments at LDGO could potentially be ready for FY'94 drilling. Of these, MARK and Vema FZ might be readied for engineering test drilling at least, and only some (eg. NAAG II, Benguela Current, Mediterranean Ridge deep objectives, Santa Barbara Basin) are unlikely to provide improved compilations or will prove to be operationally "undrillable" for the August SSP meeting. There will thus be a major workload for the Panel after the Aug. 1 deadline.

SSP Guidelines

The Panel returned to a number of items regarding its matrix of survey guidelines since, after the Tokyo meeting, we had planned to update and "finalise" this matrix after this Spring meeting. In the event, little change can be made at present. The following items were considered:

1. Tectonic Windows (formerly "Offset Drilling"). Kastens presented a draft set of site survey guidelines for Tectonic Windows following on from her discussions with the ODWG. Each type of data was critically examined and modifications were made (**Appendix 13**). However, it was recognised that the requirement for MCS is still not finally demonstrated and is part of an experiment being now carried out by "Sonne" over Hess Deep, also other techniques including deep-towed geophysics are still experimental. It was agreed to circulate an up-dated draft of the Kastens guidelines to SSP members and to participants in the Offset Drilling Working Group and we will return to this item in August when the results of the Sonne cruise are known.

Action Item 12: Kastens to circulate draft Site Survey Guidelines for Tectonic Windows into Oceanic Crust ("Offset Drilling") to all SSP and ODWG members.

2. BSR Drilling. The results of the drilling through BSR's on the Chile Margin are still considered ambiguous and PPSP are not ready to advise us on changes in our survey requirements, so again this item is shelved until a later meeting.

3. Deep-Towed Seismics. It is recognised that currently only two systems are available that are capable of carrying out surveys of this type and SSP is presently refraining from making such surveys a requirement. Because this item is of such importance to future tectonic window drilling SSP still recognises that we will have to make some decision in the near future on requirements for this data type.

4. Revised Proposals. This item came up because of repeated difficulties with proponents changing site designations in revised versions of proposals. This practice causes enormous difficulties in assessment of survey data for both SSP and PPSP. It was agreed to publish with the proposal guidelines in JOIDES Journal a strong note to flag this problem to potential proponents.

Action Item 13: Blum to ensure that JOIDES Journal carries a note on site designations in revised proposals.

E-mail communications (Kidd)

The Panel discussed the status of communications through the LDGO E-mail mailbox. Hinz and Trehu are on E-mail and will be added to the mailbox. Larsen can receive but is unable to take part fully in the mailbox arrangement. Farre is not in a position to receive E-mail.

Action Item 14: Brenner to recompile E-mail addresses listing, and circulate to all Panel members.

Panel Chairmanship/Membership (Kidd)

Kidd reported that he will be rotating off the Panel at the end of the year, after his report to PANCHM/PCOM at the Annual Meeting in December. His replacement on SSP from the UK will be Martin Sinha (University of Cambridge) who specialises in deep-towed geophysical techniques. Larsen reported that he will attend the next SSP meeting but that will be his last as

ESF Representative. It is not clear who will replace him from ESF, and after discussion the Panel suggested that he may be able to recommend a replacement with an interest in paleoceanography-type proposals.

Discussion ensued on who the Panel should recommend for a Chairman to replace Kidd. At the Tokyo meeting when volunteers were requested from within the Panel only Loudon was prepared at that time to put his name forward. There had been an internal consensus that perhaps Mountain would assume the Chairmanship once he returned to the Panel. Mountain reported that he was very pleased to be back on the Panel but his projected workload over the next year (Co-chief scientist Leg 150) would preclude him also acting as Chairman. Kastens name was proposed and there was general agreement that (as long as PCOM would accept SSP's action item 1 that Kastens continue her term on SSP), the Panel should recommend Kim Kastens as the next Chairman of Site Survey Panel. Kastens agreed to have her name put forward

Action Item 15: Kidd to write to PCOM Chairman with SSP's recommendation that Kim Kastens assume the Chairmanship of Site Survey Panel in 1993.

Next Meeting

There was extended discussion of the optimum timing of the next SSP meeting because it had been assumed prior to LDGO that SSP's major input would be to the Thematic Panels for their September ranking meetings. It became clear at LDGO that PCOM required an earlier assessment from SSP to help with the selection of proposals to go into the 1994 Prospectus. It was generally agreed that the initial assessments completed herein would be insufficient for PCOM to make this cut-off. It was also recognised that with as many as 20 proposals, each generating a data package for the August 1 deadline, there was no choice but to meet next at LDGO again.

The next meeting was set for August 4, 5 and 6, 1992, at Lamont Doherty Geological Observatory. The first day will be set aside for Watchdogs to examine the data packages submitted for the proposals in their charge. The following two days will consider the potential FY'94 drilling only. The meeting would not result in a full set of reports and minutes. In order to report for the subsequent PCOM meeting to begin August 11, Chairman will propose that the result of this second LDGO meeting be a listing of the present consensus items as above for each potential FY'94 proposal, but each updated after full assessment of the data packages submitted for the August 1 deadline

Action Item 16: Kidd to write to PCOM Chairman advising him that the next meeting of SSP should be at LDGO on August 4

to 6, and outlining procedures for reporting to the PCOM the following week.

SSP LDGO - APPENDICES

Appendix 1: Data relating to FY'93 programs as submitted to the Databank.

Appendix 2: JOIDES Thematic Panels' Global Ranking 1992.

Appendix 3: Top "drillable" Global Ranks for FY'94 for each thematic panel (= Top7) with SSP Watchdog assignments
(underlined in proponent column are members of SSP; brackets show where SSP members are involved in surveys relating to proposals)

Appendix 4: ODP Operations Schedule (dated 17 Dec.,1992)

Appendix 5: Leg 139 Sedimented Ridges I pre-cruise drilling estimates versus actual drilled depths to targets.
(penciled comments added at meeting after queries to TAMU)

Appendix 6: NSF: 1992 OCE/ODP Field Programs

Appendix 7: 1993 OCE/ODP Proposals to be Scheduled.

Appendix 8: SSP matrix for Iberian Abyssal Plain drillsites (NARM 1)

Appendix 9: SSP matrix for East Greenland drillsites (NARM 2)

Appendix 10: SSP matrix for Equatorial Atlantic drillsites in proposal 346-Rev 2

Appendix 11: SSP matrix for TAG area drillsites in proposal 361-Rev.

Appendix 12: SSP matrix for Newfoundland Basin drillsites (NARM-II)

Appendix 13: DRAFT Site Survey Guidelines for "Tectonic Windows" drilling.

**NEW ATLANTIC DATA RECEIVED BY
THE O. D. P. DATA BANK AT LAMONT.**
(as of February 7th, 1992)

EQUATORIAL TRANSFORM MARGIN

SITES: IG1, IG2 & 2bis, IG3, IG4, IG5, IG6 & 6bis, IG7 & 7bis.
MULTICHANNEL SEISMIC PROFILES: MT-1, 2, 3, 13, 14, 16; taken by R/V *Le Nadir*
SINGLE CHANNEL SEISMIC PROFILES: IG-10, IG-24, IG-28, IG-60, E-21, E-42, E-49, taken by various ships.
NAVIGATION: Plot for the above lines. Since the MCS profiles are annotated in shotpoints and the navigation is annotated by hours, we have written to Dr. Mascle for clarification.
SOURCE:
Dr. Jean Mascle
Laboratoire de Geodynamique Sous Marine
Villefranche sur Mer
France

NEWFOUNDLAND BASIN

SITES:
MULTICHANNEL SEISMIC PROFILES: NB 1A, B & C; 2; 3A&B; 4A&B; 6A&B; 7; 8A&B; 9; 10A&B; 11A&B; 12 A, B&C; 13A&B; 14A&B; 15A&B; 16A&B; 17A,B&C; 18; 19A,B&C; 21A,B&C; 22; 23A&B; 25; 26A,B&C; 27A&B; 28; 29; 30; 31A&B; 32. from *CONRAD* cruise 2510
NAVIGATION: track plot
Dr. James Austin
University of Texas at Austin
Institute for Geophysics
Austin, Texas
United States of America

IBERIA ABYSSAL PLAIN - LEG 149

SITES: IAP 1, 2, 3, 3B, 4 & 5; GAL 1.
MULTICHANNEL SEISMIC PROFILES: From R/V *Sonne* cruise 75: Lines 15, 16, 17, 19, 21, 22, & 18/20
From R/V *Lusigal*: Lines LG 6, LG 12.
SINGLE CHANNEL SEISMIC PROFILES: R/V *Discovery* cruise 161
CHARTS: regional bathymetry, magnetic anomaly, free air gravity, core locations, summarized core logs.
NAVIGATION: plots for *Sonne*, *Discovery* & *Lusigal*
SOURCE:
Dr. G. Boillot *Lusigal* data
Laboratoire de Geodynamique Sous Marine
Villefranche sur Mer
France
Dr. R.B. Whitmarsh *Discovery* & *Sonne* data
Institute of Oceanographic Scis.-Deacon Laboratory
Godalming, Surrey
United Kingdom

YERMAK PLATEAU

SITES: YERM 2, 3 and 4:
MULTICHANNEL SEISMIC PROFILES: AWI 91127, 91130, 91131 and 91133, from *Polarstern* cruise ARKTIS VIII/3.
NAVIGATION: We have written to Dr Jokat for navigation.
SOURCE:
Dr. Wilfried Jokat
Alfred Wegener Institut
Bremmerhaven
Germany

**NEW ATLANTIC DATA RECEIVED BY THE O.D.P. DATA BANK
AT LAMONT SINCE FEBRUARY 7, 1992**

NORTH ATLANTIC RIFTED MARGINS

SOUTHEAST GREENLAND SITES EG-63

SEISMIC DATA:

11 Multichannel seismic profiles taken by M/V Nina Profiler
3 Sonobuoy profiles
4 shallow seismic lines from R/Vs Dana and Tycho

OTHER DATA:

2 navigation maps
Magnetics map
Bathymetry map
Isopach-total sediment thickness map
Depth to acoustic basement map
Computer tapes of navigation, gravity, magnetic and bathymetry

SOURCE:

Dr. H.C. Larsen
The Geological Survey of Greenland
Copenhagen
DENMARK

IBERIA ABYSSAL PLAIN

ADDITIONAL DATA

(For a full listing of data for this area, see first Data Report dated
February 7th, copy attached)

SEISMIC DATA:

TOBI deep-towed sidescan data along track and playout of the profile
Multichannel seismic profiles of LG-03 and LG-06 (new versions)

OTHER DATA:

Provisional Structural and Depth to Basement Map of Iberia A.P.
GAL 1 Site Survey Reports including navigation, bathymetry depth
to basement, structural and other maps, and seismic sections

SOURCES:

DR. R.B. Whitmarsh (TOBI data)
ENGLAND
Dr. G. Boillot (GAL data)
FRANCE

NORTH ATLANTIC - ARCTIC GATEWAYS

YERMAK PLATEAU & FRAM STRAIT SITES:

SEISMIC DATA:

24 multichannel seismic profiles taken by R/V Sverdrup, R/V
Polarsirkel and other research vessels
17 multichannel seismic profiles taken by R/V Haakon Mosby
3 parasound (3.5 kHz) profiles (page-size) taken by R/V Polarstern
Single channel data and Norwegian field program report from ice
drift station FRAM IV

OTHER DATA:

Navigation plots
Circumpolar Map of Quaternary Deposits in Arctic
X-rays of Arctic box cores and sketch map of location

NORTH ICELAND PLATEAU SITES

SEISMIC DATA: 16 multichannel seismic profiles taken by R/V
Haakon Mosby

GREEN I SITES

SEISMIC DATA:

2 multichannel seismic profiles
3 parasound (3.5 kHz) records (page-size) taken by R/V Polarstern

DENMARK STRAIT SITE DST

SEISMIC DATA: 1 airgun profile (page-size) taken by R/V
Poseidon

OTHER DATA: Location map with bathymetry (Page size)

ICELAND-FAEROE RIDGE SITES

SEISMIC DATA: 2 multichannel seismic profiles taken by R/V
Poseidon

SOURCES:

Dr. Y. Kristoffersen (Mosby, Sverdrup and Fram IV data)
University of Bergen
Institute for Solid Earth Physics-Seismological Observatory
Bergen, NORWAY
Dr. R. Henrich (Poseidon data)
GEOMAR
Research Center for Marine Geosciences
Kiel, GERMANY
Dr. P. Mudie (x-rays and map)
Geological Survey of Canada Atlantic Geoscience Centre
Dartmouth, Nova Scotia CANADA

JOIDES Global Ranking 1992

Proposals ranked 15 or higher by at least one panel are mapped on the accompanying global chart and represented by ranking histograms; ranks 1-5 are represented by values of 3, ranks 6-10 by 2, and 11-15 by 1 (see "Histogram" column of this table).

Rank	LITHP	OHP	SGPP	TECP	Histogram
1	410---- Deepening 504B	388---- (NAP) Ceara Rise	* GENERIC * Gas hydrates	NARM-DPG (NAP) Non-volc. margins II	3
2	375----/results Leg147 Hess Deep II	NAAG-DPG (NAP) NAAG II	414---- N Barbados Ridge	346-Rev2 (NAP) E eq. Atl. transform	3
3	369-Rev (NAP) MARK lithosphere	415----/403-Rev KT-boundary	405---- Amazon fan	NARM-DPG (NAP) Volcanic margins II	3
4	361-Rev (NAP) TAG hydro	354-Rev Benguela Current	391---- (NAP) Med. sapropels	323-Rev/399---- (NAP) Alboran Sea	3
5	TIE) GENERIC I Return to 735B	* 253-Rev * Pac. black shales	059-Rev3 MAP/Sed. instability	* 265----/265-Add * Woodlark Basin	3
6	I SR-DPG TIE) Sed. Ridges II	386-Rev California Current	409---- Santa Barbara Basin	410---- Deepening 504B	2
7	* EPR-DPG * E Pac. Rise II	404----/406---- NW Atl. drifts/climate	330---- (NAP) Med. Ridge	400---- Costa Rica acc. wedge	2
8	376-Rev Vema FZ: layer 2/3	* 412---- * Bahamas transect	388---- (NAP) Ceara Rise	330---- (NAP) Med. Ridge I (shallow)	2
9	NARM-DPG (NAP) Volcanic margins II	Bering (CEPAC/391) Bering Sea history	354-Rev Benguela Current	414---- N Barbados Ridge	2
10	GENERIC Galapagos hydro.	* 337---- * New Zealand sea level	* SR-DPG * Sed. Ridges II	369-Rev (NAP) MARK lithosphere	2
11	TIE) 407---- I 15°20'N MAR	* 347---- * South-eq. Atl. paleo.	404---- NW Atl. sed. drifts	330---- (NAP) Med. Ridge II (deep)	1
12	I * 413---- TIE) * Reykjanes Ridge	363-Add Grand Banks paleo.	* 361-Rev (NAP) * TAG hydro.	333---- Cayman Trough	1
13	325---- Endeavour Ridge	* 345---- * W Florida sea level	* 412---- * Bahamas sea level	NARM-DPG (NAP) Non-volc. margins III	1
14	368---- Hole 801C return	* 338---- * Marion Pl. sea level	* Cascadia-DPG * Cascadia margin II	* 411----/415---- * Carib./KT-boundary	1
15	* 374---- * Oceanographer FZ		* 337---- * New Zealand sea level	* 375----/results Leg147 * Hess Deep II	1
16			* 360---- * Valu Fa hydro.	376-Rev Vema FZ: layer 2/3	0
17				* 362-Rev3/Leg 141 * CTJ II	0
18				363---- GB-Iberia plume volc.	0
19				361-Rev (NAP) TAG hydro.	0
20				403-Rev KT bound., G/Mexico	0
21				368---- Hole 801C return	0

* Proposals not considered drillable in FY 1994 at the time of the meetings

NAP: North Atlantic Prospectus 1991

ALBORAN BASIN AND ATLANTIC-MEDITERRANEAN GATEWAY

WELL LOGS AND REPORTS: Andalucia A-1, Andalucia G-1,
Alboran A-1 and Roquetas 1 wells

SEISMIC DATA: many multichannel seismic profiles from industry
and institutional seismic lines.

OTHER DATA: Navigation and bathymetry maps, well-log work-
ups.

SOURCE:

DR. M.C. Comas

Instituto Andaluz de Geologia Mediterranea
Consejo Superior de Investigaciones Cientificas
Universidad de Granada
SPAIN

NEW JERSEY SEA LEVEL

The Data Bank has not yet formally received the data for these sites,
but the data set will be available at the Site Survey Panel meeting

JOIDES Office, UTIG

APPENDIX 3

March 31, 1992

Top 7 global ranks considered "drillable" in FY 1994, compiled for SSP watchdog assignment from all thematic panels

Ref.No Received	Title	Proponents	Assignment
330- 07/17/89	Mediterranean Ridge: An Accretionary Prism in a Collisional Context	M.B. Cita, A. Camerlenghi, L. Mirabile, G. Pellis, B. Della Vedova, W. Hieke, S. Nuti and M. Croce (KASTENS)	FAURE
SR 10/30/89	Sedimented Ridge Prospectus (Prepared by the Sedimented Ridges Detailed Planning Group, Based on Proposals 232- ---- , 232-Add, 275-Rev and 284- ----)	SR-DPG members: H. Baecker, K. Becker, J. Boulègue, E.E. Davis, R. Detrick (chairman), C. Forster, J.M. Franklin, J. Francheteau, J. Hertogen, M. Lyle, M.	LOUGEN
375- 03/06/90	Deep Crustal Drilling in Fast-Spreading Crust at the Hess Deep	H.J.B. Dick, K. Gillis, P. Lonsdale	KASTENS
386-Rev 08/10/90	California Margin Drilling: Neogene Paleooceanography of the California Current, Coastal Upwelling, and Deformation of the Gorda Plate	M. Lyle, J. Barron, R. Jarrard, S. Halgedahl, J. Gardner, R. Karlin and J. Kennet	KIDD
388- 10/01/90	A proposal to advance piston core the Ceara Rise, West Equatorial Atlantic: Neogene History of deep water circulation and chemistry	W.B. Curry, J. Backman, and N.J. Shackleton (MOUNTAIN)	HINZ
391- 01/02/91	Depositional History and Environmental Development During the Formation of Sapropels in the Eastern Mediterranean	R. Zahn, E.A. Boyle, S.E. Calvert, F.G. Prahl, and R.C. Thunell	KIDD
323-Rev 02/11/91	The Alboran Basin and the Atlantic - Mediterranean Gateway: Neogene Evolution of Continental Basement Overthrusting and Extension in the	M.C. Comas, J.C. Faugère, J.A. Flores, V. Garcia-Dueñas, M.J. Jurado, R. Kidd, J. Mackris, A. Maldonado, A.G. Megias, H. Nelson, F.J. Siero, D.A.V. Stow, R.	KASTENS
361-Rev 03/01/91	A Proposal for Drilling an Active Hydrothermal System on a Slow-Spreading Ridge: MAR 26°N (TAG)	G. Thompson, S.E. Humphris, M.K. Tivey, K.M. Gillis, W.B. Bryan, R.P. Von Herzen, M.C. Kleinrock, M.A. Tivey, H. Schouten, P.A. Rona, J.R. Cann, J.	LOUGEN
NAAG 04/11/91	North Atlantic - Arctic Gateways Detailed Planning Group Synopsis of February 1991 Meeting (Prepared by the North Atlantic-Arctic Gateways Detailed Planning	NAAG-DPG: W. Berggren, R. Heinrich, E. Jansen, L. Mayer, P.J. Mudie, W. Ruddiman (chairman) and T. Vorren (VIA)	LARSEN
399- 05/03/91	Tectonic Evolution of the Alboran Sea	A.B. Waus, J.P. Platt and B.C. Schreiber	KASTENS
346-Rev2 08/14/91	Transform (Translational) Margin: The Ivory Coast - Ghana Transform Margin (Eastern Equatorial Atlantic)	J. Mascle, C. Basile, M. Moullade and F. Sage	PANTOT
400- 09/03/91	Proposal for the Ocean Drilling Program for Determination of Mass Balance and Deformation Mechanisms of the Middle America Trench and Accretionary Complex	E.A. Silver, T.H. Shipley and K.D. McIntosh	MOORE

(Sorted by "Date Received at the JOIDES Office")

SSP MEMBERS
BUDGETS: ASSOCIATED WITH SUMMERS
FOR PROPOSALS.

JOIDES Office, UTIG

March 31, 1992

Top 7 global ranks considered "drillable" in FY 1994, compiled for SSP watchdog assignment from all thematic panels

Ref.No Received	Title	Proponents	Assignment
369-Rev 09/09/91	Generation of Oceanic Lithosphere at Slow Spreading Centers: Drilling in the Western Wall of the MARK Area	C. Mevel, M. Cannat, J.F. Casey, J.A. Karson	HIRATA
NARM 09/10/91	North Atlantic Rifted Margins - Detailed Planning Group Report - NON-VOLCANIC - VOLCANIC	NARM-DPG members: G. Boillot, R. Buck, M.F. Coffin, M.C. Comas, O. Eldholm, G. Fitton, J. Hall, J. Hertogen, K. Hinz, D.R. Hutchinson, E.M. Klein, (LOUGEN)	MOUNTAIN TREHU
404- 09/11/91	Late Neogene Paleooceanography from Western North Atlantic Sediment Drifts	L.D. Keigwin and E.A. Boyle	MOUNTAIN
405- 09/12/91	Amazon Deep-Sea Fan Growth Pattern: Relationship to Equatorial Climate Change, Continental Denudation and Sea-Level Fluctuations	R.D. Flood, C. Pirmez, W. Showers, J.E. Damuth, P.L. Manley, R.O. Kowsmann and D. Petzet	KIDD
406- 09/16/91	North Atlantic Climatic Variability: Sub-Orbital, Orbital, and Super-Orbital Time Scales	W. Broecker, G. Bond, D. Oppo, S. Lehmann, M. Raymo and T. van Weering	LARSEN
409- 10/04/91	High Resolution Late Quaternary Paleoclimatic and Sedimentary Record, Santa Barbara Basin, California	J.P. Kennen	MOORE
410- 12/02/91	A Proposal for deepening Hole 504B to core and log the dike/gabbro, layer 2/3 boundary	J. Erzinger, J. Alt, and K. Becker	VONHERZEN
354-Rev 01/30/92	Neogene History of the Benguela Current and Angola/Namibia Upwelling System	G. Wefer, W.H. Berger, L. Diester-Haass, W.W. Hay, P.A. Meyers and H. Oberhänsli	FAURE
059-Rev3 01/30/92	Continental Margin Sediment Instability: Global Sealevel History and Basinal Analysis Through Drilling Abyssal Plains	P.P.E. Weaver, R.B. Kidd, J. Thompson, S. Colley, I. Jarvis, R.T.E. Schuttenhelm, G. de Lange, R.E. Cranston and D.E. Buckley	FAURE
414- 02/03/92	Rates, Effects, and Episodicity of Structural and Fluid Processes, Northern Barbados Ridge Accretionary Prism	J.C. Moore, B. Carson, M. Kastner, X. Le Pichon, G. Moore and G. Westbrook	TREHU
415- 02/03/92 403.	Proposal for Drilling the Cretaceous-Tertiary Boundary in the Caribbean Sea	H. Sigurdsson, S. Carey and S. D'Hondt	MOUNTAIN

(Sorted by "Date Received at the JOIDES Office")

9 376-Rev VENTRA. FZ: Lema 213
LOUGEN

(KASTENS) HIRATA

ODP OPERATIONS SCHEDULE

Leg	Port of Origin ^a	Cruise Dates	Days at Sea	Estimated Days Transit/On Site
142 Engineering, EPR	Valparaiso	13-17 January	61	25/36
143 Atolls & Guyots A	Honolulu	19-23 March	56	12/44
144 Atolls & Guyots B	Majuro Atoll	20-24 May	56	12/44
145 North Pacific Transect	Yokohama	20-24 July	59	18/41
146 Cascadia	Victoria	21-25 September	56	6/50
147 Hess Deep	San Diego	21-25 November	56	14/42
148 Engineering, DCS IIB*	Panama	21-25 January	56	18/38
149 Iberian Abyssal Plain	Lisbon	23-27 March	56	12/44
150 New Jersey Sea Level	New York	23-27 May	56	5/51
151 Atlantic Arctic Gateways	St. John's	23-27 July	56	14/42
152 East Greenland Margin	Reykjavik	22-26 September	56	

*Assumes Mid Atlantic Ridge operation. Definition of leg awaits outcome of 142.
Back-up: Hole 504B

Although 5 day port calls are scheduled, the ship sails when ready.

142
Revised 17 December 1991

Site and pick ^a	depth ^b	pre-cruise source	actual depths
855 'basement'	tens - 100 m	prospectus	45-108 m
855 'basement'	≤100 ms	Initial Reports	45-108 m
855 'coherent reflectors'	200-600 ms	Initial Reports	(N.A.) not objective
856 'edifice'	<120 m	prospectus	???
856 'basement'	~250 m	prospectus	(N.A.) - presented by
856 'reflector beneath hill'	170 ms	Initial Reports	120-132 m (?)
856 'regional basement'	350-450 m	Initial Reports	(N.A.) not objective
856 'sills beneath hill'	30 ms (25 m)	Initial Reports	52-78 m
857 'basement'	470 m	prospectus	(N.A.) Basement definition
857 'basement'	500 ms	Initial Reports	(N.A.) hydrothermal vs
857 'sill bottom'	400 ms	Initial Reports	???
857 'interbedded sills/seds'	480 ms	Initial Reports	471 m
857 'sill top'	not picked before cruise		471 m
857 'hard igneous unit'	(still not 'basement')		607 m
858 'edifice'	tens - 120 m	prospectus	250 m (?)
858 'bright reflector'	130 ms	Initial Reports	250 m (?)
858 'bright reflector'	300 ms	Initial Reports	(N.A.) - sub-basement

^a Picks and phrases picked from the pre-cruise prospectus or from the Site Geology and Geophysics sections of the Initial Reports site chapters (in press)

^b Depths in either mbst or TWT bst, as discussed in original sources; no additional 'corrections' or conversions have been made

^c Depths at which rocks encountered are interpreted to be the source for seismic events listed. N.A. = not achieved. ??? = results are ambiguous

Appendix 5

Leg 159 Seamount Ridges I

1992 OCE/ODP FIELD PROGRAMS

MARCH **KANE TRANSFORM - SCRIPPS DEEPTOW**
(WITH FRENCH)
 Delaney (Washington)
 Karson (Duke)

9 NORTH ALVIN REVISIT
 Haymon (UC Santa Barbara)
 and others

APRIL **HESS DEEP - NEAR BOTTOM**
REFRACTION
 Dorman (UC San Diego - Scripps)

JUNE **BARBADOS RIDGE - 3D SEISMIC**
 Shipley (UT-Austin)
 Moore (UH Manoa)
 Moore (UC Santa Cruz)

SEPTEMBER **CEARA RISE - SEISMIC AND CORING**
 Curry (WHOI)
 Mountain (LDGO)

OCTOBER/ **OREGON MARGIN - OFFSET VSP**
NOVEMBER Moore (UH Manoa)

1993 OCE/ODP FIELD PROGRAMS

*** V E M A T R A N S F O R M -**
LDGO/KASTENS
SEAMARC (WITH FRENCH)
JOINT WITH MGG

*** W O O D L A R K B A S I N -**
UHMANOA/TAYLOR
MAG, GRAV, SCS

*** C A S C A D I A M A R G I N -**
LEHIGH/CARSON
ALVIN, FLUID MEASUREMENTS
JOINT WITH MGG

****ADDITIONAL PROPOSALS TO**
BE SUBMITTED 1 MAY 1992**

Site Survey Data Summary: IBERIA ABYSSAL PLAIN - GALICIA MARGIN

Site	IAP-1	IAP-2	IAP-3	IAP-3B	IAP-4	IAP-5	GAL-1
Latitude:	40°41.0' N	40°41.0' N	40°41.0' N	40°47.5' N	40°49.0' N	40°41.0' N	42°40.0' N
Longitude:	11°52.0' W	12°07.5' N	12°54.0' N	12°45.0' N	12°28.5' N	11°36.0' N	12°48.0' N
Environment:	Pass Margin	Pass Margin	Pass Margin	Pass Margin	Pass Margin	Pass Margin	Pass Margin
Water Depth:	5200 m	5200 m	5500 m	5500 m	5400 m	5000 m	4500 m
Sed. Thickness:	2500 m	850 m	1120 m	850 m	680 m	900 m	550 m
Penetration:	2550 m	950 m	1220 m	950 m	780 m	1000 m	650 m
SSP (X) High-resolution SCS	§, 2	§, 2	§, 2			§, 2	
(X) Deep penetration SCS	1, 2	1, 2	1, 2	1, 2	1, 2	1, 2	2
X MCS + Velocities	† 12-SP3540 ‡ 19-SP180	† 12-SP3125 ‡ 17-SP480	† 12-SP1740 ‡ 15-SP700	* 234/1800hrs ‡ 16-SP290	† 4-SP535 ‡ 16-SP750	† 12-SP4010 ‡ 21-SP160	† 6-SP1535 (‡ 3-SP ?)
X Seismic grid	√	√	√	√	√	√	
(X)* Seismic refraction	[√], 3	[√], 3	[√], 3	[√], 3	[√], 3	[√], 3	
X 3.5 KHz	2	2	2	2	2		
(X)* Multibeam bathymetry							
(X)* High-resolution imagery	§	§	§			§	
(X)* Heat flow	4	4	4	4	4	4	√
(X) Magnetics + Gravity	[√, √]	[√, √]	[√, √]	[√, √]	[√, √]	[√, √]	
(X),R Paleo/Geotechnical cores	2	2	2	2	2	2	
Dredging							2
(X)* Current meter							

4/4/92

† Lusigal
‡ Sonne 75
* Discovery 161
§ Darwin

1 "regional"
2 collected, not in Data Bank
3 poss proposal to NERC; collect '93/'94
4 Sibuet proposed to collect

() = nearby
[] = page-size

APPENDIX 9:

Site Survey Data Summary: EAST GREENLAND 63

Site	EG63-1	EG63-2	EG63-3	EG63-4
Latitude	63°27.75' N	63°05.9' N	62°40.75' N	63°12.74' N
Longitude	39°43.5' W	38°38.2' W	37°27.45' W	38°56.70' W
Environment	Pass Margin	Pass Margin	Pass Margin	Pass Margin
Water depth	520 m	1875 m	2095 m	1840 m
Sediment thickness	440 m	1220 m	1420 m	1180 m
Penetration	940 m (500 bmt)	1720 m	1470 m	1280 m
SSP (X) High-resolution SCS	‡ 74-34			
(X) Deep penetration SCS				
X MCS + Velocities	*81-08 SP320, **, §	*81-08 SP1682, **, §	*81-08 SP3233, **, §	*81-08 SP1291, **, §
X Seismic grid	†, **	(*), **	(*), **	(*), **
(X)* Seismic refraction	§	*, §	*, §	*, §
X 3.5 KHz				
(X)* Multibeam bathymetry				
(X)* High-resolution imagery				
(X)* Heat flow				
(X) Magnetics + Gravity	Aeromag, no grav	Aeromag, no grav	Aeromag, no grav	Aeromag, no grav
(X),R Paleo/Geotechnical cores				
Dredging				
(X)* Current meter				

4/4/92

* GGU
** GGU summer '92
† GGU x Tycho
‡ Tycho
§ planned '93

() = nearby

SITE SURVEY DATA SUMMARY AREA : PROPOSAL 346
Eastern Equatorial Atlantic

TARGET SITE	IG ₁	IG ₂	IG _{2bis}
Latitude :	03°38 N	03°08 N	03°095 N
Longitude :	03°28 W	02°55 W	02°45 W
Region :	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.
Environment :	Margin	Oceanic crust	Oceanic crust
Water depth, m :	4050	4435	4900
Sed. Thickness (m) :	> 1000	> 1100	> 1000
Penetration (m) :	1000	>1100	1000
TECHNIQUE			
1. Single-Channel Seismic : Deep Penetration	NO	YES	YES
2. Single-Channel Seismic : High Resolution	Nearby	YES	YES
3. MCS 1 velocity Determination	YES	YES	YES
4. Grid of Intersecting Seismic lines	NO	Nearby	YES
5. Seismic Refraction	Nearby	Nearby	YES
6. 3.5 kHz	YES	YES	YES
7. Multi-Beam Bathymetry	Nearby	NO	Nearby
8. High Resolution Imagery	NO	NO	NO
9. Heat Flow	NO	NO	NO
10. Magnetics and gravity	YES	YES	YES
11. Cores : paleoenvironment geotechnical	NO	NO	NO
12. Dredging	NO	NO	NO
13. Current Meter (for bottom shear)	NO	NO	NO

SITE SURVEY DATA SUMMARY AREA : PROPOSAL 346
Eastern Equatorial Atlantic

TARGET SITE	IG ₃	IG ₄	IG ₅
Latitude :	03°58 N	03°36,5 N	03°27,5 N
Longitude :	02°08 W	02°44 W	03°04 W
Region :	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.
Environment :	Middle margin	Middle margin	Middle margin
Water depth, m :	2340	2055	3300
Sed. Thickness (m) :	800/900	1200	900
Penetration (m) :	900	1200	1000
TECHNIQUE			
1. Single-Channel Seismic : Deep Penetration	YES	YES	YES
2. Single-Channel Seismic : High Resolution	YES	YES	YES
3. MCS 1 velocity Determination	YES	YES	YES
4. Grid of Intersecting Seismic lines	YES	YES	YES
5. Seismic Refraction	Nearby	YES	YES
6. 3.5 kHz	YES	YES	YES
7. Multi-Beam Bathymetry	YES	YES	YES
8. High Resolution Imagery	NO	NO	NO
9. Heat Flow	NO	NO	NO
10. Magnetics and gravity	YES	YES	YES
11. Cores : paleoenvironment geotechnical	YES	NO	NO
12. Dredging	Nearby	Nearby	Nearby
13. Current Meter (for bottom shear)	NO	NO	NO

SITE SURVEY DATA SUMMARY AREA : PROPOSAL 346
Eastern Equatorial Atlantic

TARGET SITE	IG _{6bis}	IG ₆	
Latitude :	03°15 N	03°20 ON	
Longitude :	03°12 W	03°75,5 W	
Region :	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.	
Environment :	Lower margin	Lower margin	
Water depth, m :	4650	4320	
Sed. Thickness (m) :	200	1100	
Penetration (m) :	300/400	1100	
TECHNIQUE			
1. Single-Channel Seismic : Deep Penetration	YES	YES	
2. Single-Channel Seismic : High Resolution	YES	YES	
3. MCS 1 velocity Determination	YES	YES	
4. Grid of Intersecting Seismic lines	YES	YES	
5. Seismic Refraction	Nearby	YES	
6. 3.5 kHz	YES	YES	
7. Multi-Beam Bathymetry	YES	YES	
8. High Resolution Imagery	NO	NO	
9. Heat Flow	NO	NO	
10. Magnetics and gravity	YES	YES	
11. Cores : paleoenvironment geotechnical	NO	NO	
12. Dredging	Nearby	Nearby	
13. Current Meter (for bottom shear)	NO	NO	

SITE SURVEY DATA SUMMARY AREA : PROPOSAL 346
Eastern Equatorial Atlantic

TARGET SITE	IG ₇	IG _{7bis}	
Latitude :	03°04 N	02°52 N	
Longitude :	03°43 W	04°05 W	
Region :	E. EQUAT. ATLAN.	E. EQUAT. ATLAN.	
Environment :	Oceanic F.Z.	Oceanic F.Z.	
Water depth, m :	4200	4545	
Sed. Thickness (m) :	200	250	
Penetration (m) :	300	350	
TECHNIQUE			
1. Single-Channel Seismic : Deep Penetration	Nearby	Nearby	
2. Single-Channel Seismic : High Resolution	NO	NO	
3. MCS 1 velocity Determination	YES	YES	
4. Grid of Intersecting Seismic lines	NO	NO	
5. Seismic Refraction	NO	NO	
6. 3.5 kHz	YES	YES	
7. Multi-Beam Bathymetry	NO	NO	
8. High Resolution Imagery	NO	NO	
9. Heat Flow	NO	NO	
10. Magnetics and gravity	YES	YES	
11. Cores : paleoenvironment geotechnical	NO	NO	
12. Dredging	NO	NO	
13. Current Meter (for bottom shear)	NO	NO	

11:00:00 11:

SITE SURVEY DATA SUMMARY SHEET

AREA: TAG Area

Update: Oct 10 1991

TARGET SITE:	PRI 2	PRI 3	PRI 4
latitude:	26o 08' N	26o 08' N	26o 08' N
longitude:	44o 49' W	44o 49' W	44o 49' W
region:	North Atl	North Atl	North Atl
Environment:	MAR-BareRock	MAR-BareRock	MAR-BareRock
water depth:	3700 m	3700 m	3700 m
sed. thickness:	0.1-0.5 m	0.1-0.5 m	0.1-0.5 m
penetration:	600 m	2000 m	1000 m
TECHNIQUE:			
1. High-res SCS	Required Not Avail	Required Not Avail	Required Not Avail
2. Deep pen SCS	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
3.MCS, incl. velocity	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
4. Seismic grid	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
5.Seismic refraction	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
6.3.5 kHz	Required Not Avail	Required Not Avail	Required Not Avail
7.Multibeam bathy	Yes	Yes	Yes
8.Side Scan Sonar (a) shallow source	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
(b) deep towed source	Required Not Avail	Required Not Avail	Required Not Avail
9. Heat flow	Some in reg Need detail study if feasible	Some in reg Need detail study if feasible	Some in reg Need detail study if feasible
10.Magnetics & Gravity	Surf lines Need deeptow	Surf lines Need deeptow	Surf lines Need deeptow
11. Coring	Some cores more needed	Some cores more needed	Some cores more needed
12. Dredging Alvin sampling	Some More sampling needed at sel targets	Some More sampling needed at sel targets	Some More sampling needed at sel targets
13. Photography	Some bottom photos More req at spec sites	Some bottom photos More req at spec sites	Some bottom photos More req at spec sites
14. Current meter	Not Req Reg meas avail	Not Req Reg meas avail	Not Req Reg meas avail

SITE SURVEY DATA SUMMARY SHEET

AREA: TAG Area

Update: Oct 10 1991

TARGET SITE:	PRI 1A	PRI 1B	PRI 1C
latitude:	26o 08' N	26o 08' N	26o 08' N
longitude:	44o 49' W	44o 49' W	44o 49' W
region:	North Atl	North Atl	North Atl
Environment:	MAR-BareRock	MAR-BareRock	MAR-BareRock
water depth:	3700 m	3700 m	3700 m
sed. thickness:	0.1-0.5 m	0.1-0.5 m	0.1-0.5 m
penetration:	300 m	300 m	300 m
TECHNIQUE:			
1. High-res SCS	Required Not Avail	Required Not Avail	Required Not Avail
2. Deep pen SCS	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
3.MCS, incl. velocity	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
4. Seismic grid	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
5.Seismic refraction	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
6.3.5 kHz	Required Not Avail	Required Not Avail	Required Not Avail
7.Multibeam bathy	Yes	Yes	Yes
8.Side Scan Sonar (a) shallow source	Desirable Not Avail	Desirable Not Avail	Desirable Not Avail
(b) deep towed source	Required Not Avail	Required Not Avail	Required Not Avail
9. Heat flow	Some in reg Need detail study if feasible	Some in reg Need detail study if feasible	Some in reg Need detail study if feasible
10.Magnetics & Gravity	Surf lines Need deeptow	Surf lines Need deeptow	Surf lines Need deeptow
11. Coring	Some cores more needed	Some cores more needed	Some cores more needed
12. Dredging Alvin sampling	Some More sampling needed at sel targets	Some More sampling needed at sel targets	Some More sampling needed at sel targets
13. Photography	Some bottom photos More req at spec sites	Some bottom photos More req at spec sites	Some bottom photos More req at spec sites
14. Current meter	Not Req Reg meas avail	Not Req Reg meas avail	Not Req Reg meas avail

Site Survey Data Summary: N. NEWFOUNDLAND BASIN

Site	NB-1*	NB-4A	NB-7A
Latitude:	45°02.0' N	44°26.0' N	44°44.4' N
Longitude:	48°44.0' W	46°53.0' N	45°22.5' N
Environment:	Pass Margin	Pass Margin	Pass Margin
Water Depth:	1200 m	3940 m	4200 m
Sed. Thickness:	>1650 m	~ 2050 m	1600 m
Penetration:	1650 m	~ 2450 m	1700 m
SSP			
(X) High-resolution SCS	(¥ JD289), ¶	¥ JD289, ¶	(¥ JD298), ¶
(X) Deep penetration SCS			
X MCS + Velocities	+ 3A-1857Z	+ 4A-1221Z	+ 85-04-SP550
X Seismic grid	(t), (#), §	t, §	(t), §
(X)* Seismic refraction	t, ¶	t, ¶	t, ¶
X 3.5 KHz	+	+	+
(X)* Multibeam bathymetry	+	+	+
(X)* High-resolution imagery			
(X)* Heat flow	¶	¶	¶
(X) Magnetism + Gravity	+	+	+
(X), R Paleo/Geotechnical cores	¶	¶	¶
Dredging			
(X)* Current meter			

* to be moved?
 † C2510
 ‡ BIO, not in data bank
 ¥ Farnella, not in data bank
 # Industry, not in data bank
 § Hudson (7/92)
 ¶ to be proposed for Ewing, '93

4/4/92

Appendix 15:

4/4/92

DRAFT Site Survey Guidelines for
Tectonic Windows into Oceanic Crust ("Offset section drilling")

1. Deep Penetration SCS	no
2. High-resolution SCS	May be required ¹
3. Multichannel Seismic	Recommended ²
4. Grid of Seismic lines	See data type 3
5a. Refraction (surface source)	Recommended ²
5b. Refraction (near-bottom source & receiver)	may be useful ³
6a. 3.5 kHz echo sounder or equivalent	Required
6b. 12 kHz echo sounder	no
7. Swath bathymetry	Required
8a. Side-looking Sonar (shallow-towed)	Recommended
8b. Side-looking sonar (near-bottom towed)	Recommended
9. Photography/video	Required ⁴
10. Heat flow	no
11a. Magnetism	Recommended ⁵
11b. Gravity	Recommended
12a. Cores analyzed for paleoenvironment	no
12b. Cores analyzed for geotechnical properties	no
13. Rock sampling	Required ⁶
14. Water current data	May be required ⁷
15. OBS microseismicity	May be useful ⁸

¹ Shallow penetration, high-resolution single-channel seismic data will be required if sites are proposed to spud into sediment pockets.

² A regional MCS or OBS-refraction survey is recommended to determine the regional crustal structure before dismemberment. It is not important to have crossing seismic lines exactly over the proposed site.

³ Near-bottom source/near-bottom receiver seismic refraction is a new experimental technique that holds great promise as a site survey tool for tectonic windows. SSP is following the development of this technology with great interest, and may upgrade this data type to "recommended" or "required" at a future date.

⁴ Visual observations (submersible, towed still camera, towed video camera) are required to determine the detailed geological setting of the site, and to select a site for emplacing a bare-rock drilling guidebase.

⁵ A regional magnetic survey is recommended to determine the age of the oceanic crust and the plate kinematic history of the site.

⁶ A closely-spaced, precisely positioned suite of samples is required in the immediate vicinity of the drillsites, as well as a less-dense suite of samples over a broader region. Samples must be analyzed for geochemical /petrological and structural characteristics.

⁷ Data on water currents will be required for sites in shallow water or wherever swift (>1 knot) currents are anticipated.

⁸ Microseismicity determined from ocean bottom seismometers is useful in regions where the faults that form the tectonic window are still active.