Revised Minutes

JOIDES Planning Committee Spring Meeting

August 10 - 13, 1993 — Brisbane, Australia

The Revised Minutes of the August 10 - 13, 1993 PCOM meeting in Brisbane, Australia were adopted at the December 1993 PCOM meeting.
Corrections or Additions are shown in italics.

PARTICIPANT LIST

Planning Committee - PCOM

Richard Arculus	University of New England (Canada - Australia Consortium)
Jamie Austin	University of Texas at Austin, Institute for Geophysics
Wolf Berger	University of California, San Diego, Scripps Institution of Oceanography
Henry Dick	Woods Hole Oceanographic Institution
Jeff Fox	University of Rhode Island, Graduate School of Oceanography
Robb Kidd	Dept. of Geology, University of Wales, Cardiff
Brian Lewis	University of Washington, College of Ocean and Fishery Sciences
Judy McKenzie	Geologisches Institut, ETH-Zentrum, Zürich
Catherine Mével	Laboratoire de Pétrologie, Université Pierre et Marie Curie (France)
Alan Mix (absent)	Oregon State University, College of Oceanography
John Mutter	Columbia University, Lamont-Doherty Geological Observatory
Jim Natland	University of Miami, Rosenstiel School of Marine and Atmospheric Science
Will Sager	Texas A&M University, College of Geosciences
Kiyoshi Suyehiro	Ocean Research Institute (Japan)
Brian Taylor	University of Hawaii, School of Ocean and Earth Science and Technology
Ulrich von Rad	Bundesanstalt für Geowissenschaften und Rohstoffe (Germany)

Liaisons

Tim Francis	Science Operator (ODP-TAMU)
Dave Goldberg	Wireline Logging Services (ODP-LDGO)
Bruce Malfait	National Science Foundation
Tom Pyle	Joint Oceanographic Institutions, Inc.

Guests and Observers

Ian Gibson	Dept. of Earth Sciences, University of Waterloo (Canada)
Lin Kay	Natural Environment Research Council (United Kingdom)
Robert Whitmarsh	Leg 149 Co-Chief Scientist

JOIDES Office

Bill Collins	Executive Assistant and Non-US Liaison
Karen Schmitt	Science Coordinator

SUMMARY OF PCOM MOTIONS, CONSENSUSES AND ACTION ITEMS

FY95 PROSPECTUS

PCOM Motion 1993B-22: FY95 Prospectus

The following proposals will be included in the FY95 Prospectus. PCOM Watchdogs were assigned as follows:

Proposal		PCOM Watchdog
300-Rev	Return to Site 735B	Mevel
NARM-DPG	NARM Volcanic II (East Greenland)	Suyehiro
SR-Rev2	Sedimented Ridges II	Becker
NAAG-DPG	NAAG II	Sager
(386/422) 386-Add	California Margin	Berger
423 /-Add	Gas Hydrates	Austin
391-Rev 2	Mediterranean Sapropels	Mix
380-Rev 3	VICAP/MAP	Arculus
323-Rev 3	Alboran Sea	Taylor
NARM-DPG	NARM Non-Volcanic II (Iberia)	Mutter
346-Rev 4	E. Equatorial Atlantic Transform	Fox
330-Rev/ -Add3	Mediterranean Ridges I (shallow holes)	Kidd

PCOM Consensus 1993B-23: Logging Prospectus

DMP should be tasked with preparing a logging prospectus, based on ODP-LDEO recommendations, to complement the FY95 Prospectus for presentation to PCOM in December.

PPSP Action - Alboran Safety Review

PCOM requests that PPSP re-prereview the proposed sites in the revised Alboran proposal at their October 1993 meeting.

JOIDES Panel Action - Status of NAAG and NARM

PCOM requests the OHP to present a review on the status of the NAAG program and TECP to present a review on the status of the NARM-NonVolcanic program at the Annual PCOM meeting in December.

LONG-RANGE PLANNING

PCOM Consensus 1993B-24: Future Platforms for ODP

PCOM endorses the subcommittee's continued investigation of platforms for to be used post-1998.

EUROPEAN CORE REPOSITORY

PCOM Motion 1993B-25: East Coast Repository

In light of the June 1993 EXCOM decision, re: moving the ECR, and after consultation with relevant constituent geologic communities and extensive discussion, PCOM endorses:

- internationalization of ODP
- establishment of a new European repository at the University of Bremen, when space becomes available and programmatic details are resolved.

However, given present advice from the JOIDES Advisory Structure, PCOM cannot endorse moving existing cores from LDEO if any chance remains of damage to those cores during transit to Europe. Before making a final recommendation, PCOM awaits the study of technical and financial aspects of moving the existing ECR cores safely, at present being carried out by ODP-TAMU.

PCOM Consensus 1993B-26: European Repository

If an ODP repository is established in Bremen, PCOM recommends to JOI that Atlantic cores, from Leg 151 and following, be sent to this repository.

ADVISORY STRUCTURE REVIEW COMMITTEE REPORT

PCOM Motion 1993B-27: ASRC Proposals 1, 2, 3, 6, 9 and 11

PCOM endorses the proposals numbered 1, 2, 3, 6, 9 and 11 in the ASRC Report and recommends that EXCOM adopt these proposals

PCOM Motion 1993B-28: ASRC Proposal 4

PCOM considers that the intent of ASRC Proposal 4 may be met best by modifying the existing system, rather than replacing it.

PCOM refers the issue of more rigorous proposal review to thematic panels and PANCH for comment. PCOM will consider revised guidelines for proposal review at its December 1993 Meeting.PCOM encourages all panels to be frank in their reviews, particularly if it is unlikely that a proposal will ever get drilled.

To prepare operational options for consideration at PCOM's annual (Dec) meeting, PCOM Chair will convene a one-day meeting of thematic-panel, SSP, PPSP and DMP chairs together with one representative each from TAMU & LDEO.

PCOM Motion 1993B-29: ASRC Proposal 5

PCOM accepts the ASRC's assertions on the important roles of SSP and PPSP in the assessment and augmentation of proposals for drilling but does not accept the Review Panel's recommendations for changes to the operations of the Panels.

New procedures to cope with early identification of highly-ranked proposals with possible safety issues have been approved by PCOM and are now in place between the two Panels.

PCOM sees major disadvantages in reducing either the size or frequency of meetings for SSP and believes it important that the task of helping proponents augment their survey packages remain with SSP "watchdog" specialists, rather than pass this role to JOIDES Office staff.

PCOM Motion 1993B-30: ASRC Proposal 7

Continue the RFP process every two years, alternating between the US and a non-US partner. Each non-US partner may submit only one bid to JOI Inc. for consideration. To gain experience, the PCOM-chair-elect should attend PCOM for a period of at least one year prior to his/her tenure.

PCOM Motion 1993B-31: ASRC Proposal 8

1. PCOM appreciates the comments of ASRC regarding the balance between long-range planning versus operational details. PCOM notes that long-range goals are defined by thematic White Papers and that actual legs ultimately stem from proposals from the scientific community. PCOM shall take strong interest in helping thematic panels in producing White Papers for 1995- 1998 and 1998 - 2003. PCOM takes the point that global problems require global drilling, and that the pursuit of global goals may not emerge automatically from proposal-driven programs.
2. PCOM agrees that information conveyed by liaisons and watchdogs may be less comprehensive than that received through panel chairs. PCOM recommends, therefore, that panel chairs routinely present proposals for scheduling at the annual PCOM meetings and answer questions regarding scientific and technical details, assisted by PCOM watchdogs. The liaisons and watchdogs should play a more proactive role, including contacting proponents of relevant projects. As in the past, PCOM members and panel chairs who are proponents cannot present their drilling program to PCOM.

PCOM Motion 1993B-32:ASRC Proposal 10

PCOM acknowledges and applauds the continuing and growing role of TEDCOM in helping the JOIDES Advisory Structure evaluate major engineering development programs like DCS and retractable-bit technologies.

In reference to ASRC's proposal 10 and in recognition of the continuing importance of such engineering development to both the present and future of ODP, PCOM recommends to EXCOM the following:

- that an external group designated to review the role of engineering development within ODP is not necessary at this time,
- that TEDCOM be augmented as follows:
  - by selection of new panel members from the academic ranks of engineering, to ensure that TEDCOM can give ODP the time required for effective input to ODP-TAMU and JOIDES on new and ongoing engineering development projects. These members should be nominated by PCOM in consultation with the existing members of TEDCOM and the ODP-TAMU engineering staff. However, PCOM does not advise that TEDCOM become much larger than its current complement of 16 members.
  - by appointment of the next Chair following a search among ODP partner nations for a slate of willing nominees representing the highest standards of engineering. The successful candidate should ideally have both academic and industrial background, but above all have both the dedication and the time to devote to ODP.

PCOM Motion 1993B-33: ASRC Proposal 12

PCOM will encourage panels and committees to delegate more work to members, subcommittees and Ad hoc bodies as appropriate.

PCOM recommends that no additional responsibilities be placed on the JOIDES Office without a suitable increase in resources. PCOM notes that the JOIDES Office had instituted or will be instituting a number of the suggestions of the ASRC such as, continuing development of proposal guidelines, providing a compendium of active proposal abstracts to all JOIDES Panel Members and the maintenance of a data base of proposals including proposal status, rating, and reviews.

To ensure that proposals falling outside Thematic Panel mandate receive due consideration, the JOIDES Office will flag proposals for possible review by PCOM.

PCOM Action - Service Panel Recommendations

PCOM will utilize a subcommittee of service panel liaisons, through e-mail, to better handle the recommendations of the service panels.

THEMATIC PANEL WHITE PAPERS

PCOM Motion 1993B-34: ODP Thematic Panel White Paper Revisions

After review of the process of white paper revisions, PCOM requests that thematic panels, at their next meetings:

1. concentrate on sections identifying succinctly major results to-date and how they relate to stated thematic objectives
2. prioritize major themes for drilling utilizing realistic time estimates in the two periods FY1995-1998 and FY1999-2003
3. address the technology required to accomplish these scientific programs, including the requirements for platforms after 1998.

Concerns specific to each white paper will be conveyed to the panels by PCOM liaisons.

PCOM Action - PCOM White Paper Subcommittee

The PCOM Subcommittee on White Papers to report back to PCOM in December, after the fall thematic panel meetings, with their thoughts on the future development of the White Papers.

TECHNOLOGY AND EQUIPMENT DEVELOPMENT

PCOM Consensus 1993B-35: Computer RFP

PCOM is in support of ODP-TAMU continuing its negotiations with the bidders for the ODP computer/database upgrade.

PCOM Action - Core Log Integration White Paper

Lewis to contact the relevant service panel chairs to discuss writing of the CLI White Paper. A report will be presented to PCOM at the Annual Meeting in December.

PCOM Motion 1993B-36: Push-In PCS

In light of the ODP-TAMU August 1993 proposal to develop a push-in PCS, to proceed in parallel with the existing PCS design, PCOM charges the JOIDES panels to do the following at their fall 1993 meetings:

1. evaluate the details of the proposal, particularly in terms of potential expenditure of funds and engineering staff time (i.e., in terms of competition with other existing engineering initiatives)
2. suggest scenarios for addressing the complex issue of handling as well as collecting cores at in situ pressures.

PCOM will evaluate panel responses and propose a course of action for ODP-TAMU at its meeting with Panel Chairs in December 1993.

JOIDES Panels Action - Push-In PCS Proposal Evaluation

JOIDES Panels should evaluate the Push-In PCS proposal at their fall meetings for a report at the PANCH/PCOM meetings in December.

JOIDES Panels Action - VPC System Report

JOIDES Panels should review the VPC System Repor t for engineering development prioritization at the PANCH/PCOM meetings in December.

PCOM Endorsement 1993B-37: DMP Recommendation 93-3

PCOM endorsed the DMP recommendation for the formation of a group of self-supported experts, headed by Joris Gieskes, that will provide DMP and PCOM with documentation as to the feasibility and costs associated with the development and deployment of a fluid-sampling system.

PCOM Consensus 1993B-38: Geoprops Probe

PCOM requests DMP review the Geoprops Probe report provided by Carson & Karig and provide PCOM with a recommendation on the future development of the tool.

PCOM Consensus 1993B-39: Budget Planning for Technology Development

PCOM requests that DMP and TEDCOM prepare a list of all operational tools as well as a list and estimated cost of tools under development. Results are to be presented at the PCOM Annual Meeting in December for prioritization.

FY94 PROGRAM PLAN ACTIONS

PCOM Consensus 1993B-40: Leg 157 Siting

PCOM will revisit the issue of candidate sites for DCS testing at the PCOM Annual Meeting in December. PCOM will revisit the issue of siting a HRB prior to the Leg 157 DCS test at the PCOM Annual Meeting in December.

PCOM Consensus 1993B-41: Leg 158

PCOM agreed that it would not move TAG from Leg 158. If DCS land testing was not successful, PCOM will find another program from among the FY95 Prospectus proposals to fill the Leg 157 slot and keep TAG as Leg 158.

ODP LIAISONS

PCOM Consensus 1993B-42: International Ocean Network

Realizing the new possibilities for exploring deep mantle processes, PCOM encourages the international seismological community to advise ODP on their progress and how deep ocean drilling can play a role in furthering its aims.

PCOM Action - Recipients of Proceedings Volumes in Russia

JOIDES Office will investigate the mailing list to Russian oceanographic institutions. PCOM members should forward to the JOIDES Office suggestions for individuals or institutions that would be appropriate for receiving Proceedings volumes.

JOIDES COMMITTEE/PANEL MEMBERSHIP CHANGES

PCOM Motion 1993B-43: Personnel Actions

PCOM endorsed all personnel changes in panel membership, panel Chairs and PCOM liaisons presented at the August meeting.

IHP

- Patricia Fryer will become the new Chair
- PCOM thanked Ian Gibson for his many years of dedicated service as IHP Chair and adopted the following by acclamation:

  PCOM notes with regret the resignation of Ian Gibson as Chair of IHP. Ian almost single-handedly brought to JOIDES attention the urgent need for upgrading of both databasing and computing within ODP. That task was complex and thankless, but very, very necessary. The Program is in his debt, and PCOM wishes him well.

SMP

- PCOM thanked Kate Moran for her many years of dedicated service as SMP Chair and adopted the following by acclamation:

  PCOM wishes to thank the outgoing SMP Panel Chair, Kate Moran. Throughout the years, Kate has demonstrated sophisticated leadership of a group which provides critical input spanning the range of shipboard measurements to ODP, including complex topics like core-log integration. She has been crucial to the program's continuing success, and PCOM fully expects to see her rejoin the JOIDES community soon in another capacity.

DMP

- Rich Jarrard will replace Joris Gieskes

PANCH Chair

- Peggy Delaney (OHP) was invited to Chair the PANCH meeting
  (*Delaney subsequently had to decline the invitation*).

PCOM Membership

- Tom Shipley will replace Austin on PCOM effective January 1, 1994.
- Hermann Kudrass will replace Ulrich von Rad at the December meeting.
- Arculus becomes the official Can-Aus PCOM member October 1.
- PCOM thanked Ulrich von Rad for his many years of dedicated service to PCOM and ODP and adopted the following by acclamation:

  PCOM says à bientôt, not good-bye, to a true friend of ODP, Ulrich von Rad. Ulrich has been on PCOM seven years, and has provided the kind of reasoned, constant input that makes this committee ultimately succeed, sometimes in spite of its more effervescent members. Ulrich will be replaced, but his shoes cannot ever be filled. We will miss him, but PCOM looks forward to his next (and hopefully many more) voyages on *JOIDES Resolution*.

DRAFT MINUTES
JOIDES PLANNING COMMITTEE
AUGUST 10 - 13, 1993 — BRISBANE, AUSTRALIA

August 10 .....9:00 am

Item 1001. Welcome and Introduction

Lewis called the meeting to order, introductions were made and it was noted that Mix was absent. Arculus was thanked for leading an excellent field trip to Lady Elliot Island on the Great Barrier Reef. David Gust, head of Geology Department at Queensland University of Technology was introduced and thanked for hosting the meeting in Brisbane.

Item 1002. Approval of the Agenda

Lewis reviewed the agenda for the meeting. He requested that the Agenda Item K-3 (Core Repository) be moved to follow Agenda Item G (FY95 Prospectus) on Wednesday, August 11. It would replace the discussion of Item H-1 (FY94 Program Plan Budget).

Motion - Agenda for the August PCOM Meeting
PCOM adopts the revised agenda for its August 1993 meeting.

Natland moved, Austin seconded. Vote: 15 in favor, 1 absent.

Item 1003. Approval of the Minutes

Corrections to the Revised Draft Minutes were accepted from Mével and Sager.

Motion - Adoption of the Minutes
PCOM approves the revised draft minutes, with amendments, of the April 26 -28, 1993 PCOM meeting at LDEO, Palisades, New York.

Fox moved, Sager seconded. Vote: 15 in favor, 1 absent.

Item 1004. Reports of Liaisons

1. NSF

Budget

Malfait reported that MOUs had been signed with the UK, Germany, and the ESF. The MOU with France had been signed by NSF and had been sent to IFREMER (Appendix 1.0). Problems that remained with MOU signing were that the Japanese MOU was undergoing scrutiny related to the new government and the Can-Aus situation was still continuing to evolve. In addition, no contract had yet been signed with JOI.

Malfait explained that the ODP FY94 budget estimate was still contingent on several big "ifs". The original target budget ($ 44.9 M) was probable: (a) if ODP had a signed contract for operations, (b) if ODP had five full international partners, (c) if ODP had a seven-twelfths Can-Aus membership, (d) if the FY94 Program Plan remained as approved by EXCOM, and (e) if an acceptable plan for the computer/database upgrade was submitted (Appendix 1.1).

ODP Council

At the ODP Council meeting in June (Appendix 1.2), the Can-Aus situation was discussed extensively and a compromise was arrived at that, based on the amount of funds that were available from Canada, would allow Can-Aus a temporary (one-year), partial (seven-twelfths) membership. The issue of the 1994 membership contribution was discussed and there was little support for increasing the level of contribution above the $ 200 K increase in 1994.

ODP Council also discussed the Japanese proposal for the "New Era of Ocean Drilling". The Council wanted to see more details on the proposal from Japan, as well as scientific input from the ODP Advisory Structure. The Council would be taking up the issue of management/political input to the Japanese regarding their proposal but ODPC viewed the Japanese vessel as only one component of a New Era of Ocean Drilling. There would be a workshop in January following the EXCOM meeting in Japan to further address all of these issues.

Other Items

Malfait explained that the FY94 NSF budget was still in Congress and had not been finalized. NSF was undertaking a review of USSAC in preparation for renewal next year (Appendix 1.3). There had been considerable interest expressed to NSF by US Congressmen on the issue of moving the East Coast Repository to Germany.

Lewis asked if PCOM should continue to plan for reductions in the $ 44.9 M FY94 budget? Malfait said that if all the conditions he outlined earlier were met, NSF could assure a $ 44.9 M budget.

2. JOI

Contracts

Pyle reported that contract negotiations were continuing between JOI and NSF as well as between JOI and TAMU for the science operator contract and between JOI and LDEO for the logging services contract (Appendix 2.0).

Advisory Structure Review Committee

In June, the ASRC had presented its report to EXCOM and EXCOM had requested that PCOM review and comment on the report. After considering PCOM's responses, EXCOM would take final actions on the report at its January meeting.

Core Repository (Atlantic)

At the June EXCOM meeting, EXCOM had recommended that JOI advise ODP-TAMU to begin negotiations with Universität Bremen to operate a new core repository. A site visit was conducted by the JOI President (Arthur Nowell) and Vice President (Pyle), TAMU/ODP Director (Phil Rabinowitz), TAMRF Vice President (Rick MacPherson), PCOM Chair (Lewis), Nick Shackleton, Ted Moore, Larry Mayer, and Alan Mix on August 2-3, 1993. The technical and financial aspects of the negotiations with Bremen were still under review.

Budget

Pyle reported on the budget guidance that JOI had received from NSF (Appendix 2.1). If there were five full partners and Can-Aus stayed in with a seven-twelfths partial membership, ODP could plan for maintaining the $ 44.9 M budget with NSF support for the shortfall from the partial Can-Aus contribution. If France were to pull out from ODP and there were only four full partners and Can-Aus stayed at the seven-twelfths level, ODP would have to plan for a $ 43.9 M budget—NSF would not be able to support the program at the $ 44.9 M level in that case. A mid-August decision was expected on the final budget.

Lewis wanted clarification of NSF's guidance, he asked if this was a commitment by NSF to provide the necessary funds to support the program at these budget levels? Pyle explained that NSF was prepared to support the program at these levels if there were partner shortfalls as descirbed.

Program Plan

JOI had submitted the FY94 Program Plan to NSF on July 29 with a budget of $ 44.9 M. However, this plan lacked the required computer and database upgrade plan that NSF was requesting.

"New Era of Ocean Drilling"

At the June EXCOM meeting, STA/JAMSTEC presented a proposal for a program that they called the "New Era of Ocean Drilling" that featured a drill ship built by STA/JAMSTEC and a close liaison with ODP. As a result of this proposal, EXCOM planned to have a workshop after its February meeting (February 3).

US Liaison to JOIDES Office

JOI would be placing ads for the position of US Liaison to the JOIDES Office and expected to hire someone by September or October.

3. ODP-TAMU

Leg 149

Francis reviewed the operations on Leg 149 (Appendix 3.0), including the loss of pipe at Hole 898. On April 24th, 3.3 km of 5-inch pipe was lost in heavy weather due to pin failure. ODP-TAMU had the inboard end of the fractured pin sent for metallurgical analysis. The pipe was bought from France in 1984 and was on the ship from 1985 through 1990 when it was taken off and inspected on shore, sandblasted and *zinc* coated. It went back on the ship in September 1992 and fractured on April 24, 1993. Examination of fracture surfaces of that pipe indicated that it wasn't the result of fatigue, simple overload or flaw in the manufacture of the pipe. It was probably the result of some form of long-term stress corrosion cracking that propagated along grain boundaries. There were 70 or 80 joints of the pipe left on board and the ODP-TAMU engineers concluded that the rest of the pipe on board would be kept there, they did not think that the pipe needed to be removed.

PCOM discussed the implications of the decision to keep the remaining pipe on board and what ODP-TAMU's current practices of pipe rotation/inspection were. Taylor felt that using suspect equipment was bad practice and jeopardized important scientific objectives, he cited that the loss of pipe was responsible for changing the science programs on Leg 149 and Leg 127. Austin questioned ODP-TAMU's lack of a pipe-tracking procedure practices, he thought that standard oilfield practice was to track and retire pipe and that the economics of losing pipe would dictate that tracking should be done. Francis disagreed that pipes should have to be tracked and his understanding was that it was not standard oil industry practice to do so. Berger suggested that maybe ODP should track pipe in the future. Francis did not think it would be practical to do so, ODP-TAMU engineers had considered the option.

Leg 150

Francis described the operations on Leg 150 (Appendix 3.1). The leg recovered 4034 m of core—87% recovery. The natural gamma tool (NGT) was used for the first time (Appendix 3.2). A potential safety problem was encountered when ODP was notified about the location of AT&T fiber-optic cables in the area of Leg 150 drilling (Appendix 3.3). AT&T furnished ODP with the precise waypoints for their cables so that the ship could avoid them when spudding holes. It was also discovered that proposed site MAT-17 was located in an explosives dump site that contained low level radioactive waste dumped there in the 1950's and 1960's and intentionally-sunken vessels containing obsolete munitions and poison gases. As a result, proposed site MAT-17 was *denied permission* and for operations at proposed site MAT-14, located nearby but outside the dump site, was required to scan the seafloor prior to drilling and to wash down the first 20 mbsf. Francis circulated two press articles that were done covering Leg 150 drilling (Appendices 3.4 - 3.5).

Following Leg 150, at the port call in St. John's, 130 joints of 5" pipe was loaded to replace that lost on Leg 149, bringing up the inventory of drill pipe on the ship to 433 joints of 5" pipe, 361 joints of 5.5" (Appendix 3.6). At the next St. John's port call another 220 joints of pipe will be loaded to bring inventory up to the full amount normally carried on the ship. In addition, the heave compensator was rebuilt to remedy problems experienced on Leg 149.

Leg 151

Francis explained that the *JOIDES Resolution* was enroute to Fram Strait to rendezvous with the icebreaker *Fennica* on the 15th or 16th of August (Appendix 3.7). ODP-TAMU had recently held a successful meeting with *Fennica* personnel, it was held primarily to allow the two captains and members of both crews to meet prior to the leg. Two parties will be aboard the *Fennica* during the leg, one is a German TV crew for that will be filming for 3 weeks, the other is a group of two scientists from the Scott Polar Institute who will work on ice *floes*—if ice conditions permit. Francis reviewed plans for monitoring ice conditions during the leg (Appendices 3.8 - 3.12) and discussed the INMARSAT limitations at high latitudes that may affect the leg.

Coffee Break ..... *10:30 - 10:50 am*

Leg 152

Francis described the operations and staffing planned for Leg 152, noting that weather uncertainties were an integral part of the planning for the proposed southeast Greenland sites (Appendix 3.13 - 3.14).

Leg 153

Francis reviewed the planned operations for Leg 153 (Appendix 3.15). For the two proposed sites there would be 20 days of drilling per site and 2.5 days of logging at each. At the pre-cruise meeting there had been discussion of the problems at Leg 147 and how the problems experienced on that leg would be solved or avoided on Leg 153. Francis outlined the causes of problems at Hole 894G on Leg 147 as: (1) misalignment caused by the ship offset when spudding, (2) non-concentric hole drilled because no centering bushing was used, (3) hole angle increased with depth, hence increasing torque and drag, (4) the HRB settled as sediments were washed out from under the down slope legs of the HRB (*Appendix 3.16*). He then went on to explain what operational changes were planned in order to improve drilling and what type of casing program was planned for Leg 153 (Appendices 3.17 - 3.19). ODP-TAMU would provide two strings of casing for each hole on the leg.

Taylor was PCOM liaison to OD-WG and reminded PCOM that the OD program was intended to drill holes to 1 km ± 500 m. He asked if ODP-TAMU was looking to drill a 1 km hole? Francis said yes, not on one leg perhaps, but if the rock permitted there would be no problem. Mével pointed out that the most difficult portion of these types of holes was the top portion, it would be necessary to deal with the problem of keeping the hole open to get deep.

Legs 154 - 158

Francis reviewed staffing and preparations for operations on Legs 154 - 157 (Appendices 3.20 - 3.25).

Diamond Coring System Status

ODP-TAMU engineers would be involved with the land testing of the DCS (Appendix 3.24) in mid-September for 3-4 weeks.

Vibra-Percussive Corer (VPC)

Francis reported that, as a result of unsatisfactory tests on Leg 133 and 146, ODP-TAMU engineers had abandoned the development and design of the VPC (Appendix 3.26). ODP-TAMU was now looking at three alternative designs for a through-drillpipe VPC to replace it (Appendices 3.42 - 3.46). **PCOM requested that the JOIDES panels review the VPC systems report by ODP-TAMU for engineering development prioritization at the PANCH/PCOM meetings in December.**

Push-in Pressure Core Sampler (PPCS)

Francis presented a brief review of the design and operation of the existing PCS (Appendices 3.27 - 3.28). He then described the concept of the tool referred to as the Push-in Pressure Core Sampler (PPCS) that ODP-TAMU would like to develop. The difference between the PPCS and the PCS was that the PPCS would be pushed into the sediment as opposed to being drilled in as was the current PCS (Appendices 3.29 - 3.41). Francis estimated the cost for development of the PPCS as on the order of $ 70 K but he noted that ODP-TAMU wanted to get a scientist outside ODP-TAMU to shepherd the development. Francis asked PCOM to discuss whether or not this approach was a good way to go and wanted the JOIDES advisory panels to comment on proposals for both the VPC and PPCS designs. If the ideas were accepted and ODP-TAMU could be given the go-ahead by April 1994, the tools could possibly be available in *one to two* years.

Austin asked if the PPCS would be a third-party tool development? If so, he felt that it should be something for DMP review. Francis pointed out that the PPCS was a coring tool and not a logging tool. Lewis clarified that the PPCS issue was within TEDCOM's mandate but he felt that PCOM also needed the other panel's comments. Francis stressed that PPCS development would be tracked by TEDCOM. Lewis would have the JOIDES Office distribute the documents to the panels and TEDCOM for comments before being taken up by PCOM in December.

After discussion, PCOM passed the following motion:

Motion - Push-In PCS

In light of the ODP-TAMU August 1993 proposal to develop a push-in PCS, to proceed in parallel with the existing PCS design, PCOM charges the JOIDES panels to do the following at their fall 1993 meetings:

1. evaluate the details of the proposal, particularly in terms of potential expenditure of funds and engineering staff time (i.e., in terms of competition with other existing engineering initiatives)

2. suggest scenarios for addressing the complex issue of handling as well as collecting cores at in situ pressures.

PCOM will evaluate panel responses and propose a course of action for ODP-TAMU at its meeting with Panel Chairs in December 1993.;

Austin moved, Natland seconded. Vote: 15 in favor, 1 absent.

Curbing the Costs of Publications

Francis reviewed the contents of a letter sent out by Russ Merrill in June regarding changes in publication policies. This letter was sent in response to the PCOM Motion 1993A-14, passed at the April meeting, regarding cutting the costs of publications. Francis reported that feedback had been minimal to-date, mostly concerning CD-ROMs. Dick asked why the changes Merrill described in his letter were not routed through PCOM? Francis replied that PCOM had agreed that specific decisions were to be left up to the co-chiefs and ODP-TAMU. Gibson agreed that PCOM had authorized Merrill to do something to reduce publication costs and that was what Merrill had done; PCOM had rejected the specific recommendations of IHP. Francis asked that feedback on the subject be directed to Russ Merrill and assured PCOM that ODP-TAMU would negotiate with Co-Chiefs on the issues of publications. Mével reported that there had been a lot of flexibility at the Leg 147 post-cruise meeting.

Staffing

Francis presented the shipboard participant tally for Legs 101 - 151 (Appendix 3.47).

4. ODP-LDEO

Recent Logging Operations

Goldberg reviewed recent logging operations on Legs 148 - 150 (Appendices 4.0 - 4.1). Despite difficult logging conditions on some of the legs, exciting new results were being produced as a result of the installation of the MAXIS. Goldberg outlined the changes in data flow on the ship due to the MAXIS, he was enthusiasitic that with the MAXIS the ability to process log data and create output on board had been greatly enhanced.

Lunch Break ..... *12:30 - 1:30 pm*

Future logging Operations - Leg 151 - 154

Goldberg presented the detailed plans for future logging operations on Legs 151 - 154 (Appendices 4.2 - 4.8). Mutter added that the VSP for Leg 153 had been turned down by the co-chiefs.

Downhole Systems Development

Goldberg reviewed progress in the development of the high-temperature tool (BRGM), the high-resistivity tool (CSM), the directional shear sonic tool (LDEO). He also outlined plans for VSPs and the possibility for leasing a logging-while-drilling (LWD) system for Leg 156 (Appendix 4.9). The LWD program was proposed by Schlumberger to DMP. However, the tools were expensive and do not take core, LWD required a devoted hole. DMP had discussed redesigning the Leg 156 drilling program to include a LWD program at the end of the leg. A LWD program would be a 10-day operation requiring a devoted hole at each of three sites equivalent to the CORK sites. DMP will evaluate this option at its fall meeting, cost would also be an important factor—the cost would be $ 100-300 K for a 10-day program. Goldberg indicated that, after DMP's review, there would possibly be a proposal to PCOM in December for LWD on Leg 156. PCOM discussed what LWD achieved in terms of logging programs and the necessity to drill holes separate from the cored holes. Taylor related the history of logging at Nankai where PCOM previously approved drilling holes devoted to logging in accretionary prisms.

New Initiatives

Goldberg reported on new initiatives in the following areas: (1) CD-ROM, (2) ODP field tape backup project, (3) logging schools, and (3) staffing (Appendix 4.10).

5. JOIDES Office

Collins reviewed the proposals submitted to the JOIDES Office for the July 1 deadline. He also presented a revised version of the *Proposal Submission Guidelines* that would be available as part of a package of material that would be sent out to potential proponents who requested information. Articles authored by Collins were recently published in GSA *Today* and *EOS* on the 4-Year Plan adopted at the April PCOM meeting. Schmitt related that the new *Guide to the Ocean Drilling Program* would be published as a special issue of the *JOIDES Journal* in June 1994. She would be contacting contributors in October with information on updating their material for publication in the new guide.

Item 1005. JOIDES Panel Reports

1. EXCOM

Advisory Structure Review Committee Final Report

Lewis reviewed the EXCOM discussion and motion regarding the ASRC Report. He explained that PCOM's task was to respond to EXCOM with specific recommendations regarding each proposal in the ASRC Report; this was scheduled as an agenda item later in the meeting.

Procedures for Contract Development, Specification and Review

Following PCOM's motion in April dealing with procedures for contract development, specification and review, EXCOM also passed a motion concerning this subject. Lewis reviewed the motion, noting several wording differences between the motion—the intent of both motions was the same.

Core Repository

Lewis reviewed the motion that EXCOM passed concerning the establishment of a core repository at Universität Bremen. He explained that PCOM was tasked to provide advice to TAMU for definitizing the procedures for moving cores. This issue was also scheduled as an agenda item later in the meeting and would be taken up in detail then.

2. SSP

SSP met in late July, Dick reported that the issue of alternate sites for offset drilling (OD) legs had been taken up. SSP wanted OD legs to have backup sites for the bare-rock sites that were located on sediment ponds. Dick didn't think SSP understood how OD strategy had evolved and this presented problems, he found that SSP was not aware of the proponents perspective of a site, not as a single hole but as many tries—SSP had not thought through the issue of alternate sites from a proponents perspective or what the proponents were trying to achieve. Dick had to point out to SSP that Leg 147 (Hess Deep) was not a catastrophe—as SSP had concluded. SSP had discussed what tools might have improved Leg 147 results. Dick concluded that SSP needed more expertise in the area of OD, someone who had experience mapping the seafloor and was familiar with geophysical tools.

SSP had also discussed the SWDWG Report on safety. SSP discussed the timeline for safety survey integration and had concluded that a longer scheduling lead-time for these types of shallow-water drilling legs would be needed to properly evaluate safety surveys.

SSP requested a November meeting to do a final run-through of the site survey data for the Prospectus proposals for final recommendations to PCOM. There was also a question about whether or not SSP should review addendums, particularly the NARM-Adds but there were several other problematic proposals—like the VICAP/MAP proposal site-survey data. SSP found that the original proposal sites did not match those on the site survey data, which was marked with sites for a revision that had not yet been received.

Dick then presented the SSP review process and results of the July site-survey data reviews. PCOM discussed the SSP reviews and what SSP should do about addendums to DPG Reports. There was also debate over how PCOM should view proposals that were not submitted in time for the July 1 deadline; this issue was tabled until the discussion of the FY95 Prospectus.

3. IHP

Sager explained that since IHP had met only two weeks earlier and the minutes were not yet available, it was more appropriate for him to comment on IHP's discussions regarding the personnel and core repository issues at the time they were taken up on PCOM's agenda.

4. DMP

Natland reported that the May DMP meeting had two thrusts: (1) a series of technology reviews, and (2) concentration on preparations for Leg 156 (Barbados). Concerning the Barbados leg, DMP plans for the leg were reviewed. There was a special meeting after the DMP meeting concerning Barbados CORKs. The French were becoming involved in the Barbados CORK program and would make the data logger and sensor string for one of the three CORKed holes; the French design would involve a more sophisticated electronics package down hole. There would be a joint French-American proposal for a post-drilling *Nautile* cruise to service the Barbados CORKs.

DMP was concerned about the status of high-temperature tools on the TAG leg and whether or not the tools under development would be ready. At the next meeting DMP would have an in-depth technology review of the high-temperature tools. Natland read the DMP Recommendation 93-2 concerning the TAG downhole measurement program.

Natland reviewed the three recommendations that DMP made to PCOM concerning: (1) approval of ODP-LDEO's logging plans for Legs 150-155, (2) resources for TAG downhole measurements, (3) formation of a self-supported group to pursue the development of in situ pore fluid sampling technology.

DMP Recommendation 93-1: Logging Plans 150-155

Francis was concerned that by requesting approval for logging plans for legs that were already over DMP was behind schedule. Taylor wanted DMP to approve logging programs it time for them to be reviewed by PCOM prior to scheduling a leg so that the logging program could be considered in the scheduling process. PCOM discussed logging programs for legs and agreed that logging programs should not be added after legs were scheduled. Goldberg agreed and wanted to have logging programs available for FY95 Prospectus proposals in time for the PCOM meeting in December. He explained that the RFP for renewal of the logging program had disrupted the normal ODP-LDEO preparation process.

PCOM discussed the necessity for integrating the logging programs with the science on each leg. PCOM requested ODP-LDEO produce a logging plan for each of the FY95 Prospectus proposals for presentation to DMP at their fall meeting. **PCOM's consensus was that DMP be tasked with preparing a logging prospectus, based on ODP-LDEO recommendations, to complement the FY95 Prospectus for presentation to PCOM in December.**

Goldberg pointed out that DMP approved of ODP-LDEO naming a representative to the panels, not necessarily a formal liaison, but a contact person in wireline operations to help answer questions about logging programs. Lewis concluded discussion on DMP Recommendation 93-1 by recommending that PCOM not approve the program as presented because it was incorrect and out-of-date.

DMP Recommendation 93-2: TAG Leg preparations

PCOM discussed what DMP's recommendation intended and if there was anything that PCOM could do to facilitate the preparations for the TAG leg. Pyle explained that the reality of the situation that the contractors responsible for the high-temperature tools were not performing up to contract specifications. The lack of control of third-party developers was discussed by PCOM and it was concluded that although PCOM was now aware of the situation, there was nothing that PCOM could do. **Lewis would contact Peter Lysne (DMP Chair) and discuss the situation regarding the non-performance of contractors who were preparing the third-party tools for the TAG leg.**

DMP Recommendation 93-3: In Situ Recommendation

PCOM endorsed the DMP recommendation for the formation of a group of self-supported experts, headed by Joris Gieskes, that will provide DMP and PCOM with documentation as to the feasibility and costs associated with the development and deployment of a fluid-sampling system.

Leg 156 VSP Experiments

Francis brought up the issue of the Leg 156 shear wave VSP experiment proposed by Graham Westbrook. Westbrook had approached ODP-TAMU and requested advice on how to proceed to have the experiment considered. Francis had recommended to Westbrook that he discuss his proposal for a VSP experiment at the DMP meeting in May, with Goldberg and BRG, and with the Co-Chiefs of the leg. Westbrook tried all three of these contacts. However, DMP had decided not to consider the proposal at their May meeting because they were not a thematic panel. Francis was concerned that the system was not working for his experiment and felt that DMP was the most appropriate panel to consider this issue.

PCOM discussed if Westbrook wanted technical or scientific review from DMP. Austin stressed that since Co-Chiefs had been named, Westbrook should approach the system by contacting a Co-Chief. Taylor was disturbed an experiment was being proposed to change the science program of the leg that after it was scheduled. Kidd clarified that the proposal had already been taken to the Co-Chiefs and the JOIDES Office had received a letter from Tom Shipley (Co-Chief) on this matter; the question was how to get a proposal to do a VSP on a leg into the system. After discussion, PCOM concluded that if outside funds were available for the additional expenses and the Co-Chiefs approved it, then the experiment could go ahead on the leg. **Lewis would reply to a letter from Shipley to relate the sense of PCOM's discussion on the matter of the addition of VSP experiments to the Leg 156 program.**

Coffee Break ..... *3:10 - 3:30 pm*

Item 1006. Leg 149 Report

Whitmarsh presented a report on the preliminary results of Leg 149 (Iberia Abyssal Plain), the first of the NARM Non-volcanic drilling legs. He reviewed the general problems of non-volcanic margins (Appendix 5.0) and the scientific objectives of the NARM-DPG (Appendix 5.1). The NARM-DPG had identified several specific problems that ODP could address through drilling of basement rocks, sediments and low-angle faults (Appendix 5.2).

Regional reconstructions of the North Atlantic were reviewed and Whitmarsh outlined the rifting sequence along the Iberian margin relative to the Leg 149 transect (Appendix 5.3). Seismic and magnetic data were in agreement with a model of thinning continental crust in a westerly direction away from the Iberian continental margin (Appendices 5.4 - 5.5).

Whitmarsh reviewed PCOM's mandate to the Leg 149 Co-Chiefs: *After consultation with interested members of the community, including Panel Chairs, members of PCOM and others, PCOM has reconsidered its decision made at the April 1992 PCOM meeting and endorses the original recommendation of NARM-DPG to drill a transect across the Iberian margin, in the priority order IAP-4, IAP-2, IAP-3, and alternates. PCOM furthermore charges the Co-Chiefs to attempt penetration of the basement to several hundred meters in order to increase the chances of recovering diverse lithologies containing a record of tectonic evolution.* Whitmarsh indicated that he and Dale Sawyer had attempted to achieve this goal and he presented a narrative account of the operations at Sites 897 (IAP-4 = Site 897). 898 (IAP-2 = Site 898), 899 (IAP-6 = Site 899), 900 (IAP-5 = Site 900), and 901(IAP-7 = Site 901; see Appendices 5.6 - 5.8).

Site 897

Whitmarsh reviewed the location, lithostratigraphy and age vs. depth curve of core recovered from Site 897 (Appendices 5.9 - 5.10). In Unit 4, near the basement, serpentinized peridotites—probably blocks—were encountered between dark-gray claystones and other lithologies. Basement was altered serpentinized peridotite grading into unaltered peridotite.

Site 899

Whitmarsh reviewed the location, lithostratigraphy and age vs. depth curve of core recovered from Site 899 (Appendices 5.15 - 5.17). Unit 4 lithologies contained several distinctive types of serpentinite breccia units. Drilling at this site did not reach any igneous basement, just serpentinized material in the acoustic basement.

Site 900

Whitmarsh reviewed the location, lithostratitraphy and age vs. depth curve of core recovered from Site 900 (Appendices 5.18 - 19). Mylonitized gabbros were recovered from basement at this site, this basement had yet to be dated and it was still undetermined if this basement represented continental, oceanic or transitional crust.

Site 901

Whitmarsh reviewed the location, lithostratitraphy and age vs. depth curve of core recovered from Site 901 (Appendices 5.10 - 5.21). The basement of the fault block was Tithonian sediment and Whitmarsh felt confident that the fault block was continental crust.

Summary

Whitmarsh summarized the preliminary results of Leg 149. Sediments recovered—contourites and turbidites—would provide a data base to understand the development of continental rise and abyssal plain sedimentation. The Betic rift unconformity could be dated in all the holes drilled on the margin. The basic kinematics of the rifting model were still intact, but he felt that oceanic crust had not yet been sampled on the western side of the transect. The drilling had encountered serpentinized peridotite in a wider zone than was expected. If Site 901 was taken as continental crust, the zone of thinned continental crust, between 901 and the edge of the continental shelf, was 200 km wide; this result could have important implications for interpretation of the geology of the Newfoundland side of the margin.

Whitmarsh outlined a plan for continuing the Iberian transect given the preliminary results of Leg 149. A first step would be to drill a site (IAP-3C) on oceanic crust and to try to determine if it was normal or thinner-than-normal crust. Another major step was to drill a deep hole in one of the deep basins to get a full tectonic subsidence history, syn-rift to post-rift, for this part of the margin—the question was where this deep hole should be. IAP-1 is the only point in the deep basins with two intersecting multi-channel profiles. Whitmarsh acknowledged that, given the results of Leg 149, there might be different locations that would be preferable, but the site survey data available at the moment was not sufficient to site the deep-hole elsewhere.

Discussion

Gibson, a Leg 149 participant himself, wanted to note that Whitmarsh's estimates of depth-to-basement had been very accurate and had contributed to the success of the drilling program. Arculus added that PCOM should congratulate the Co-Chiefs for carrying out PCOM's mandate in a highly successful manner.

Taylor brought up the fact that TECP had put an Iberian II leg on their global ranking, completing this transect would require drilling a 2 km hole, IAP-1. Taylor asked if Whitmarsh would agree that it would be good to use the proposed IAP-1 site as planned or would he re-site it? Whitmarsh preferred to work up the results of Leg 149 a bit further before committing an answer. Mutter asked if Whitmarsh was confident in suggesting the deep hole next since many questions had been raised by the Leg 149 drilling. Whitmarsh felt that questions were raised but ODP still needed to pursue the deep hole on the Iberian margin. PCOM discussed the results of Leg 149 and debated whether or not drilling the deep hole was the next step in the NARM Non-Volcanic drilling program.

❖ *End of Day 1* ..... *5:08 pm*

August 11 ..... **9:00 am**

Item 1007. FY95 Prospectus

1. 1993 Global Rankings

After considerable discussion on the criteria to use for selecting a proposal for the FY95 Prospectus, specifically how to interpret the SSP evaluation of data readiness, PCOM agreed that proposals would be considered for inclusion in the Prospectus, one-by-one. PCOM liaisons to the thematic panels would present and lead discussion on each of the highly-ranked proposals—ranked seventh or above in the global rankings—for each panel. Proponents would be asked to leave the room during discussion of their proposal.

LITHP

300-Rev Return to Site 735B

Mutter reviewed the scientific objectives of the proposal and the LITHP reviews. Since the proposal was not considered drillable based on the site survey data evaluation by SSP, PCOM had reservations about including it in the Prospectus. Taylor pointed out that the program was multi-leg and that deepening of the existing hole was needed and could be done with the site survey available. PCOM agreed that the only aspect of the proposal to be considered for the Prospectus was deepening 735B.

Consensus: 300-Rev Return to Site 735B would be included in the FY95 Prospectus with the directive that deepening hole is the only schedulable portion of the proposal for FY95 and PCOM wanted advice from the panels on this option only.

NARM-Volcanic Margins II

Mutter reviewed the scientific objectives of the proposal and the LITHP reviews. The subject of the NARM addendums was brought up and whether or not the new NARM-Adds should be put in the FY95 Prospectus with the NARM-DPG Report. PCOM decided not to include the addendums but to put the NARM DPG Report in the prospectus. PCOM debated whether or not the new revisions should be included in the Prospectus and if the entire NARM DPG Report needed to be in the prospectus.

Consensus: The NARM-DPG Volcanic II (East Greenland) program should be included in the FY95 Prospectus with the priority to finish the East Greenland transect as originally proposed—consistent with LITHP's priority for finishing the Greenland transect before moving on to Vöring.

086-Rev2 Red Sea

Mutter reviewed the scientific objectives of the proposal and the LITHP reviews. The panels had recommended that the proposal was not mature enough for drilling.

Consensus: The Red Sea proposal would not be included in the FY95 Prospectus. PCOM encouraged the Red Sea DPG and Enrico Bonatti to collaborate on improving this proposal.

SR II Sedimented Ridges

Mutter reviewed the scientific objectives of the proposal and the LITHP reviews. This was the second leg of the program and was designed to investigate the formation for massive sulfides and small-scale hydrogeological processes. The first leg was large-scale hydrogeological processes PCOM reviewed their previous concerns about scheduling Sedimented Ridges II, specifically the availability of the DCS. There were also concerns about what drilling would do to the hydrothermal system, PCOM discussed whether or not a monitoring effort should accompany this program.

Consensus: SR-Rev2 Sedimented Ridges II would be included in the FY95 Prospectus with the directive that the panels consider the necessity of DCS for accomplishing this program.

OHP

NAAG II

Sager reviewed the scientific objectives of the proposal and the OHP reviews. In October, OHP would hold a meeting to revise the objectives of the NAAG II program based on the NAAG I results. Taylor flagged the potential for this program to require an expensive ice boat.

Consensus: NAAG-DPG II would be included in the FY95 Prospectus.

354-Add Benguela Current

Sager reviewed the scientific objectives of the proposal and the OHP reviews. PCOM agreed that it was not yet ready, but noted proponents were making good progress toward maturity and responding well to the panels.

Consensus: The Benguela Current program would not be included in the FY95 Prospectus.

Coffee Break ..... *10:30 - 10:50 am*

386-Rev2/422-Rev California Current

Sager reviewed the scientific objectives of the proposal and the OHP reviews. Sager brought up the Santa Barbara cores which were very disturbed by gas and asked if this could be a potential problem for this proposal? After discussion, PCOM concluded that the objectives would be for pelagic sediments in deep water and that the depths of sediments and potential targets should not present safety problems.

Consensus: The 386-Rev2/422-Rev California Current program will be included in the FY95 Prospectus. Proponents were to be warned to complete their site survey package in time for the November 1st deadline.

404 NW Atl. Sed. Drifts

Sager reviewed the scientific objectives of the proposal and the OHP reviews.

Consensus: The NW Atl. Sed. Drifts program was not mature and would not be included in the FY95 Prospectus.

427 S. Florida Sea Level

Sager reviewed the scientific objectives of the proposal and the OHP reviews. OHP did not consider it mature and there was also concern about the strong currents and the shallow water depths for drilling in.

Consensus: The S. Florida Sea Level program was not mature and would not be included in the FY95 Prospectus.

SGPP

423 /-Add Gas Hydrates

Berger reviewed the scientific objectives of the proposal and the SGPP reviews. This proposal was solicited as a generic by SGPP. There were some concerns about sites yet to be located pending analysis of data. The safety issue was raised with BSR drilling. Berger also noted that a PCS system was essential to the leg and must exist for the leg. McKenzie stressed that the PCS should be available but it was also important to have a backup program in case the PCS system did not work.

Consensus: 423 /-Add Gas Hydrates would be put in the FY95 Prospectus and should have a safety pre-review at the October PPSP meeting. SGPP should address the issue of the necessity for a PCS and make any recommendations regarding the necessity of this technology for the success of the leg.

391-Rev 2 Mediterranean Sapropels

Berger reviewed the scientific objectives of the proposal and the SGPP reviews. There was concern on PCOM that the proposal was only half a leg and it could/should be combined with other Mediterranean proposals. Berger explained that combining this proposal with others had been tried and the proponents had concluded that they did not want to combine as it would be a compromise. Kidd agreed that, in general, the sites for Ridges and Sapropels were exclusive.

Consensus: 391-Rev 2 Mediterranean Sapropels program would be put in the FY95 Prospectus.

380-Rev 3 VICAP/MAP

Berger reviewed the scientific objectives of the proposal and the SGPP and LITHP reviews. Neither panel ranked the proposal near the top but two panels did think it was worthwhile. PCOM addressed the problem of site survey deficiency identified by SSP by asking the JOIDES Office to include the most recent addendum that had been received after the July 1 deadline.

Consensus: 380-Rev 3 VICAP/MAP would be put in the FY95 Prospectus with the most recent addendum received in the JOIDES Office in August.

400 Costa Rica

Berger reviewed the scientific objectives of the proposal and the SGPP reviews. PCOM debated the question of whether or not a heat-flow study, necessary to complete the SSP requirements, would be completed in time for SSP to evaluate for the December PCOM meeting. It was ranked highly by both SGPP and TECP and was seen as mature except for the recently added requirement for heat flow data to satisfy the SSP requirements for the fluid objectives. PCOM discussed if the lack of site survey data was enough to keep it out of the FY95 Prospectus and concluded that, although the proposal was viable for the structural objectives only, the fluid-flow objectives were not ready because of the lack of site survey data.

Consensus: Costa Rica would not be included in the FY95 Prospectus.

TECP

323-Rev 3 Alboran

Taylor reviewed the scientific objectives of the proposal and the TECP reviews. PCOM agreed that the revised version addressed the safety problems raised last year and would go in the FY95 Prospectus.

Consensus: 323-Rev 3 Alboran Sea would be included in the FY95 Prospectus.

NARM-DPG Non-Volcanic II

Taylor reviewed the scientific objectives of the proposal and the TECP reviews. PCOM discussed the reviews voted that the NARM Non-Volcanic II program should be for a second leg to Iberia, a site on oceanic crust and a deep-site.

Consensus: NARM-DPG Non-Volcanic II (Iberia) would be included in the FY95 Prospectus.

346-Rev 4 Equ. Atl. Transform

Taylor reviewed the scientific objectives of the proposal and the TECP reviews. Fox, PCOM's watchdog, noted that the revised version showed good progress toward relating the way to use the holes to satisfy the scientific objectives—there had been significant improvement of the proposal.

Consensus: 346-Rev 4 E. Equatorial Atlantic Transform would be included in the FY95 Prospectus.

330-Rev/ -Add3 Mediterranean Ridges

Taylor reviewed the scientific objectives of the proposal and the TECP reviews. PCOM noted that the previous inclusion in the *FY93* Prospectus had energized a community to get a lot of work done, particularly on preparing the shallow objectives.

Consensus: 330-Rev/ -Add3 Mediterranean Ridges I (shallow holes) would be included in the FY95 Prospectus.

PCOM concluded by passing the following motion:

Motion - FY95 Prospectus

The following proposals will be included in the FY95 Prospectus. PCOM Watchdogs were assigned as follows:

Proposal		PCOM Watchdog
300-Rev	Return to Site 735B	Mevel
NARM-DPG	NARM Volcanic II (East Greenland)	Suyehiro
SR-Rev2	Sedimented Ridges II	Becker
NAAG-DPG	NAAG II	Sager
(386/422) 386-Add	California Margin	Berger
423 /-Add	Gas Hydrates	Austin
391-Rev 2	Mediterranean Sapropels	Mix
380-Rev 3	VICAP/MAP	Arculus
323-Rev 3	Alboran Sea	Taylor
NARM-DPG	NARM Non-Volcanic II (Iberia)	Mutter
346-Rev 4	E. Equatorial Atlantic Transform	Fox
330-Rev/ -Add3	Mediterranean Ridges I (shallow holes)	Kidd

Natland moved, Austin seconded. Vote: 16 in favor (proxy for Mix).

Lunch Break ..... *12:30 - 1:20 pm*

Item 1008. Budget Planning

1. FY94 Program Plan Budget

Lewis began by reviewing the overall ODP budget situation, particularly a comparison of the current budgets with the LRP budget projections (Appendix 6.0). Lewis explained that one consequence of these budget shortfalls was that ODP was being forced into funding its technology development at the expense of its base budgets. Because of the dramatic budget shortfalls, the LRP was no longer valid for planning purposes, Lewis examined where the shortfalls between the LRP budget ($ 48.3 M) and the FY94 budget ($ 44.9 M) would be (Appendix 6.1).

Lewis then turned to ways to focus ODP over the next several years to take into account the fact that the actual budgets would be well below the planned levels (Appendix 6.2). He explained that the goals of focusing were to get the best science in a cost effective way and to produce results that would sell the program in the future. The following actions (and actors) would be required to achieve these goals: (1) review program costs and options (JOI and PCOM), (2) review science goals and results (thematic panels and PCOM), (3) review technology goals and costs (service panels), (4) production of an output which clearly states the foci and goals (PCOM).

In order to accomplish this program, Lewis recommended that PCOM take the following actions: (1) commit to the computer/data-base upgrades for funding in '94, '95 and '96, (2) request JOI prepare an analysis of subcontractor budgets in terms of effort and potential areas for focusing, (3) request DMP and TEDCOM prepare a list of all operational tools and tools under development together with estimated operational and development costs for presentation to PCOM in December; in addition, they should provide their recommendations on priority for support.

Upgrade of the Computer/Data Base

Lewis reported on the Computer RFP Evaluation Committee meeting on the proposals that had been submitted in response to the RFP. Negotiations were ongoing with two of the three bidders, revised proposals would be submitted ealry in 1994 and, given the budget constraints, it would be necessary to issue and complete the computer upgrade over two years. Lewis wanted PCOM to take up the issue of budgetary commitment for the upgrade. Lewis summarized that IHP had reported to PCOM two years ago that data collection needed to be dealt with. He reviewed the history of how the present situation evolved, the problem that needed to be solved and the solution that was envisioned by PCOM. Both a database structure and improved modules for data acquisition were involved in this development. Dick was concerned about software becoming less user friendly and effective. Lewis explained that the developers had "user groups" to advise them.

Gibson felt that PCOM should be more concerned about the details of how the JOIDES Advisory Structure and the ODP scientists were going to interact with the computer/data base contractor's user groups—there was no voice of PCOM. The user groups would be a situation entirely monitored by TAMU and the contractor. Francis felt that this situation was inevitable because of the required contract structure. PCOM discussed the how the contractor and user groups could interact with the Advisory Structure.

Natland asked how financially committed ODP was at this stage? Francis said that there was no commitment beyond the the $ 50 K studies which had been completed, the several-million dollar commitment was the next step. Taylor asked where the checks and balances in the system were, how was the determination being made on what ODP spent? Pyle said that there were many checks: PCOM, TAMU and JOI were primarily the checks. Lewis added that the RFP Computer Evaluation Committee would do part of this. Taylor was concerned that the checks in the system were far away from potential ODP scientist users.

Berger questioned what the programming philosophy was? He thought that the basic needs were simple and was worried that the task would be overdone and not effective. Francis pointed out that the program spent a lot of money and time looking after core and not as much after data, this RFP was meant to rectify this situation. Fox pointed out that IHP was on record as saying that the data handling was bad and needed to be fixed, PCOM should trust the panel's opinion of the data management situation—ODP needed a better system. Fox suggested that PCOM request that ODP-TAMU look carefully at the expertise that the contractors were assembling in their user groups while negotiating the contract and to ensure that the ODP users would be satisfied. Pyle agreed that it should be impressed upon the bidders that they need to show how they will interface with the ODP community. PCOM agreed that this was a good way for ODP-TAMU to proceed while the negotiations were ongoing.

Lewis asked if PCOM could commit to the computer upgrade now and be comfortable with how it was going or if they preferred to wait and take up the issue again in December when more information would be available on the contract negotiations? Taylor said that PCOM had already committed to database development, now they needed the details of the contract that they would be committing to. PCOM discussed whether or not PCOM wanted to commit to something this complex and expensive without knowing the details and having the reviews from the RFP Review Committee. Natland advocated that DCS was a more critical development to the future of the program and felt that the priority was clear. Pyle disagreed and thought that the panel's advice should be followed. Arculus agreed that the PCOM should get the system right and follow the advice of its panels and the RFP Evaluation Committee.

Kidd wanted PCOM to discuss the issue of the tradeoff between operational expenses and computer upgrade, he thought that in concept this was different from committing to the development of a new data base. If PCOM was going to have to choose between continuing computing and developing DCS, Kidd asserted that operations needed to be put first and that the message to the potential contractors should be

that they needed to be very careful on size and cost of the contract, the bidders needed to be realistic about the budget and the cost—ODP's resources were not unlimited. PCOM discussed the necessity for ODP to have a database to stay state-of the art. **PCOM's consensus was to support ODP-TAMU continuing its negotiations with the bidders for the ODP computer/database upgrade.**

JOI Analysis of Subcontractor Budgets

Pyle objected to parts II and III of Lewis' suggestions for action that requested JOI prepare an analysis of subcontractor budgets for PCOM to review because the cuts that could be made and the savings from each were already known. Pyle did not want PCOM to be a BCOM and did not feel comfortable giving a hit list to PCOM. Austin agreed and pointed out that BCOM's priority was always the Program Plan. In addition, a prioritized equipment list was available and JOI had been instructed to work down the list as funds were available. Pyle wanted PCOM to vote on science and BCOM was there to try to accommodate that.

DMP/TEDCOM Tool Prioritization

Austin agreed that while PCOM should prioritize the large items such as publications, DCS, etc., for tools and equipment the panel's priorities should be set and then revisited only if the funds become a problem. Lewis added that the necessity for a more focused prioritizatation of operational tools at this time was because of: (1) the growing difference between the budgets forecast in the LRP and present funding levels, and (2) the potential for budget shortfalls due to the Can-Aus situation. Therefore, he felt that PCOM needed panel input in order to prioritize operational tools which were outside of PCOM's expertise. After discussion, **PCOM's consensus was to request that DMP and TEDCOM prepare a list of all operational tools as well as a list and estimated cost of tools under development. Results were to be presented at the PCOM Annual Meeting in December for prioritization.**

2. Leg 157 - DCS testing

Lewis reported that Kastens was acquiring data at Vema FZ and asked to table the issue siting the DCS test until December, after the land test, when more information on water depths of the limestone cap would be known. The alternative site at Romanche proposed by Bonatti was taken under advisement. **PCOM would revisit the issue of candidate sites for DCS testing at the PCOM Annual Meeting in December.**

DCS hardware placement prior to Leg 157

Francis estimated that one or two HRGB and drilling casing would be needed for the DCS test and that to install these prior to the leg would require at least a week for one HRGB and drilling casing, if things went really well two might be able to be installed in that time period. A far as personnel was concerned, there would only need to be one extra ODP-TAMU engineer on board to do this installation. Logistically, ODP-TAMU would not be ready to do this until Leg 154, Leg 155 was the only reasonable leg to do this work on.

Taylor wanted to categorically oppose TEDCOM's proposal, the sacrifices of a week from another program were not justified. Austin said that he had brought up the possibility to TEDCOM given the schedule of port calls prior to the test leg. He felt this proposal was justified due to the historically-documented large periods of time it took to prepare to drill at these types of sites. Austin's opinion was that this leg was the last chance for DCS and a lot was depending on it so that a week from another program was justified.

Francis pointed out that pre-setting a HRGB at the Romanche site would reduce the Leg 155 time more than the Vema site. Natland suggested that the results of the Vema investigation be presented to the ODP-TAMU engineers and that they make a final decsion on site locations before PCOM decided if the hardware should be set early. Lewis felt that there were too many unknowns and tabled further discussion until a final site selection was made. **PCOM would revisit the issue of siting a HRB prior to the Leg 157 DCS test at the PCOM Annual Meeting in December.**

3. Leg 158 - TAG

After discussion of the schedule for pre-drilling site monitoring activities and the status of tool development for the TAG leg, **PCOM agreed that it would not move TAG from Leg 158. If DCS land testing was not successful, PCOM would find another program from among the FY95 Prospectus proposals to fill the Leg 157 slot and would keep TAG as Leg 158.**

Coffee Break ..... *3:10 - 3:30*

Item 1009. Core Repository

Lewis reviewed the recent history of the core repository situation at the ECR and EXCOM's recent decision to begin to "definitize procedures" to move the cores now in the ECR at LDEO to Universität Bremen in Germany (Appendix 7).

Sager clarified the most recent IHP recommendations by explaining that they were based on the interpretation of the wording "definitize procedures" in EXCOM's motion. IHP had concluded that the act of moving the cores would happen, despite their earlier recommendations against moving core, so IHP felt it needed to be involved in determining how the cores would be moved. IHP recommended recuration of the cores as the best way to minimize the damage during transit. Recuration was different from stabilization and involved reassembling, packing and then shrink wrapping the cores. Gibson stressed it was important for PCOM to distinguish between packing and recurating when advising ODP-TAMU on how cores should be moved. Francis explained that ODP-TAMU was preparing a procedural plan for moving core but did not yet have a version of the plan available for the panels because it was difficult to create a comprehensive plan for moving 68 km of core due to the various differences of age and condition of core.

Fox thought that it was bad for PCOM to accept EXCOM's decision to move core when every major panel was on record against moving cores. He felt that the decision to move the cores was a bankrupt decision that put the program in jeopardy, it was a decision of desperation that could only be viewed as such and would haunt ODP in a way that everyone would come to regret in the years to come. Fox, as a representative of the earth science community at GSO, wanted to go on record that he found the decision absolutely appalling and he rejected the notion of moving cores. He added that he was all for internationalization and for ODP having a European repository but he did not believe that the cores should be moved. He asked to hear from representatives of other institutions because he felt that EXCOM made the decision in the absence of input from the communities that they represent. If PCOM marched blindly on following a bad decision, it would be making a big mistake.

Sager wanted to go on record as being for internationalization, yet he felt that this issue had struck a nerve in the community; this issue had generated more faxes to him from other scientists than any other. All the panels were on record recommending that ODP not move core and yet EXCOM made that decision to do so—apparently without consulting the panels. He wanted to look at what this program produced—scientific volumes and cores—and the cores were the very heart of this program. He stressed that putting the cores at risk of damage for political reasons was a bad thing to do. He wanted PCOM to discuss ways of compromising on this issue but he could not support moving old cores out of the ECR.

Kidd wanted to know when the decision to actually move cores arose. His understanding was that the discussion was about new cores going to a European repository and not about old cores. From his own experience, a decision was made at the beginning of ODP not to move cores from the west coast to TAMU. He did not accept the panel recommendations about trying to bring all the cores into one location, from his experience having multiple repositories was not a problem. His main point was that he was, as a scientist, against moving cores and he thought that a large part of the community in the UK would feel the same way.

Arculus asked if EXCOM appreciated the extent of potential damage to cores in a move and would EXCOM reconsider their plans if they knew how much damage would ensue? Lewis questioned if PCOM really knew how much damage would occur if the move was done properly?

Von Rad reported that he was in the ECR recently and had found out that many of the cores had not been opened at all, they were still in an undisturbed state and had not been sampled. He thought that those cores would probably not be any problem to ship and that PCOM needed some kind of an estimate of how many cores were really problematic—maybe it would be ten percent—he could not guess. He acknowledged that there were some types of cores, the carbonate cores and hard rock cores for example, that were problems and needed recuration. He suggested that after the recuration some cores might be in better condition after recuration and moving than they were now.

Sager asserted that there were some cores that, no matter what was done, would be damaged, like sands. He agreed with Kidd about asking where the idea of moving all of the old cores came into the

system. It was his impression that the initial discussions were about setting up a new repository in Europe, which seemed like a reasonable idea. Then, all of a sudden, it became all the cores or none of the cores. The precedent was already there for having multiple repositories.

Austin explained that EXCOM's decision was precipitated because a proposal from Lamont with a cost estimate for repository operations on the order of a couple of thousand dollars per year was on the table. Then Bremen came through with a letter proposal that said they would provide a repository for no-cost, potentially saving a couple of thousand dollars per year and internationalizing the program at the same time. Austin saw an opportunity for PCOM to compromise by endorsing internationalization and the opening of a new repository to house the new Atlantic cores in Bremen with LDEO continuing to host the dormant repository with only old cores. Mutter affirmed that LDEO was on record as requesting the same opportunity provided to Bremen to negotiate the costs of repository operations. In Austin's opinion, the cost savings of $ 200 K was not that great in the scheme of the program; however, the internationalization aspects of EXCOM's decision would not go away.

Lewis asked to return to Kidd's question of where the idea came for moving cores. Pyle explained that moving the existing cores to Bremen rather than maintaining them at LDEO was the least-cost alternative, ODP could not have one-third more repositories because it would cost more, so if ODP opened a new repository in Bremen there would be four instead of three. Taylor pointed out that the cost of a new, free repository did not increase overall costs. Pyle argued that it was not clear that this new repository would not have some cost to the program. Lewis agreed that it was EXCOM's interest in the least-cost solution that initiated the idea of moving the cores; the least-cost solution was Bremen's proposal for providing the costs for curating the cores, including manpower, as well as the shipping and recurating of the cores—saving the program approximately $ 200 K/yr by moving the ECR to Bremen. Mutter countered that the ECR did not cost $ 200-300 K/yr, the LDEO operating costs were less than $ 200 K/yr and LDEO wanted the opportunity to renegotiate it.

Austin wanted PCOM to stay with the science and the point was, recuration or not, there was no amount of recuration that would guarantee that the cores would arrive in Bremen undamaged. Berger agreed and asked to read several letters from Scripps geologists on the subject. In a letter, Jerry Winterer related how Scripps fought attempts to move DSDP cores when the project moved to TAMU at the beginning of ODP. Winterer further explained the reasons why they did not want cores moved then and he saw no reason to change this position. Miriam Kastner wrote that she hoped that both EXCOM and PCOM would not support the proposal for moving the split cores from Lamont to Germany, it was inconceivable for EXCOM and PCOM to approve this proposal. James Hawkins recommended that all efforts be expended to stop the plan to move cores from the LDEO repository. William Riedel, former curator of DSDP cores, regarded EXCOM's decision to support the proposed move of the existing cores was incomprehensibly irresponsible. Acting curator, San Filippo wrote that it was not possible to avoid some risk of damage to existing cores if they were moved and recommended against moving them. Berger concluded that PCOM should try to find some compromise on this situation.

Natland reported that at Miami the majority of the community were against moving cores. He was familiar with handling of cores, since he was both a marine technician and a DSDP staff scientist and had helped Bill Nelson and the staff on Leg 45 set up most of the current repository procedure for handling of igneous rocks. To just deal with the igneous rocks from legs 37, 45, 46, 49, 51-53 and 83 in the ECR, Natland estimated that it would take four or five people up to six months. There were probably about twice that many igneous rocks overall in the repository. Natland wanted to suggest a procedure for evaluating the movement of cores. He felt that transfer of any, some or all cores from the ECR to Germany was a scientific matter that should take into account the integrity of the cores and the usefulness of the facility to the community that they served. On precedent, Natland added, the question of moving cores arose at the start of ODP and the decision was made not to move cores to TAMU from Scripps for the sake of the integrity of cores. The relevant JOIDES advisory panel, IHP, had consistently recommended against moving of cores since the matter of an European repository arose. This recommendation was confirmed by consensus of panel chairs in 1992. A minimum condition for transfer of cores was that they be inspected and prepared for shipment to the extent that they were currently prepared for shipment aboard the *JOIDES Resolution*. On shore this would be a time-consuming and expensive project which would divert presently-limited resources from other more urgent requirements. Since the extent of such a project was not yet known, a task force should be assembled to assess the condition of cores at LDEO and to make recommendations on the best method with which to ship cores.

The evaluation should encompass all varieties of core in the repository, taking into consideration the core stratigraphy, physical coherence and the extent to which residence in the repository and sampling have affected them. A report of this task force should provide an estimate of the material, personnel and time that will be required and how this will be accomplished at LDEO with minimum disruption with the ongoing functions of the repository. If shipment of cores can be safely accomplished, then the question of which cores can be shipped needed to be addressed from a scientific perspective. Four models were possible: (1) start the Bremen repository with no new cores, (2) start the Bremen repository with a nucleus of cores that would provide a base with which to build a coherent collection of interest to a geographic or thematic community, (3) ship all ECR cores to Bremen, (4) do not start a new European repository. EXCOM should give due weight to whatever recommendation were made by the panels, that is, that the panel structure should consider and make a recommendation as to what the best course of action was for the future of the repositories.

Francis pointed out that there was a professional staff, employed by the program, already in place to do what Natland described. The staff were already involved in the job of evaluating the condition of cores in preparation for putting together a plan to move them. ODP-TAMU would be producing a plan on preparing and moving cores after they finished their evaluation of them. Since ODP-TAMU was looking at all of the cores it would take time. Natland was not convinced that someone on the curatorial staff was qualified enough to make all of the judgments necessary about moving the cores, he wanted scientific judgment rendered on the matter.

Austin reminded that when ODP employees were used to recurate, the cost saving of a move was being diminished; the need for such a task force could be eliminated by recommending that the cores not be moved. He asserted that ODP was looking at spending a huge amount of money, in either scientists time or paid employees time, to do something ODP did not need to do for the sake of a minimal cost saving.

Lewis asked to hear from other international members. Suyehiro reported that the issue was discussed at the national ODP Japan meeting, there had been no strong opposition to moving core to Bremen if they could be moved properly. As a scientist, Mével agreed that movement, and any potential damage that could result, should be minimized. However, as an international member she was sensitive to the desire to internationalize and favored a compromise that included starting a new core in Bremen. McKenzie reported that ESCO had discussed it in May and there was no enthusiasm for moving core. Her recent, unofficial poll of the geological community confirmed a general reluctance to move old cores. Arculus said that the Australia position was that they did not care where the repositories were, as long as there was access in the same way as existing repositories.; if, in the spirit of internationalization, it needed to be done then it should go ahead—but not if the cores were going to be damaged.

Von Rad wanted PCOM to ask ODP-TAMU to present a detailed report on the procedures to be used for moving cores before PCOM took action. PCOM should then ask the panels to discuss the details of the moving plan. The JOIDES panels had not yet been presented with a detailed plan of moving procedures and many of the opinions being expressed were largely emotional given the lack of detailed information on moving cores.

Kidd thought that people in the UK were in the same position as he was, they did not realize that what was being considered was moving all of the cores from Lamont. His general feeling was that a new repository should be started in Europe but he wanted to see more information on moving cores—such as what it would cost and what could be moved—even though he was generally against moving them. Kidd supported PCOM giving the green light to new core going to Bremen.

Dick reported that Woods Hole focused on the importance of dealing fairly with the foreign partners. There had been several clear-cut EXCOM decisions that favored a foreign partner for the long-term good of the program, those decisions had to be honored. However, the technical aspects of moving cores needed to be documented properly. Woods Hole's opinion was that the EXCOM motion obligated PCOM to go through the technical review of the procedures for moving the cores and getting a cost estimate. Then, with full information in hand, make a decision. While there was support for a European repository, the issue of moving core was not seen as technically resolved. Dick acknowledged that many people at WHOI did not anticipate a favorable outcome of the technical review.

Austin wanted ODP-TAMU, as part of their study, to come back to PCOM not only with procedures for recuration but to include some figures on the probability for disturbance and/or damage. That way PCOM would have the necessary information on making the move/no move decision.

Taylor raised the issue of the interim storage of cores and asked what was happening with the cores from the most recent Atlantic legs? Lewis explained that, after the last EXCOM meeting, he had polled PCOM and PANCH about the interim storage of Legs 149 - 150 cores. There was agreement that the cores were to go to ODP-TAMU and be curated there until a decision was made on the new repository. Lewis asked Pyle to explain why he had reversed this consensus and had unilaterally decided that the Leg 150 cores would be sent to LDEO. Pyle explained that his decision to have cores to go LDEO rather than TAMU was based on discussions with the Leg 150 scientists and their assurances that they would not require a post-cruise sampling party at ODP-TAMU.

Lewis reviewed his recent visit to Bremen to look at the core repository facilities and to talk to the Bremen people about problems associated with moving and recurating cores. He explained that Pyle was also there with a group that had been asked to independently advise and make recommendations to JOI, separate from the JOIDES Advisory Structure. Lewis described the Bremen facilities that he visited and how the Bremen group planned to implement an ODP core repository at their facilities. Von Rad reminded PCOM that Bremen would be paying for the recuration of core prior to moving, not ODP, and he reiterated his opinion that having the Atlantic cores all together in a single repository was a preferable situation.

Fox was frustrated that PCOM could not face the fact that it was not possible to move 68 km of core safely. IHP and every other panel had agreed with that. Therefore, he proposed the following motion:

"PCOM goes on record:

1. endorsing internationalization
2. endorsing the foundation of a European repository in Bremen

and, in light of the inevitable damage that will occur,

3. PCOM recommends existing cores stay where they are."

Fox moved, Austin seconded.

Taylor asked Pyle how it would be determined if the negotiations with Bremen were concluded satisfactorily, as per EXCOM's motion, part three. Pyle explained that ODP-TAMU would prepare the contracts and procedures, JOI would review these and if JOI approved of them, based on review of JOI's independent advisory panel, a program plan change would be submitted to NSF.

PCOM discussed the wording of Fox's motion and which leg should be the first to hav e cores deposited in the new repository given that space was available immediately and a high-quality new space would be available January 1, 1993. Pyle stressed that any change in repositories would require a program change and would take more than a couple of months.

Suyehiro asked for clarification on the evidence for damage during moving. He wanted more specific information to take back to his community on why the damage would be so great that it precluded any movement. At the ODP Japan meeting, geologists familiar with cores had discussed this issue but did not express the strong opposition like that expressed by some on PCOM. He wanted to have more information to take back. Natland and Austin discussed their personal experience with shipping of fragile cores, such as carbonates, for damage in the process of moving. Sager related that IHP had reviewed several case studys about cores damaged during a move.

Austin suggested amending the motion to include the opportunity for PCOM to review the ODP-TAMU plan for moving cores, leaving it clear that PCOM was unlikely to approve of the plan. Francis pointed out that ODP-TAMU had been tasked to definitize procedures to move, not to recurate all the cores. Taylor stressed that IHP had recommended recuration before moving. Francis replied that recuration had big budgetary implications. PCOM agreed and noted that this was the issue, how much was Bremen willing to pay to move the cores properly. Pyle agreed and went on to say that if recuration was necessary and Bremen's budget would not cover it then the cores had to stay at Lamont.

Lewis felt that PCOM should wait for the ODP-TAMU plan and returned to amending the wording of the motion on the floor. Austin explained his suggestion was to include a clause that allowed PCOM to wait for the ODP-TAMU report on moving cores before passing final judgment—even though the report was unlikely to be accepted. Austin stressed that ODP-TAMU needed to consider the costs of recuration

of the cores that required it and this should be reflected in their report. Natland explained in detail why he had concluded that all the igneous cores would have to be recurated prior to moving. Francis assured PCOM that this would be taken into account in ODP-TAMU's study and report.

Mutter wanted to remind PCOM that LDEO had spent hundreds of thousands of dollars to provide the ECR, believing that it would be a permanent facility. He did not feel that, after recent events, LDEO would be willing to spend money on ODP-related facilities in the future.

Austin read the revised motion:

Motion - East Coast Repository

In light of the June 1993 EXCOM decision, re: moving the ECR, and after consultation with relevant constituent geologic communities and extensive discussion, PCOM endorses:

* **internationalization of ODP**
* **establishment of a new European repository at the University of Bremen, when space becomes available and programmatic details are resolved.**

However, given present advice from the JOIDES Advisory Structure, PCOM cannot endorse moving existing cores from LDEO if any chance remains of damage to those cores during transit to Europe. Before making a final recommendation, PCOM awaits the study of technical and financial aspects of moving the existing ECR cores safely, at present being carried out by ODP-TAMU.

Fox moved, Austin seconded. Vote: 13 in favor, 0 opposed, 2 abstentions, 1 absent.

PCOM discussed the wording of the motion. The disposition of cores being produced on current legs was brought up; if the issue had to go back to EXCOM it would be January before any action could be taken. Pyle did not think that the program change for a new repository could be enacted fast enough for Leg 151 to go to Bremen. PCOM agreed that it was not possible to give assurances on when the first new cores would begin to show up in Bremen. The motion was voted on after the discussion.

Taylor suggested adding the following consensus recommending to JOI that the cores, beginning with Leg 151, be deposited the new Bremen repository:

Consensus - East Coast Repository

If an ODP repository is established in Bremen, PCOM recommends to JOI that Atlantic cores, from Leg 151 and following, be sent to this repository.

❖ *End of Day 2* ..... *5:06 pm*

August 12 ..... **9:00 am**

Item 1010. Science Group Liaison Reports

1. FDSN / ION (International Ocean Network)

Suyehiro outlined the organizational structure of the IUGG-IASPEI and history of the establishment of the FDSN and International Ocean Network (ION). He outlined the goals of ION and the global/regional ocean networks (Appendices 8.0 - 8.5). Recent progress in the areas of pilot experiments, sensor development, downhole installation options, characterization of ambient noise, feasibility of continuous record collection and international coordination was reviewed (Appendix 8.6). Suyehiro stressed the importance of international cooperation and coordination in these developments. He then reviewed the priority sites for station locations and their scientific objectives (Appendix 8.7). He concluded by summarizing the three-phase plan for pilot experiments, prototype stations and the ultimate establishment of the International Ocean Network by the year 2000 (Appendix 8.8).

Suyehiro explained the importance of ODP cooperation for achieving the goals of ION and he expressed concern that if ODP waited it could kill the initiatives by not taking action on proposals for

ION experiment within the ODP system. PCOM discussed and debated the necessity for proponents to prove that putting a seismometer in a borehole was better than burying on the seafloor. Austin reiterated that ODP was on record as waiting until the results of these experiments were complete.

Mével was asked about the results of the recent French borehole seismometer experiment. She explained that the experiment had been successful and found that the noise in the hole was greater than in the seafloor. Taylor agreed that experiments to-date had not made it clear that the advantages of a hole for a seismometer was greater than if it was buried on the seafloor—a much cheaper option than a borehole.

Austin wanted to recommend that ION work with ODP to identify holes—specifically cased holes with a reentry cone—that were on the schedule to be drilled and to be flexible enough to use these holes for their experiments. He thought that ODP could work with FDSN/ION but he did not want PCOM to dedicate holes that were not in the scientific plans of ODP. Mutter felt that the ODP was being an inhibitor to ION's progress based on an ambiguous result of a borehole seismometer test. Suyehiro agreed that PCOM was inhibiting progress on this issue. PCOM debated the use of ODP ship time for drilling holes for installing borehole seismometers. Taylor wanted tests to be done in existing holes before ODP committed to drilling new holes.

Kidd brought up whether or not PCOM itself should review a proposal like Suyehiro's 431 Western Pacific Seismic Network. He felt that if PCOM reviewed it they must read it and investigate it; he was worried that the PCOM's expertise to review this type of proposal was inadequate. Mutter explained that LITHP had only asked PCOM for guidance on how to review Suyehiro's proposal within the context of the larger issue of ODP-FDSN/ION cooperation, LITHP could review the scientific merit of the proposal.

Taylor said that PCOM's position was that until there was proof that a cased reentry hole was better than the ocean bottom for seismometers, ODP would not drill more holes. He acknowledged that such proof would only come from doing the downhole experiments necessary to demonstrate this but the drill ship was not needed to do these tests—there were holes already in existence. Suyehiro disagreed and wanted ODP involved in the process by drilling new holes so that ION could do experiments. Austin asked him why the hole off Oahu, drilled for the FDSN international program to do these type of experiments, was not being used by the international community to conduct tests. Suyehiro said that it was because Japan wanted to do experiments in Japan and not in Hawaii.

After the coffee break Berger presented and PCOM adopted the following consensus statement: **Realizing the new possibilities for exploring deep mantle processes, PCOM encourages the international seismological community to advise ODP on their progress and how deep ocean drilling can play a role in furthering its aims.**

2. MARGINS

Mutter reported that over the past three years MARGINS was developing a science plan aimed at studying fundamental processes involved in the formation of continental margins (Appendix 9). He reviewed the MARGINS objectives and the strategies that were planned to achieve them. The objectives were thematically driven, like ODP, and included (1) lithospheric deformation processes, (2) magmatism and mass fluxes, (3) sedimentation and the stratigraphic record. Workshops had been held on the first two objectives and a workshop on the third was scheduled of the fall of 1993. MARGINS hoped to formulate a single science plan by the end of the year, the intent was to develop an interdisciplinary program of which drilling would be a component. Mutter suggested that by the end of the year JOIDES panels and MARGINS representatives could interact to incorporate statements about MARGINS into the revised White Papers. He thought that ODP would see proposals submitted from MARGINS.

3. RIDGE

Fox reviewed the upcoming RIDGE scientific activities on the EPR and Juan de Fuca Ridge. The US and French MAR program was maturing. As a result of ODP scheduling the TAG leg, preparations were underway for implementing the monitoring program at the TAG site. Fox noted several upcoming InterRidge workshops. The German RIDGE group activities were described by von Rad. Mével added that France was starting to prepare a RIDGE group.

Item 1011. Long-Range Planning

1. White Papers

Lewis reviewed the outline of the document that he wanted to see PCOM produce as a result of the exercise of focusing the program through White Paper revision. The document would contain: executive summary, introduction, thematic accomplishments of ODP drilling up to 1993, thematic foci for 1993-1998, technology objectives 1993-1998, science objectives post-1998, platform options post 1998, thematic panel White Papers. In addition, Lewis proposed the ODP produce several videos on drilling methods, core analysis methods, logging, core-log integration, and thematic objectives.

Lewis wanted PCOM to formulate a set of instructions to the thematic panels concerning their White Paper revision for the fall panel meetings. Dick was skeptical that the program could be renewed on White Papers alone, he wanted to add a historical document to the package PCOM put together that made the case for the importance of the drill ship to the marine geologic community. He wanted to see PCOM use focused initiatives as a vehicle to focus future work and produce results volumes that were of high visibility. Austin suggested that ODP enlist help from professional science writers as salespeople, but noted that PCOM should first identify who they would be writing their document for.

Malfait thought that for 1998 renewal it would be the rest of the earth science community that ODP needed to be sold to. MOUs were committed to 2003, with options in 1998, so funding agencies were already committed. Beyond 1998, he thought that the sell would be to funding agencies, both in the US and in partner countries. Lewis agreed that it was ODP's earth science peers that needed to be informed short-term and government/public agencies in the long-term. Mével cautioned that any document or promotional literature needed to be individualized by country when it went to the political level. PCOM discussed how to implement a sales program for ODP and what mixture of politics and science were needed.

Coffee Break ..... *10:30 - 10:50 am*

LITHP

Mével reviewed the LITHP White Paper and the procedure LITHP had planned for revising the document (Appendix 10.0). She outlined the scientific problems that LITHP addressed in its revision (Appendix 10.1) and explained how LITHP planned to use drilling to achieve the scientific goals (Appendix 10.2). Funding for the White Paper workshop was declined by USSAC, an e-mail forum was being planned instead to solicit input from the community on the revision.

Overall, Mével had concluded that the LITHP revision was not focused enough and had several problems (Appendix 10.3). Specifically there was no overall plan or strategy, no prioritization of 1993-98 and 1998-2003 goals, no evaluation of the number of legs necessary to achieve their goals, the technological development necessary for achieving their goals was not clearly stated, the problem of multiple platforms was not addressed and no determination was made of whether or not their goals were attainable with the present platform. Lewis pointed out that LITHP had not produced a synthesis or summary of the significant results to-date on LITHP objectives.

Natland thought that LITHP was setting out a large drilling program that required more time and technological development to do than was realistically possible—their projections were way off. Mével thought that LITHP would agree but that they did not feel they could make those prioritizations and that was one purpose of the workshop that they had planned, they were seeking community input for this. Dick asserted that the proposal-driven process was a fundamentally flawed approach for ODP that would always be influenced by the interests of the panel as it happened to be made up at any given time. He thought that prioritization should be through the initiatives that develop in the community.

PCOM discussed the issue of whether or not the panels should define their long-term platform requirements. PCOM concluded that the panels needed to define what their operational parameters would be and, in turn, PCOM would have to determine what platforms would be necessary to accomplish them. Natland stressed that the number of legs LITHP described was completely unrealistic and that they still needed to give a list of what they could do with the number of legs that were likely to

be available. There was agreement that panels needed to realistically consider both their long- and short-term operational goals.

SGPP

McKenzie reviewed the evolution of SGPP from SOHP and explained that the SGPP White Paper was written to include the themes left over from the SOHP panel when OHP was taken out (Appendix 11.0). She stressed that technological development was critical to SGPP for achieving their thematic goals. Specifically, in situ pore fluid sampling of hard rocks was an example of a technology development problem that SGPP was interested in but had not yet been achieved. McKenzie outlined the accomplishments that had been made in the areas of sea level, sediments, fluids—particularly gas hydrates, metallogenesis and *paleocean chemistry.*

McKenzie put up a preliminary attempt, not yet reviewed by the panel, to focus the SGPP goals (Appendix 11.1). SGPP had not begun to update their White Paper but she did not see that rewriting White Papers would accomplish much unless SGPP changed its focus. She proposed that sea level—specifically the record of eustatic control—and paleocean chemistry— a total systems approach to the global carbon, CO_2 etc. budgets—were the two areas for SGPP to focus on. Sager asked if there was overlap between OHP and SGPP on issues of sea level and carbon cycle. McKenzie noted that OHP saw sea level only as O_{18} cycles and SGPP saw it in relation to the depositional systems; carbon was similar in that the scope of SGPP's objectives were different than OHP's. *Berger recommended that SGPP use a three-pronged, rather than a two-pronged, approach in focusing their thematic objectives, e.g. sea level, fluids and paleocean chemistry.*

TECP

Taylor reviewed the TECP outline for their revised White Paper, the revision was currently underway. Taylor was concerned that TECP was heading toward a more segmented thematic approach and not toward more unifying or focused themes. Progress had been made by TECP in the areas of accretionary prisms, intra-oceanic targets and intraplate deformation, rifted margins, and hot spots. Transforms have not really been touched yet but proposals were in the system.

Taylor saw problems similar to those of LITHP, he thought that the current revision would not be more focused and would not serve well for renewal. However, Taylor concluded that TECP was doing what they had been tasked to do, they had been asked to revise their White Paper—this was their plan. Unfortunately, Taylor thought that it would not be what PCOM wanted and suggested that TECP should make it more process-oriented, to pursue investigations of deformation processes regardless of tectonic environment.

Kidd thought that PCOM needed to know what TECP's goals were going to be until 1998 and that PCOM needed to have that kind of information in the White Paper. Taylor agreed and pointed out that it was not problems that TECP lacked but a strategy, and he acknowledged that, at present, many of the TECP problems could not be solved with the *JOIDES Resolution* drillship. TECP would need deep-drilling to achieve some of their objectives, this would probably be in a post-98 time frame. Still, Taylor asserted that there were more than enough achievable objectives to fill the time available in the short term so that the question really was: does ODP focus its objectives or does it let the proposals focus it? Austin thought that since PCOM had not fundamentally changed the way it thought about the program, it would continue to package legs as always. If PCOM wanted this to change it would need to commit to operating in new or novel ways—such as pursuing a problem until it was solved, i.e., deep holes.

OHP

Sager reviewed the OHP White Paper and a summary prepared by Mix of what the revision, currently underway, would encompass (Appendix 12). The primary thematic objectives were: (1) high-resolution oceanographic studies, (2) paleoceanographic studies, (3) upwelling systems and paleoproductivity, and (4) sea-level history. In Sager's opinion there were a lot of objectives and not much focus in the revision plan. Natland asked what was new and different from the SOHP White Paper and questioned if revision was necessary? Sager pointed out some new initiatives, particularly the ultra-high resolution studies.

Natland advocated that OHP produce a more integrated strategy on the global scale. PCOM discussed updating of the global matrix plan prepared ten years ago. Kidd noted the success of the OHP program but wanted to know what they thought they still needed to do, what were their long-range goals—beyond 5 years? Arculus wanted to see a discussion of how the Neogene was tied to the present

and a synthesis of the Neogene results. If OHP was now going to be moving toward Paleogene studies, he suggested that the message that this will be an initiative be sent to Paleogene people since the constituencies—Neogene and Paleogene—were different.

Lewis concluded the discussion by advocating that it may not be productive to ask the panels to just go ahead with their wish lists but rather, PCOM should ask them to : (1) summarize their principle results and accomplishment relative to the major thematic questions, (2) prioritize their principle goals in general, in both a five year and a ten year frame—these should be tied to technologies that will realistically be available.

Lunch Break ..... *12:30 - 1:30 pm*

Natland began the discussion by presenting the following motion for PCOM's consideration:

Motion - ODP Thematic Panel White Paper Revisions
After review of the process of White Paper revisions, PCOM requests that thematic panels, at their next meetings:

1. **concentrate on sections identifying succinctly major results to-date and how they relate to stated thematic objectives**
2. **prioritize major themes for drilling utilizing realistic time estimates in the two periods FY1995-1998 and FY1999-2003**
3. **address the technology required to accomplish these scientific programs, including the requirements for platforms after 1998.**

Concerns specific to each White Paper will be conveyed to the panels by PCOM liaisons.

Natland moved, Arculus seconded. Vote: 15 in favor, 0 abstentions, 0 against, 1 absent.

Fox noted that thematic panels needed to be made aware that 1995 was a critical year in the program and that PCOM should urge the panels to try to identify critical thematic issues that could be addressed in this FY1995-1998 timeframe—deep-drilling for example. Keeping all this in mind, he thought that the panels needed to identify deep-hole priorities and suggest appropriate programs to be used to take the DCS leg slot if it became necessary due to failed land testing.

Lewis urged PCOM liaisons to the thematic panels to communicate the sense of PCOM's discussions on the White Paper revision to their panels. PCOM agreed that the White Paper subcommittee should be prepared to report back to PCOM in December, after the fall thematic panel meetings, with their thoughts on the future development of the White Papers.

2. Platforms

Lewis presented a subcommittee report on platform options for post-1998 and recommendations for future actions (Appendix 13.0). The subcommittee had concluded that an international scientific drilling program, in the period post-1998, would have as objectives: (a) earth's climate history, (b) sea-level, (c) subduction tectonics, (d) fluid flow, (e) rifting processes, (f) igneous rocks and (g) processes of formation and deformation of oceanic crust. These scientific goals would dictate that the platform, or platforms, for drilling be capable of coring soft sediments, long thicknesses of consolidated sediments (several km with variable lithology) and fractured igneous rocks. Lewis asserted that this could be accomplished with either two or three separate drilling platforms or with a single general-purpose ship

Lewis reported that the subcommittee was considering two scenarios: (1) that the overall level of ODP funding would not increase and operations on a single all-purpose ship was inevitable, or (2) that additional resources would become available in the form of a newly-built Japanese ship offered for operations within the JOIDES structure. In the second case. The subcommittee recommended to PCOM that the next step was to ask the subcommittee to define specific questions for the JOIDES panels to address and to present these question at the December meeting to be ratified by PCOM. In addition, the subcommittee should investigate the capabilities of existing drill ships and proposed new drill ships,with ODP-TAMU and other potential ship offerers.

Lewis concluded by saying that PCOM lacked the information to constrain what the options were in the area of platforms and, if PCOM agreed, the subcommittee would continue to pursue this. Austin

agreed and stressed that PCOM still had not gotten the answer on what the *JOIDES Resolution* could do, specifically in the area of deep drilling, and his opinion was that PCOM needed to have the will to commit to a deep hole to find out. Dick countered that 504B proved deep drilling was possible. PCOM discussed the history of deep drilling efforts. Kidd thought that the point was that PCOM needed get involved with the discussion with the Japanese to know what the planns for their ship were. Suyehiro brought up the upcoming STA/JAMSTEC workshop and noted that the PCOM Chair, panel chairs and EXCOM would be involved in planning and participating in the workshop. If PCOM wanted more representation at the workshop, he would take that message back to Japan. He explained that STA/JAMSTEC would change the design of the ship based on international input from workshops and meetings.

PCOM discussed the differences in the philosophy of operating a multiple platforms as opposed to a single platform with the occasional usage of an additional drilling platform. Dick advocated that riser drilling and a multi-platform program would be what ODP would want in 2003, ODP needed to grow or the program would die. Austin thought that the program needed two platforms, one for long-term drilling of deep holes and one for drilling shallow holes and PCOM should be open to any scenario that would accomplish this. Taylor added that the issue also included the necessity for multiple laboratories or at least a modular lab staff because this was one of the critical components of the science operations. **PCOM's consensus was that it endorsed the subcommittee's continued investigation of platforms for to be used post-1998.**

Item 1012. ASRC Report

1. PCOM Subcommittee Recommendations

ASRC Proposals 1, 2, 3, 6, 9, and 11

Lewis reported that PCOM's ASRC Subcommittee recommended that the PCOM implement proposals: 1, 2, 3, 6, 9, and 11 of the ASRC Report. Lewis explained that the subcommittee had prepared responses or alternatives that needed to be approved by PCOM as a motion that would be sent back to EXCOM. After discussion PCOM passed the following motion:

Motion - ASRC Report Recommendations 1, 2, 3, 6, 9, 11
PCOM endorses the proposals numbered 1, 2, 3, 6, 9 and 11 in the ASRC Report and recommends that EXCOM adopt these proposals

Kidd moved, Dick seconded. Vote: 15 in favor, 1 absent.

Coffee Break ..... *3:10 - 3:30*

ASRC Proposal 4: Handling of JOIDES Proposals

Taylor explained that Proposal 4 was a complex proposal aimed primarily at (i) improving JOIDES panels reviews of proposals and the feedback to proponents, (ii) focusing the communities efforts towards (re)writing proposals on known operational areas that therefore needed to be specified earlier, (iii) bringing advice from JOIDES service panels into the planning process at an earlier stage. He reviewed the specific ideas in the ASRC Proposal 4 and presented what he thought should be PCOM's responses.

4a) Institute more rigorous criteria for proposal review, including evaluation of scientific merit/interest, thematic relevance, and scientific feasibility, by thematic panels, of site survey maturity by SSP, and of technical feasibility by TEDCOM/DMP.

Response: The key new ingredient in this list is feasibility, both scientific and technical. The details of proposed sites and whether or not they will accomplish the objectives of the proposal need greater scrutiny by panels prior to final PCOM review. PCOM refers this matter to the PANCH meeting for comment and will institute revised guidelines for proposal review at its December 1993 meeting.

4b) Encourage submission of extended abstracts of proposals in order that scientists not waste time writing proposals that are unlikely to be drilled.

Response: Provision for this exists in the present system, in the form of "letter proposals." However extended abstracts will not provide enough information to make, as proposed, the first cut on the 3rd and 4th year of the operational plan. PCOM encourages all panels to be frank in their reviews, particularly if it is unlikely that a proposal will ever get drilled.

4c) Involve TAMU/TEDCOM, SSP, DMP and PPSP in earlier stages of the proposal review process in order to catch potential problems.

Response: SSP already reviewed proposals immediately after they were placed high on the list of global rankings. Pre-reviews by PPSP have been instituted to address this issue. TAMU, DMP and LDEO have opportunities at all stages of the review process to flag logistical and technical concerns. Last December they were specifically charged to provide drilling and logging time estimates for the prospectus proposals prior to the fall meetings of the thematic panels. The role of TEDCOM is the subject of another ASRC proposal.

4d) Use a DPG, meeting in the fall, to prepare for the December PCOM meeting several options of detailed operational plans for the next fiscal year. This would require all thematic panels to meet in July in order for each one to forward three proposals to the August PCOM meeting, from which PCOM would choose six proposals plus three reserves for DPG consideration, as well as constitute the DPG.

Response: The meeting schedule constraints of this proposal are too tight (for example, it would not allow SSP evaluation of revised proposals prior to thematic panel ranking) and a DPG is not necessary. A similar result could be achieved by having a subset of the annual meeting participants, including thematic, SSP, PPSP, and DMP, panel chairs together with a representative from TAMU & LDEO, meet immediately prior to the annual meeting to prepare operational options for PCOM's consideration.

Taylor advocated that this subcommittee meeting mechanism was a better way to pre-review the proposals for the annual meeting that would not disrupt the annual planning cycles and still allow the necessary technical information to be assembled prior to PCOM's meeting. PCOM concluded that the this operational options subcommittee was a good idea to try as an experiment.

Taylor explained that he intended that, in all cases, the response be conservative—for example, PCOM's view that responsible programming of such large expenditures required long lead times to prepare the best plans. He conceded that these responses minimized risk but also reduced the excitement factor as well as the possibility for rapid response to sudden opportunities or new ideas. Program renewal in 1998 would depend partly on the long-term success of the program as well as on the short-term successes during the review period—principally 1996 and early 1997. He suggested that in preparation for renewal in 1998, PCOM needed to plan for 1996/7 by identifying the most exciting legs possible with the presently available technology. The ASRC had concluded that this required giving more specific geographic direction to the drill ship rather than "north Atlantic and adjacent seas" and Taylor thought that this was one of the motiviating factors behind Proposal 4.

After discussion, PCOM concluded that the intent of ASRC Proposal 4 would be best served by the modification to the existing system outlined by Taylor in combination with a focusing effort in 1994 that would plan for a high-profile drilling program. Taylor presented, and PCOM passed, the following motion:

Motion - ASRC Proposal 4

PCOM considers that the intent of ASRC Proposal 4 may be met best by modifying the existing system, rather than replacing it.

PCOM refers the issue of more rigorous proposal review to thematic panels and PANCH for comment. PCOM will consider revised guidelines for proposal review at its December 1993 Meeting.

PCOM encourages all panels to be frank in their reviews, particularly if it is unlikely that a proposal will ever get drilled.

To prepare operational options for consideration at PCOM's annual (Dec) meeting, PCOM

Chair will convene a one-day meeting of thematic-panel, SSP, PPSP and DMP chairs together with one representative each from TAMU & LDEO.

Taylor moved, Sager seconded. Vote: 15 for, 1 absent.

ASRC Proposal 5:

Kidd explained the intent of ASRC Proposal 5 was to institute new procedures for SSP and PPSP that would solve what the ASRC perceived as a problem—that proponents were having problems knowing the appropriate site surveys necessary to support their drilling proposals, obtaining help to acquire site surveys and getting consistent information on the limitations of ODP in respect of safety issues. Kidd reminded PCOM that many of the problems brought forward by the ASRC had been the subject of discussion between the SSP, PPSP and PCOM over the past few years and had already been addressed—partly because the Leg 150 experience had highlighted problems within the system. Kidd reiterated that new procedures were now in place to identify proposals with potential safety issues earlier.

Kidd stressed that SSP could not be reduced in size to a "SSG" and still provide the service that it did to proponents and PCOM. SSP's size and international membership played a major role in promoting cooperation in augmenting data packages. Kidd thought that SSP could be represented in an end-of-year "aDPG" by appropriate watchdogs, if PCOM saw this as necessary. However, SSP would probably still find it necessary to hold three meetings rather than one per year as proposed by ASRC—one proposal review meeting, held in a non-US country, and two data review meetings held at the ODP Data Bank after data submission deadlines.

Kidd explained that both SSP and PPSP continually update their guidelines for both data packages and safety information required from proponents—approval had always been requested from PCOM for any changes. Kidd thought that PCOM might want to appoint a subcommittee to advise PCOM on questions of whether or not the lack of a certain type of data should preclude drilling of a particular objective and to suggest potential safety pre-review candidates. After discussion, Kidd presented, and PCOM passed, the following motion:

Motion - ASRC Proposal 5

PCOM accepts the ASRC's assertions on the important roles of SSP and PPSP in the assessment and augmentation of proposals for drilling but does not accept the Review Panel's recommendations for changes to the operations of the Panels.

New procedures to cope with early identification of highly-ranked proposals with possible safety issues have been approved by PCOM and are now in place between the two Panels.

PCOM sees major disadvantages in reducing either the size or frequency of meetings for SSP and believes it important that the task of helping proponents augment their survey packages remain with SSP "watchdog" specialists, rather than pass this role to JOIDES Office staff.

Kidd moved, Taylor seconded. Vote: 14 in favor, 1 abstention, 1 absent.

Proposal 7. Selection of JOIDES Office

After reviewing the ASRC Proposal 7, Lewis presented the following motion:

> PCOM does not view an RFP as the appropriate mechanism for choosing the PCOM chair and therefore the location for the JOIDES office. The office should continue to rotate between the US and a non-US partner. The procedure for selecting the institution that provides the PCOM chair and runs the JOIDES office should be determined by the [partner] hosting the office. It is anticipated that the costs of supporting the office from co-mingled funds should not vary greatly from country to country. The PCOM Chair elect should attend PCOM meetings for at least one year prior to assuming office.

PCOM discussed the necessity of setting up the rotation of the JOIDES Office, the history of the recent RFP process was also discussed. The implications of allowing a non-JOI institution to host the JOIDES Office in the US was debated. Dick and Austin did not favor the rotation and wanted a bidding process for the office, particularly among US institutions, if not open to any US institution then at least between the JOI institutions. There was agreement that the US JOIDES members did not want to have a fixed

rotation and there should be some type of competition. The issue of JOI selecting the PCOM members for the international partners by bids was brought up. Arculus felt that JOIDES should ask countries to sort this out ahead of time. There was support for the RFP process in the international selection process given the constraint that each country can only submit one bid.

After discussion, Lewis withdrew the first motion and substituted the following motion that was passed by PCOM:

Motion - ASRC Proposal 7

Continue the RFP process every two years, alternating between the US and a non-US partner. Each non-US partner may submit only one bid to JOI Inc. for consideration. To gain experience, the PCOM-chair-elect should attend PCOM for a period of at least one year prior to his/her tenure.

Dick moved, Fox seconded. Vote: 15 in favor, 1 absent.

Proposal 8. Operation of PCOM

Von Rad summarized the ASRC Proposal 8 and presented the following motion with his recommendations regarding each part of the proposal:

1) In addition to short- and intermediate-term planning PCOM will spend more time for the long-range planning beyond 1998. It will focus on reachable objectives of high importance and set priorities of the technologies needed to reach these objectives.

2) PCOM will continue forming small subcommittees for specific tasks as appropriate to prepare actions between and during PCOM meetings. These subcommittees should work mainly by telecommunication or directly before PCOM meetings.

3) PCOM can only play its leading role in science planning for the project, if its members are directly informed about the work in the JOIDES panels. It should therefore continue sending liaison members to all panels and appointing watchdogs for high-priority drilling or technological programs. This will ensure that PCOM members are well prepared to give critical, unbiased advice regarding the key drilling and technological programs. Watchdogs should play a proactive role including contacting the proponents of their appointed programs.

4) PCOM does not recommend that the chairpersons of the thematic panels should participate in all PCOM meetings. Their presence and presentations are needed during the Annual PCOM meetings, but this advice should be accompanied by the views of the PCOM watchdogs assigned to specific projects. PCOM members or panel chairpersons with conflict of interest should not be allowed to present their drilling programs to PCOM.

Natland interpreted the ASRC Proposal 8 as an attempt by the to establish PCOM's commitment, not specifically to circumnavigation, but to long-term and multi-leg programs; he wanted the motion to reflect that. Arculus agreed but noted that PCOM was on the record as asking proponents to feel free to submit proposals for any portion of the globe. Natland wanted PCOM to send statements by committing up-front to initiatives, not in reaction to proposals. Lewis disagreed and felt ODP was proposal-driven. Austin pointed out that there were already initiatives on PCOM's plate. Natland wanted PCOM to send the message about where the ship would be in a given timeframe. Dick agreed and suggested PCOM also tie this type of planning to specific initiatives creating a longer timeframe for planning and helping proponents put together better drilling programs to achieve important objectives. PCOM discussed the wording of the motion and how best to answer the ASRC's criticisms of PCOM's long-term planning efforts.

After considerable discussion and debate, von Rad and Berger agreed to rewrite the motion and presented the following revision for ASRC Proposal 8 on the following day (August 13):

Motion - ASRC Proposal 8

1. PCOM appreciates the comments of ASRC regarding the balance between long-range planning versus operational details. PCOM notes that long-range goals are defined by thematic White Papers and that actual legs ultimately stem from proposals from the scientific community. PCOM shall take strong interest in helping thematic panels in

producing White Papers for 1995- 1998 and 1998 - 2003. PCOM takes the point that global problems require global drilling, and that the pursuit of global goals may not emerge automatically from proposal-driven programs.

2. **PCOM agrees that information conveyed by liaisons and watchdogs may be less comprehensive than that received through panel chairs. PCOM recommends, therefore, that panel chairs routinely present proposals for scheduling at the annual PCOM meetings and answer questions regarding scientific and technical details, assisted by PCOM watchdogs. The liaisons and watchdogs should play a more proactive role, including contacting proponents of relevant projects. As in the past, PCOM members and panel chairs who are proponents cannot present their drilling program to PCOM.**

von Rad moved, Berger seconded. Vote: 15 in favor, 1 absent.

❖ *End of Day 3* ..... *4:30 pm*

August 13 ..... **9:00 am**

ASRC Proposal 10. TEDCOM

Austin reviewed ASRC Proposal 10 and presented the following motion:

Motion - ASRC Proposal 10

PCOM acknowledges and applauds the continuing and growing role of TEDCOM in helping the JOIDES Advisory Structure evaluate major engineering development programs like DCS and retractable-bit technologies.

In reference to ASRC's proposal 10 and in recognition of the continuing importance of such engineering development to both the present and future of ODP, PCOM recommends to EXCOM the following:

* **that an external group designated to review the role of engineering development within ODP is not necessary at this time,**

* **that TEDCOM be augmented as follows:**

  – **by selection of new panel members from the academic ranks of engineering, to ensure that TEDCOM can give ODP the time required for effective input to ODP-TAMU and JOIDES on new and ongoing engineering development projects. These members should be nominated by PCOM in consultation with the existing members of TEDCOM and the ODP-TAMU engineering staff. However, PCOM does not advise that TEDCOM become much larger than its current complement of 16 members.**

  – **by appointment of the next Chair following a search among ODP partner nations for a slate of willing nominees representing the highest standards of engineering. The successful candidate should ideally have both academic and industrial background, but above all have both the dedication and the time to devote to ODP.**

Austin moved, Natland seconded. Vote: 14 in favor, 1 abstention, 1 absent.

The first bullet in the motion concerned the first part of the ASRC Proposal 10, Austin recommended against the ASRC's recommended external review of engineering, he thought that the collective energy of ODP was drained by these reviews. Bullet two incorporated Austin's recommendation concerning parts two and three of the ASRC proposal—an attempt by ASRC to create a more proactive TEDCOM in Austin's opinion. To accomplish what the ASRC wanted would require restructuring of TEDCOM and this was Austin's main thrust in his motion. He explained that part three of the ASRC proposal was already being done.

Austin stressed that academic scientists and engineers should be incorporated into TEDCOM because industry people were limited in the time they could give to ODP. In addition, Austin recommended appointing a new Chair, preferably someone with both industry and academic experience as well as the time and dedication to do this. Francis agreed with Austin on the issue of having industry people on the committee; first, they did not have the time, second they did not derive the professional benefits from

being on the committee that academic people did. He added that PCOM must also consider the way this committee operated, a large group may not be most effective structure. In addition, he strongly suggested that TEDCOM always meet in College Station and that it meet less often, maybe once a year; small subcommittees could meet with engineers at TAMU more frequently. Austin agreed that restructuring TEDCOM would be the first step toward achieving the ASRC goals.

Francis explained that ODP-TAMU was in favor of an external independent review, the PEC's had not historically conducted an effective engineering review. Malfait agreed that the ASRC's recommendation for an independent review might help for PCOM's long-term planning efforts. He suggested it might be productive for PCOM to consider changing the structure of engineering development within ODP, maybe engineering should be developed separately from operations.

Kidd thought that PCOM wanted TEDCOM to do what DMP had done, but he noted that a lot of those accomplishments were personality-driven. Mutter didn't like the analogy with DMP because engineering development limited the science that could be done while downhole measurements augmented the science. Francis agreed that DMP was monitoring existing technology and TEDCOM *advised on the* development of new technology. PCOM agreed that this motion would not hurt the situation but that there could also be a necessity to have a more fundamental change in the way engineering was incorporated in the program. After discussion, the vote on the motion was taken.

Proposal 12. JOIDES Office

Lewis reviewed each item of the ASRC Proposal 12, indicating what was being done about each and if it was appropriate to include the new suggestions in PCOM's response. PCOM discussed if all US meetings should be at ODP-TAMU, noting that the SSP meeding was required to be at LDEO. Francis thought that it was a good idea because if facilitated communications. PCOM agreed on a recommendation that each biennium panels meet at ODP-TAMU with monitoring of this left to the discretion of the PCOM Chair. Lewis pointed to the addition of an additional staff member to the JOIDES Office as the major item with budgetary impact for the program.

Lewis presented the following motion for discussion:

Motion - ASRC Proposal 12

PCOM will encourage panels and committees to delegate more work to members, subcommittees and Ad hoc bodies as appropriate.

PCOM recommends that no additional responsibilities be placed on the JOIDES Office without a suitable increase in resources. PCOM notes that the JOIDES Office has instituted or will be instituting a number of the suggestions of the ASRC such as, continuing development of proposal guidelines, providing a compendium of active proposal abstracts to all JOIDES Panel Members and the maintenance of a data base of proposals including proposal status, rating, and reviews.

To ensure that proposals falling outside Thematic Panel mandate receive due consideration, the JOIDES Office will flag proposals for possible review by PCOM.

Lewis moved, Taylor seconded. Vote: 15 in favor, 1 absent.

PCOM discussed how the proposals were handled, particularly what was proprietary. Dick pointed out that the ASRC Proposal 12 specifically recommended that all proposals become public, yet ODP did not do this now and he did not want it to see that policy changed. PCOM agreed to keep the current policy regarding the proprietary nature of ODP proposals in place.

Berger brought up the fact that the ASRC did not review the IHP even though it had been in their mandate to do so. Sager thought that there was a problem of information flow between IHP and PCOM; in general service panels wanted their issues/recommendations taken up in a more timely manner. PCOM discussed what the service panels and PCOM needed to do to improve the implementation of service panel requests and recommendations given that ODP-TAMU could not react directly to the recommendations of each panel without some direction from PCOM. **After discussion, PCOM concluded that it would utilize a subcommittee of service panel liaisons, through e-mail, to better handle the recommendations of the service panels.**

Item 1013. Old Business

1. Shallow Water Drilling Working Group Report

Francis reviewed the conclusions to-date of the SWDWG and the present status of the WG report (Appendix 14). A draft of the report would be reviewed at the October PPSP meeting and the final report would be presented to PCOM in December by Mahlon Ball.

2. IHP Data Management Recommendations

Lewis reported that the Computer RFP Evaluation Committee met in July to discuss interim data capture/handling, distribution of data on CD-ROM, and the ODP-TAMU/-LDEO efforts relating to core-log integration. Lewis reviewed the activities of the ODP-TAMU information services group regarding interim data capture, including what the present data archiving system was and what the new system would look like when it came on-line (Appendix 15.1). The priority of the data capture operations were outlined, these were based on IHP's and SMP's priorities.

Dick asked that PCOM request that HRVI and HRTHIN be terminated; he asserted that, in this case, the shipboard users were not getting through to the Advisory Structure and the message to remove these programs was not getting to ODP-TAMU. PCOM disagreed and noted that this issue had been brought up before, Fox—SMP liaison—had already agreed to take this issue back to SMP. Arculus pointed out that there were users who did not want this system disposed of and that among these users there was agreement that HRVI and HRTHIN should not be removed until a replacement had been developed.

CD-ROMs

On the use of CD-ROMs, the committee had concluded that the interim plan should be that processed logging data and specific core data be put on CD-ROMs and included with each *Initial Report* volume (Appendix 15.2). The future would be to work toward making the data base system available over Internet.

Taylor wanted to know if raw data would be archived as well as processed data, specifically he wanted to know if the raw data could be reprocessed? Goldberg answered that the raw data was stored on DAT tapes, it would not go on the CD-ROMs. Sager brought up that IHP had mandated that other types of data go on the CD-ROM, he wanted to know if these would be incorporated? Lewis said that if it was primary data it would go on, not processed core data. Goldberg clarified that SMP was going to prioritize data for the space available on a CD-ROM.

CLI

The committee had discussed core-log integration with a goal of better defining the product desired from CLI, the data required for CLI, the current status of CLI, etc. (Appendix 15.3). Lewis reported that their recommendation was that JOI request the BRG prepare a CLI White Paper addressing these issues. Goldberg raised the potential for conflict of interest, in order to avoid this issue he preferred to wait until after the computer/database system RFP was decided. PCOM discussed if it could afford to wait until early 1994 to begin the CLI White Paper. **Lewis agreed to contact the service panel chairs to discuss writing of the CLI White Paper, a report will be presented to PCOM at the Annual Meeting in December.**

3. Russian Membership

NSF recently informed JOI that *Proceedings* of ODP would no longer be sent to Russia after publication of results from the last leg Russian scientists sailed on. In addition, all references to "Russia (inactive partner)" would cease October 1, 1993. Malfait indicated that there would no longer be an MOU in existence so that the 100 copies of volumes that were required by the MOU would not longer be sent. After discussion, PCOM agreed that some amount of volumes should continue to be sent to institutions in Russia as an investment in their scientific community. **The JOIDES Office would investigate the previous mailing list to Russian oceanographic institutions and PCOM members were asked to forward suggestions for individuals or institutions that would be appropriate for receiving *Proceedings* volumes.**

Coffee Break ..... *10:30 - 10:50 am*

Item 1014. New Business

1. Ethics Question (Leg 146)

Berger summarized the question brought up by Kastner in a letter to the PCOM Chair about the possibility that scientists not associated with a leg could use CORK data collected after the leg in combination with leg data to publish results outside of the one-year moratorium that leg participants were obligated to observe. Taylor agreed that Becker's letter (Appendix 16) was the appropriate response. PCOM discussed what, if anything, PCOM could do in this situation. The more general question of ODP's interest in re-entry of ODP holes was also brought up. PCOM concluded that the one-year moratorium on proprietary data and the existing notification policy requesting notification of the JOIDES Office so that information could be published in the *JOIDES Journal* covered all the aspects of Kastner's concern. **Lewis would contact Kastner to convey the sense of the PCOM discussion on the specifics of her letter. In order to assure that ODP participants were aware of post-leg plans for hole usage, *JOIDES Journal* and e-mail announcements would be made concerning notifications received by the JOIDES Office for post-drilling use of ODP holes.**

2. Logging

a) Geophysical Properties Probe (Geoprops)

PCOM requested DMP review the Geoprops Probe report provided by Bobb Carson and Dan Karig and provide PCOM with a recommendation on the future development of the tool.

3. Future PCOM Meetings

a) Addition of International ODP Reports

Taylor suggested that PCOM consider including a report from the international partners and USSAC on the ODP activities/plans/problems of each member country. **PCOM agreed that this was a good idea and that partner reports should be included at the spring PCOM meetings.**

b) Dates

• December 1993	Miami	November 29, 1993	DRILLOPTS
• December 1993	Miami	November 30	PANCH
• December 1993	Miami	December 1 - 4, 1993	PCOM
• April 1994	Cardiff	April 18 - 21, 1994	
• August 1994	Iceland	August 9 - 12, 1993	
• December 1994	TAMU	(dates pending)	

Item 1015. Other Business

1. Additional Partners

Sager asked what PCOM members could do if they had some information on or interest in pursuing new international members for ODP? Pyle asked that people with information like this bring it to JOI's attention. Gibson noted that while Can-Aus was negotiating for a new partner they would like to be made aware of any other efforts being made to identify new members.

2. Leg 157

PCOM discussed the issue of finding a program to fill the Leg *157* slot if the DCS land test was not successful and the sea trial was cancelled. The results of the land testing would be known in mid-October, therefore Taylor did not want PCOM to make a decision before December. Austin suggested that instructions be given to the panels that they think about identifying a proposal in the prospectus proposals that would be a suitable option for a replacement on Leg 157. Although this would not leave much lead time, Francis estimated that seven months would be enough time for ODP-TAMU to gear up if necessary.

3. Alboran Safety problems

PCOM requested that PPSP re-prereview the proposed sites in the revised Alboran proposal at their October 1993 meeting.

4. Updates to PCOM on the status of the NARM and NAAG programs

PCOM requested that OHP present a review on the status of the NAAG program and TECP present a review on the status of the NARM-NonVolcanic program at the Annual PCOM meeting in December.

Item 1016. Panel Membership Actions (Executive Session)

1. JOIDES Panel Membership

a) IHP

Patricia Fryer will become the new Chair

b) DMP

Rich Jarrard will replace Joris Gieskes

c) PANCH Chair

Peggy Delaney (OHP) was invited to Chair the PANCH meeting
(Delaney subsequently had to decline the invitation).

2. PCOM Membership and Liaisons

a) Tom Shipley will replace Austin on PCOM effective January 1, 1994.

b) Hermann Kudrass will replace Ulrich von Rad at the December meeting.

c) Arculus becomes the official Can-Aus PCOM member October 1.

d) Liaisons:

	EXCOM	LITHP	OHP	SGPP	TECP	DMP	IHP	PPSP	SMP	SSP	TEDCOM
Arculus			X								
Austin											X
Becker						X					
Berger				X							
Dick										X	
Fox									X		
Kidd				X						X	
Kudrass											
Larsen					X						
Lewis	X							X			
Mével		X									
Mix			X								
Mutter		X									
Sager							X				
Suyehiro						X					
Taylor					X						

Motion - Personnel Actions
PCOM endorses all personnel changes in panel membership, panel Chairs and PCOM liaisons presented at the August meeting.

Taylor proposed, Austin seconded vote: 14 in favor, 2 absent.

3. Service Recognition

PCOM recognized the many years of service of the following committee/panel members who would be stepping down from their positions after the meeting:

Ulrich von Rad

PCOM thanked Ulrich von Rad for his many years of dedicated service to PCOM and ODP and adopted the following by acclamation:

PCOM says à bientôt, not good-bye, to a true friend of ODP, Ulrich von Rad. Ulrich has been on PCOM seven years, and has provided the kind of reasoned, constant input that makes this committee ultimately succeed, sometimes in spite of its more effervescent members. Ulrich will be replaced, but his shoes cannot ever be filled. We will miss him, but PCOM looks forward to his next (and hopefully many more) voyages on *JOIDES Resolution*.

Ian Gibson

PCOM thanked Ian Gibson for his many years of dedicated service as IHP Chair and adopted the following by acclamation:

PCOM notes with regret the resignation of Ian Gibson as Chair of IHP. Ian almost single-handedly brought to JOIDES attention the urgent need for upgrading of both databasing and computing within ODP. That task was complex and thankless, but very, very necessary. The Program is in his debt, and PCOM wishes him well.

Kate Moran

PCOM thanked Kate Moran for her many years of dedicated service as SMP Chair and adopted the following by acclamation:

PCOM wishes to thank the outgoing SMP Panel Chair, Kate Moran. Throughout the years, Kate has demonstrated sophisticated leadership of a group which provides critical input spanning the range of shipboard measurements to ODP, including complex topics like core-log integration. She has been crucial to the program's continuing success, and PCOM fully expects to see her rejoin the JOIDES community soon in another capacity.

Lunch Break ..... *12:30 - 1:30 pm*

Item 1017. Review of Motions and Action Items

PCOM reviewed the motions and action items from the meeting.

Adjournment ..... *330 pm*

ACRONYM DICTIONARY

ACOS	Advisory Committee on Ocean Sciences
ABW	Antarctic Bottom Water
AGU	American Geophysical Union
AMC	axial magma chamber
APC	Advanced Piston Corer
ARC	Australian Research Council
ARCSS	Arctic System Science
ASRC	Advisory Structure Review Committee
ASTC	Association of Science and Technology Centers
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe
BGS	British Geological Survey
BHA	bottom-hole assembly
BHTV	borehole televiewer
BIRPS	British Institutions Reflection Profiling Syndicate
BMFT	Bundeministerium für Forschung und Technologie
BMR	Bureau of Mineral Resources
BRGM	Bureau de Recherches Géologiques et Minières
BSR	bottom-simulating reflector
CGC	Canadian Geoscience Council
CHT	cross-hole tomography
CORK	
CSDP	Continental Scientific Drilling Program
CSG	Computer Services Group (ODP)
CSM	Camborne School of Mines (UK)
CY	calendar year
DCB	diamond core barrel
DCS	diamond coring system
DEA	Drilling Engineering Association
DFG	Deutsche Forschungsgemeinschaft
DI-BHA	Drill-in bottom-hole assembly
DOE	Department of Energy
DP	dynamic positioning
DPG	Detailed Planning Group
DRB	diamond coring system retractable bit system
ECB	extended Core Barrel
ECOD	ESF Consortium for Ocean Drilling
ECR	East Coast Repository
EEZ	Exclusive Economic Zone
EMCO	ESF Management Committee for ODP
EIS	environmental impact statement
EMR	Department of Energy, Mines & Resources
ENSO	El Niño Southern Oscillation
EPR	East Pacific Rise
ESCO	ESF Scientific Committee for ODP
ESF	European Science Foundation
ETH	Eidgenössiches Technische Hochschule, (Zürich)
FARA	French-American Ridge Atlantic
FCCSET	Federal Coordinating Committee on Science Engineering & Technology
FDSN	Federation of Digital Seismic Networks
FMS	formation microscanner
FY	fiscal year
GCR	Gulf Coast Repository
GEOSECS	Geochemical Ocean Sections Study
GLOBEC	Global Ocean Ecosystem Dynamics
GOOS	Global Ocean Observing System
GSC	Geological Survey of Canada
GSGP	Global Sedimentary Geology Program
HRB	hard-rock guide base
HRO	hard-rock orientation
IDAS	isothermal decompression analysis system
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer
ILP	International Lithosphere Program
IMT	Institut Méditerranéen de Technologie
INSU	Institut de Sciences de l'Univers
InterRIDGE	International Ridge Inter-Disciplinary Global Experiments
IOC	Intergovernmental OceanographicCommission
IPOD	International Phase of Ocean Drilling
IPR	intellectual property rights
IRIS	Incorporated Research Institutions for Seismology
JAMSTEC	Japan Marine Science and Technology Center
JAPEX	Japan Petroleum Exploration Company
JGOFS	Joint Global Ocean Flux Studies
JOIBOG	JOI Board of Governors
KTB	Kontinentales Tiefbohrprogramm der Bundesrepublik Deutschland
LANL	Los Alamos National Laboratory
LAST	lateral stress tool
LBL	Lawrence Berkeley Laboratory
LDEO	Lamont-Doherty Earth Observatory
LIPS	large igneous provinces
LRP	Long Range Plan
mbsf	meters below seafloor
MCS	multi-channel seismic
MDCB	motor-driven core barrel
MMS	Minerals Management Service
MOU	memorandum of understanding
MOR	mid-ocean ridge
MRC	Micropaleontological Reference Center
MST	multi-sensor track
NAD	North Atlantic Deepwater
NADP	Nansen Arctic Drilling Program
NAS	National Academy of Sciences
NATRE	NorthA Atlantic Tracer Release Experiment
NERC	Natural Environment Research Council
NGDC	National Geophysical Data Center
NOAA	National Oceanic & Atmospheric Administration
NRC	National Research Council
NSB	National Science Board
NSF	National Science Foundation
NSERC	National Science and Engineering Research Council (Canada)

OBS	ocean bottom seismometer
ODIN	Ocean Drilling Information Network
ODPC	Ocean Drilling Program Council
OG	organic geochemistry
OMDP	Ocean Margin Drilling Program
ONR	Office of Naval Research
ORI	Ocean Research Institute of Univ. of Tokyo
OSN	Ocean Seismic Network
PCS	pressure core sampler
PDC	poly-crystalline diamond compact (drilling bit)
PEC	Performance Evaluation Committee
PPI	Producer Price Index
RFP	request for proposals
RFQ	request for quotes
RIDGE,	Ridge Inter-Disciplinary Global Experiments (US)
ROV	remotely-operated vehicle
SCM	sonic core monitor
SCOR	Scientific Committee on Ocean Research
SCS	single-channel seismic
SES	sidewall-entry sub
SNL	Sandia National Laboratory
SOE	Special Operating Expense
SOW	Statement of Work
STA	Science and Technology Agency (of Japan)
SUSCOS	Subcommittee on U.S. Coastal Ocean Science
TAMU	Texas A & M University
TAMRF	Texas A&M Research Foundation
TOGA COARE	Tropical Ocean Global Experiment Coupled Ocean-Atmosphere Response Experiment
TTO	Transient Tracers in the Ocean program
UDI	Underseas Drilling, Incorporated
USSAC	US Scientific Advisory Committee
USSSP	US Science Support Program
VPC	vibra-percussive corer
VSP	vertical seismic profile
WCR	West Coast Repository
WCRP	World Climate Research Program
WG	Working Group
WHOI	Woods Hole Oceanographic Institution
WOB	weight on bit
WOCE	World Ocean Circulation Experiment
WSTP	water sampler, temperature, pressure (downhole tool)

JOIDES Committees and Panels:

BCOM	Budget Committee
DMP	Downhole Measurements Panel
EXCOM	Executive Committee
IHP	Information Handling Panel
LITHP	Lithosphere Panel
OHP	Ocean History Panel
OPCOM	Opportunity Committee (disbanded)
PANCHM	Panel Chairs Meeting
PCOM	Planning Committee
PPSP	Pollution Prevention and Safety Panel
SGPP	Sedimentary and Geochemical Processes Panel
SMP	Shipboard Mearurements Panel
SSP	Site Survey Panel
STRATCOM	Strategy Committee (disbanded)
TECP	Tectonics Panel
TEDCOM	Technology and Engineering Development Committee

Detailed Planning Groups (DPG) and Working Groups (WG):

NAAG-DPG	North Atlantic-Arctic Gateways DPG (disbanded)
NARM-DPG	North Atlantic Rifted Margins DPG (disbanded)
OD-WG	Offset Drilling WG (disbanded)
SL-WG	Sea-Level WG (disbanded)
SWD-WG	Shallow Water Drilling Working Group

FY93 Programs:

NAAG-I	North Atlantic Arctic Gateways, first leg (Leg 151)
NARM Non-Volcanic I	North Atlantic Rifted Margins non-volcanic, first leg (Leg 149)
NJ/MAT	New Jersey / Middle Atlantic Transect (Leg 150)
504B	deepening Hole 504B (Leg 148)

FY94 Programs:

NARM Volcanic-I	North Atlantic Rifted Margins volcanic, first leg (Leg 152)
MARK	Mid-Atlantic Ridge at Kane fracture zone (Leg 153)
Ceara Rise	Leg 154
Amazon Fan	Leg 155
N. Barbadoes Ridge	Leg 156
DCS Engineering	Diamond Coring System engineering leg (Leg 157)
TAG	Trans-Atlantic Geotraverse Hydrothermal Field (leg 158)

LIST OF APPENDICES

Appendix 1.0

RENEWAL BEYOND 30 SEPTEMBER

THE GOOD NEWS

MOUs HAVE NOW BEEN SIGNED WITH THE U.K., GERMANY AND THE ESF

MOU WITH FRANCE HAS BEEN SIGNED BY NSF AND SENT TO IFREMER

THE PROBLEMS

JAPANESE MOU UNDERGOING INTENSE SCRUTINY IN JAPAN

CAN-AUS SITUATION CONTINUES TO EVOLVE

NO CONTRACT SIGNED

Appendix 1.1

FY 1994 BUDGET ESTIMATE

THE BIG IF's

IF WE HAVE A SIGNED CONTRACT FOR OPERATIONS

IF WE HAVE 5 FULL INTERNATIONAL PARTNERS

IF WE HAVE A 7/12 CAN-AUS MEMBERSHIP

IF THE 94 PLAN REMAINS AS APPROVED BY EXCOM

IF AN ACCEPTABLE PLAN FOR COMPUTER/DATA BASE UPGRADE IS SUBMITTED

THEN

ORIGINAL TARGET OF $ 44.9 MILLION IS PROBABLE

ODP COUNCIL MEETING

CONSIDERABLE DISCUSSION OF CAN-AUS SITUATION

LITTLE SUPPORT FOR INCREASING LEVEL OF CONTRIBUTION ABOVE THE $200K INCREASE IN 1994

CONSIDERABLE DISCUSSION OF JAPANESE PROPOSAL FOR A "NEW ERA OF OCEAN DRILLING"

- DETAILS OF PROPOSAL NEEDED FROM JAPAN
- ODP SCIENTIFIC INPUT - FROM PCOM AND PANELS
- MANAGEMENT/POLITICAL INPUT - ODP COUNCIL
- JAPANESE VESSEL IS ONE COMPONENT OF A NEW ERA OF OCEAN DRILLING
- WORKSHOP PLANNED FOLLOWING JANUARY EXCOM MEETING IN JAPAN

OTHER ITEMS

FY 1994 NSF BUDGET IS UNKNOWN

REVIEW OF U.S. SCIENCE SUPPORT PROGRAM IN PROGRESS

CONSIDERABLE INTEREST IN POSSIBLE MOVE OF EAST COAST REPOSITORY TO GERMANY

BETH AMBOS HAS RETURNED TO CALIFORNIA

PCOM - August 1993

Contract Negotiations Continue

- NSF/JOI
- JOI/TAMU and JOI/LDEO

Advisory Structure Review Committee

- completed report to EXCOM
- EXCOM requested PCOM review
- EXCOM action expected in January

Core Repository (Atlantic)

- EXCOM recommended negotiation with Universität Bremen
- Site visit conducted August 2-3

  JOI President and Vice President, TAMU/ODP Director, TAMRF VP, PCOM Chair, Shackleton, Moore, Mayer, Mix

- Technical and financial aspects under review

Appendix 2.1

Budget Guidance from NSF

- 5 Partners (France in); Can/Aus at 2/3 — maintain $44.9M
- 4 Partners (France out); Can/Aus at 2/3 — $43.9M
- Mid-August decision expected

Program Plan

- Submitted July 29 at $44.9M
- Lacks required plan for computer and database upgrade

"New Era of Ocean Drilling"

- Proposal from Japan (STA/JAMSTEC)
- Workshop planned after EXCOM (February 3)
- PCOM needs to update science planning and platform requirements

U.S. Liaison to JOIDES Office

- Ad to be in *USSAC Newsletter*
- *GSA Today* and *Eos*
- Decision in September

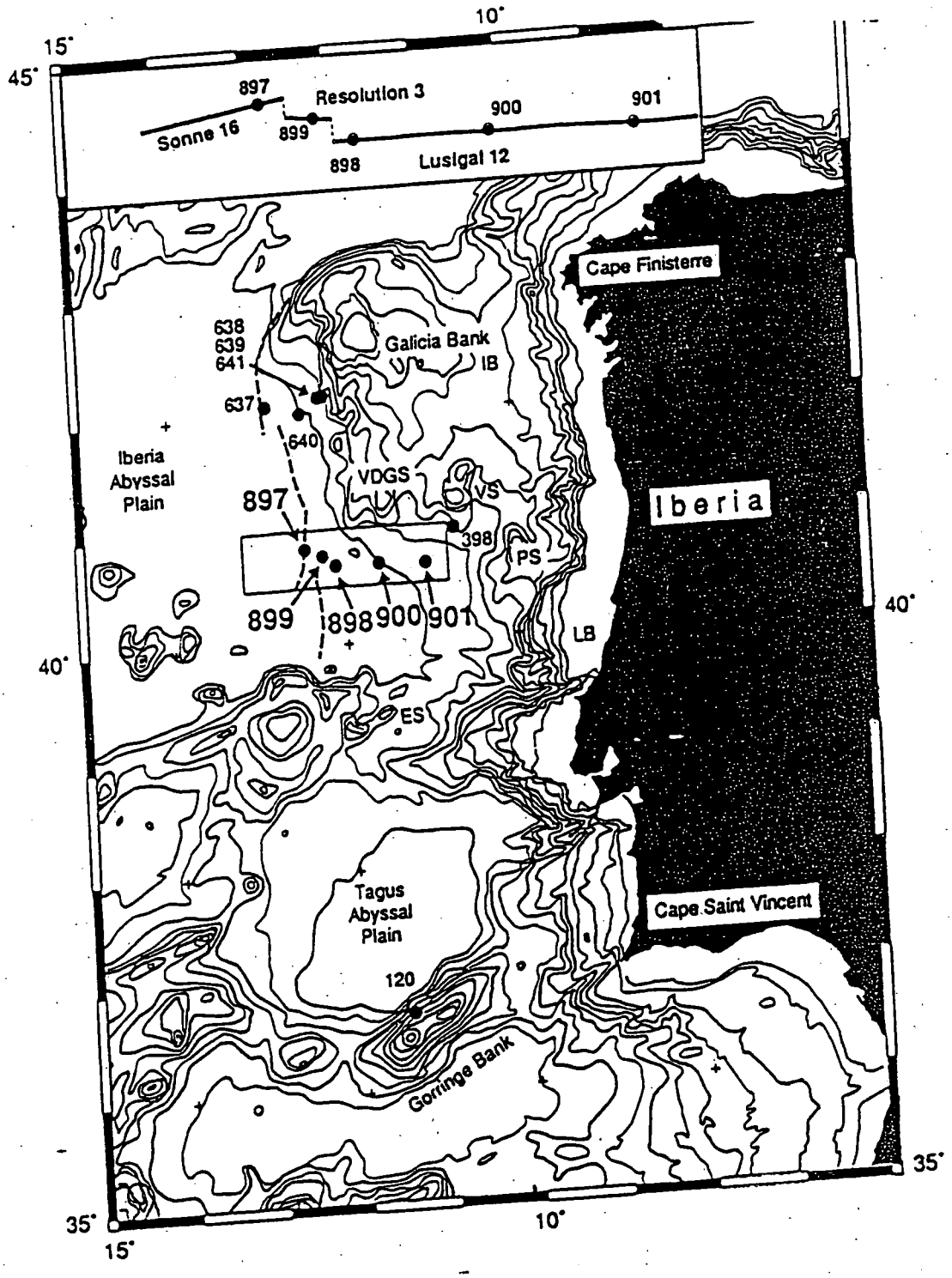


Figure 1. Bathymetry of the west Iberian margin (contours in meters; bold lines are 1000 meter intervals). Leg 149 sites are 897-901; other numbers are sites drilled during Legs 12, 47B and 103. The bold dashed line is the predicted location of the peridotite ridge (Beslier et al., 1993). The map in the upper left shows the location (solid lines) of the seismic profiles used to construct the composite structural section in Figure 2. The magnetic profile shown in Figure 2 is a composite from two tracks projected into an east-west line (Whitmarsh et al., 1990). Labels are: IB, Galicia Interior Basin; VDGS, Vasco da Gama Seamount; VS, Vigo Seamount; PS, Porto Seamount; LB, Lusitanian Basin; ES, Estremadura Spur.

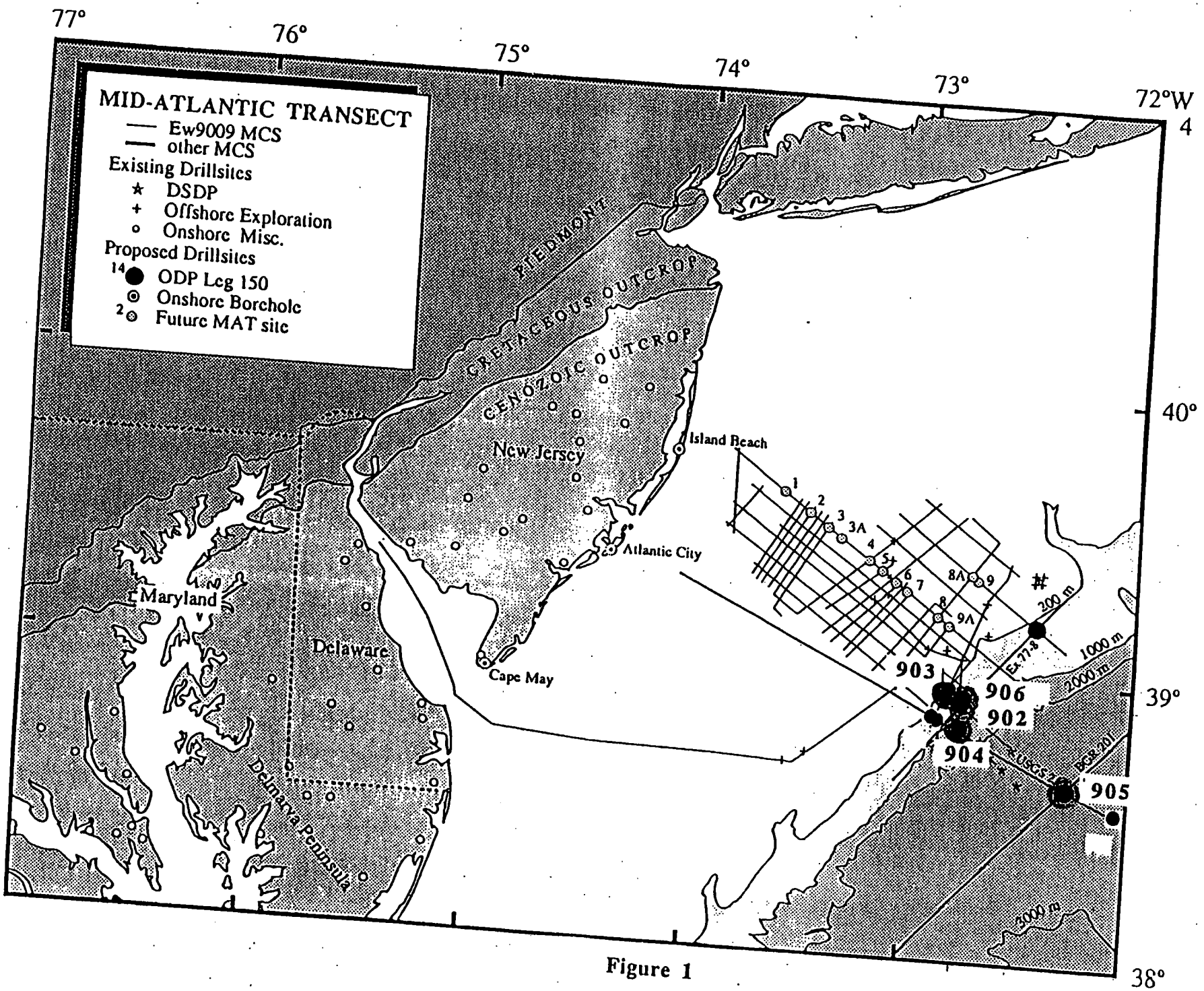

MID-ATLANTIC TRANSECT
Ew9009 MCS
other MCS
Existing Drillsites
DSDP
Offshore Exploration
Onshore Misc.
Proposed Drillsites
ODP Leg 150
Onshore Borehole
Future MAT site
77°
76°
75°
74°
73°
72°W
40°
39°
38°
PIEDMONT
CRETACEOUS OUTCROP
CENOZOIC OUTCROP
New Jersey
Island Beach
Atlantic City
Cape May
Maryland
Delaware
Delmarva Peninsula
903
906
902
904
905
200 m
1000 m
2000 m
3000 m

Figure 1

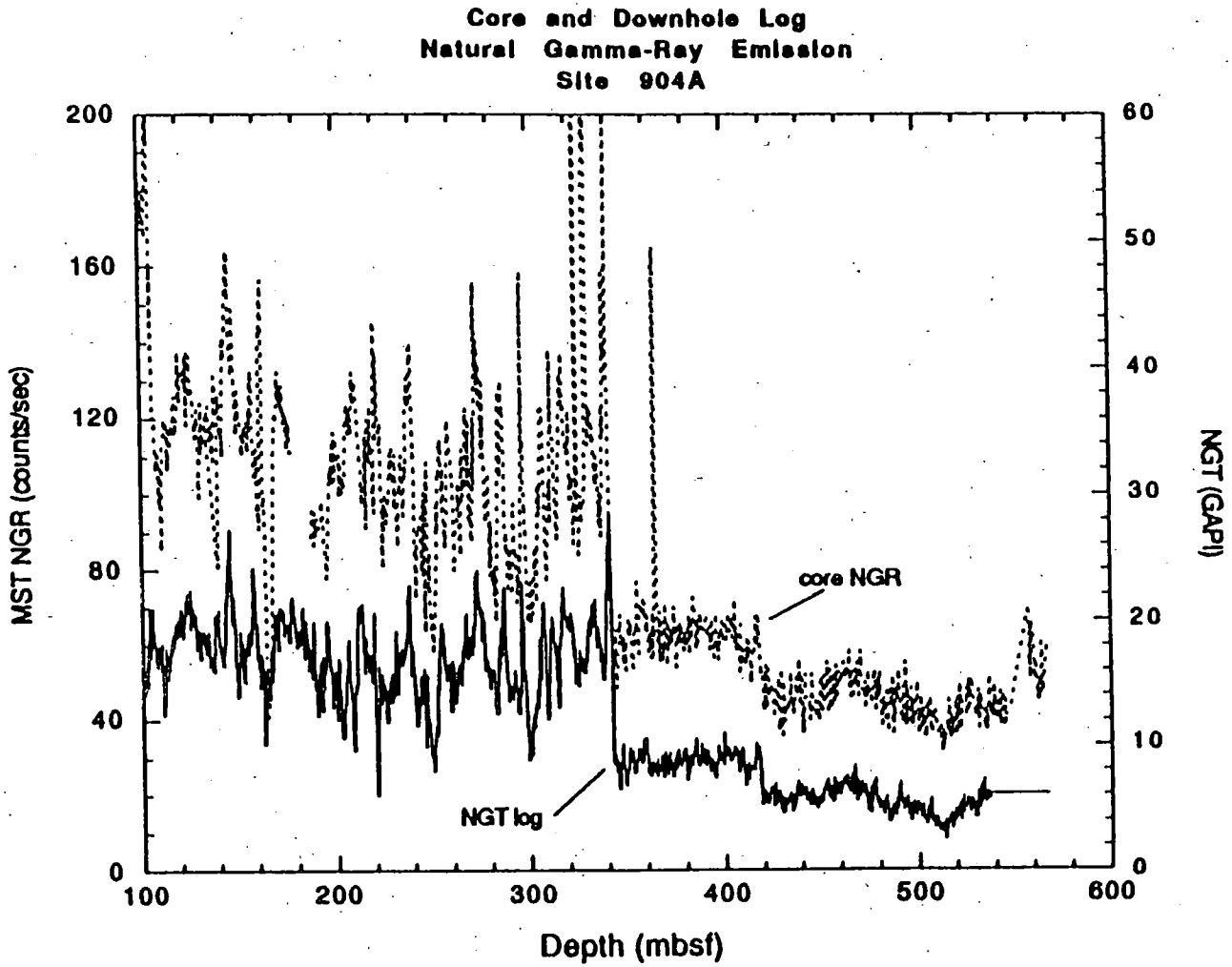
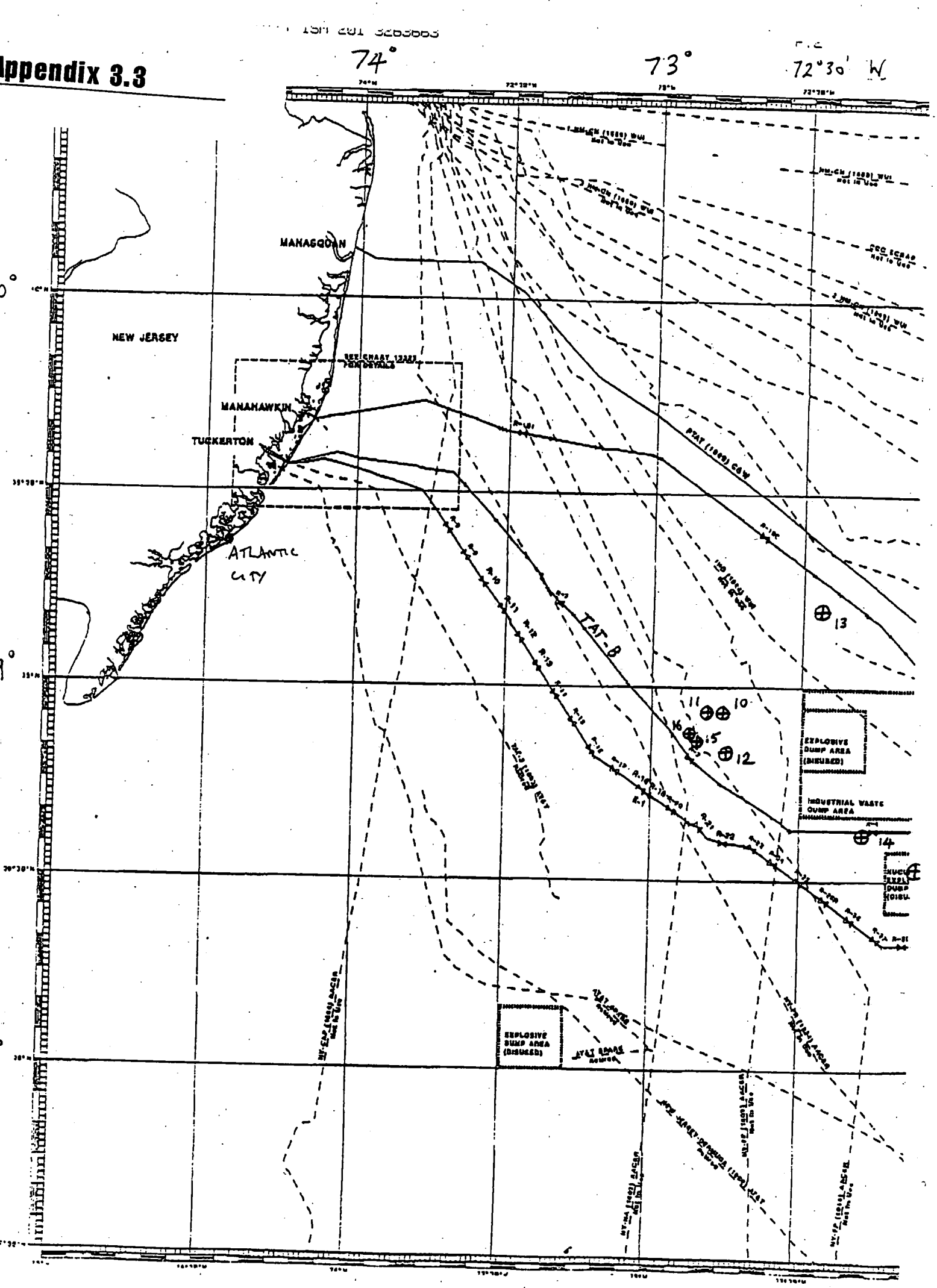


Figure 1

Appendix 3.2


74°
73°
72°30' W
MANASQUAN
NEW JERSEY
MANAHAWKIN
TUCKERTON
ATLANTIC CITY
TAT-8
EXPLOSIVE DUMP AREA (DISUSED)
INDUSTRIAL WASTE DUMP AREA
EXPLOSIVE DUMP AREA (DISUSED)

The Record
Friend of the People It Serves

A DEEP SUBJECT

MUCK TAKERS

Ship drills for history off N.J.

By SARI HARRAR
Staff Writer

— ABOARD THE JOIDES RESOLUTION

Eighty miles east of Atlantic City, geologist Greg Mountain barely notices the sapphire-blue sea, the pure air, or the Milky Way's pale arc at night.

Mountain is a mud watcher.

For 18 hours a day, the scientist from Westwood pores over prehistoric muck drilled from the ocean floor, tracking ancient tides and ice age glaciers. Aboard a research ship fitted with a 202-foot drilling rig, Mountain and Rutgers University geologist Ken Miller are reconstructing 50 million years of Earth history, one of the longest accounts of climate change ever assembled.

Why here?

New Jersey's offshore mud — a layer cake of green, black, and chalk-white ooze — has a message for the world about rising sea levels and the future shock of global warming, they say. "The Jersey shore is a natural laboratory of the Earth's own rhythms," said Mountain, a scientist at Columbia University's Lamont-Doherty Earth Observatory in Nyack, N.Y.

As the Earth heats up — as many, but not all, scientists believe — everything from crops to coastal cities, and from human health to the survival of butterflies, will be affected by rising oceans and altered weather. The process has already begun on the New Jersey coast, where the sea level is rising by nearly a foot a century.

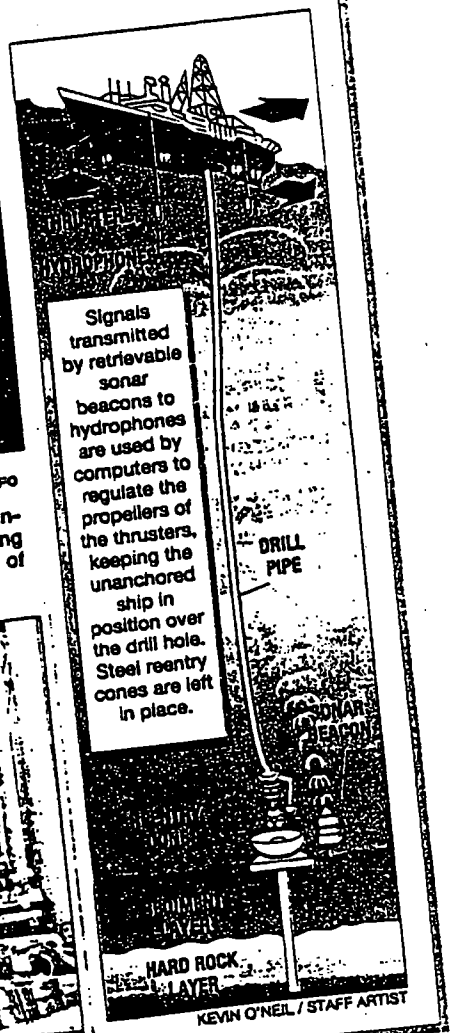
More devastating changes lie ahead, as natural processes and air pollution fuel the warming trend. How will we fare? Looking

See MUD Page A-10

STAFF PHOTOS BY LINDA CATAFFO

Above, a crew aboard the JOIDES Resolution bringing up potentially revealing samples of marine mud. Below, workers carrying a sample tube of sediment to the deck of the vessel, flagship of the National Science Foundation's Ocean Drilling Program.

> The Jersey shore is a natural laboratory of the Earth's own rhythms.
>
> — Greg Mountain
> Geologist



Signals transmitted by retrievable sonar beacons to hydrophones are used by computers to regulate the propellers of the thrusters, keeping the unanchored ship in position over the drill hole. Steel reentry cones are left in place.

KEVIN O'NEIL / STAFF ARTIST

The Dallas Morning News

Monday, July 5, 1993

A DIFFERENT KIND OF AGGIE DRILLING

Texas A&M vessel brings up sediment from below ocean floor to study sea changes

By Matt Crenson
Staff Writer of The Dallas Morning News

GEOLOGY

ABOARD THE JOIDES RESOLUTION, Somewhere in the North Atlantic — Next time you're inching down Central Expressway, consider the commute of an Ocean Drilling Program scientist.

These lucky stiffs just roll out of bed, pull on some clothes, walk less than a hundred feet and maybe climb a flight of stairs. Presto, they're at work in the most sophisticated scientific lab ever to sail the Seven Seas.

But there's a down side, too. Ocean Drilling Program scientists work 12-hour shifts, seven days a week, for 56 days in row, on a ship that's shorter than a city block.

That ship is the JOIDES Resolution. (JOIDES stands for the Joint Oceanographic Institutions for Deep Earth Sampling.) It is a specially modified oil-exploration vessel operated by Texas A&M University for the Ocean Drilling Program. The program is the most recent in a series of international efforts to better understand Earth by drilling holes in the sea floor.

A&M has jurisdiction over the ship because university officials "felt they wanted to have the flagship program in oceanography," said Pat Thompson, an engineer who has worked on scientific drilling projects for 23 years.

The program consists mostly of a 471-foot ship with a drilling rig sunk through the middle. Since A&M took over the Ocean Drilling Program in 1985, the JOIDES Resolution has completed 49 scientific missions, in all of the world's oceans, the Gulf of Mexico and the Mediterranean Sea. The 50th mission is now drilling holes off the New Jersey coast in an attempt to unravel some of the mysteries of how sea level has changed over the past 35 million years.

Knowing more about sea level changes could help geologists find oil. It could also help them better understand sea level rise caused by global warming. And it will certainly tell them more about how Earth once worked.

The Ocean Drilling Program isn't about solving environmental problems or finding oil, said Ken Miller, one of the two oceanographers in charge of the current cruise, which began May 30 and ends July 25. What the program is really about is figuring out what's beneath the oceans and how it got there.

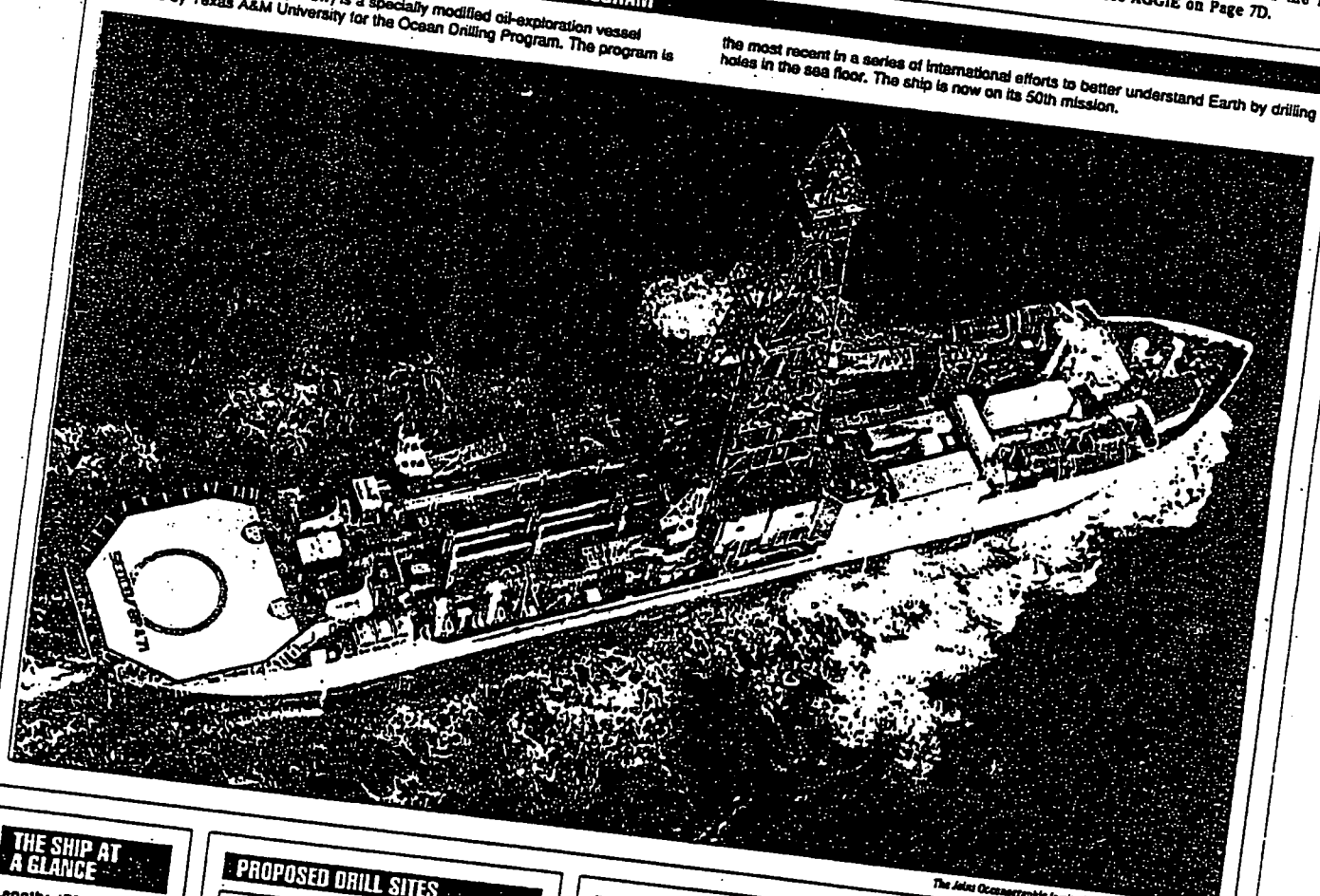
"The main contribution that we can give is to show how the system operated in the past," Dr. Miller said.

Greg Mountain, the other oceanographer leading the cruise, said the New

Please see AGGIE on Page 7D.

THE JOIDES RESOLUTION AND THE OCEAN DRILLING PROGRAM

The JOIDES Resolution (below) is a specially modified oil-exploration vessel operated by Texas A&M University for the Ocean Drilling Program. The program is the most recent in a series of international efforts to better understand Earth by drilling holes in the sea floor. The ship is now on its 50th mission.

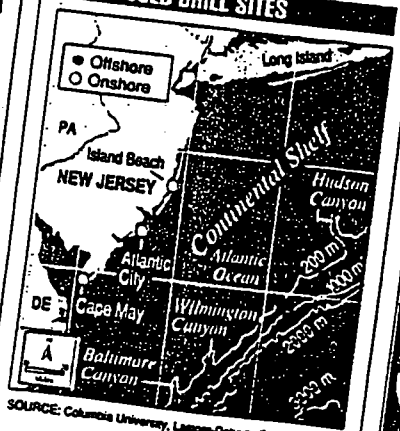


The Joint Oceanographic Institutions for Deep Earth Sampling

THE SHIP AT A GLANCE

- Length: 470 feet.
- Beam: 70 feet.
- Derrick: 202 feet.
- Operating draft: 25 feet.
- Installed power: 14,700 kw.
- Thrusters: 12,800 hp each.
- Speed: 11 knots.
- Cruising range: 120 days.
- Fuel capacity: 1 million gallons.
- Scientific and technical crew: 51 people.
- Ship's crew: 68 people.
- Lab space: 2,000 square feet.
- Drill string: 30,000 feet.

PROPOSED DRILL SITES



SOURCE: Columbia University, Lamont-Doherty Earth O...

THE SHIP'S LABS

Deck 1 (Hold) — Refrigerated core storage and freezer.

Deck 2 (Lower 'Tween) — Refrigerated core storage, cold storage and second-look laboratory.

Deck 3 (Upper 'Tween) — Electronics shop, photo darkroom and photo finish room.

Deck 4 (Main) — Computers, computer user room, science lounge, yeoperson's office and curator's office.

Deck 5 (Fo'c'sle) — Paleontology lab, microscope lab, chemistry lab, thin-section lab, X-ray lab and library.

Deck 6 (Bridge) — Core receiving, physical properties lab, paleomagnetics lab, core splitting, core description and sampling, photo station, co-chief scientist's office, staff scientists' offices and lab officer's office.

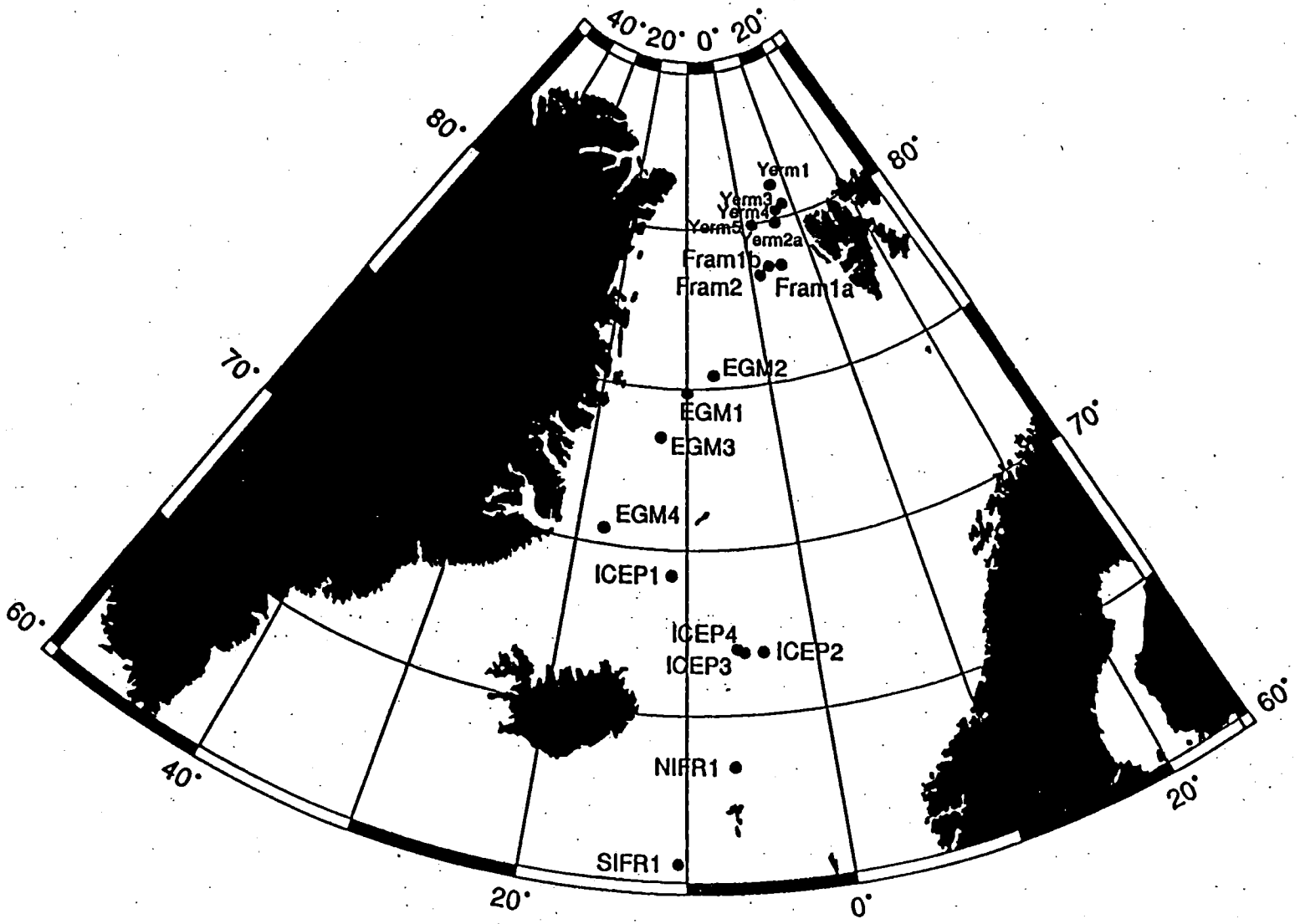
Deck 7 (Lab House Top) — Downhole measurements lab.

DRILL PIPE ON THE SHIP

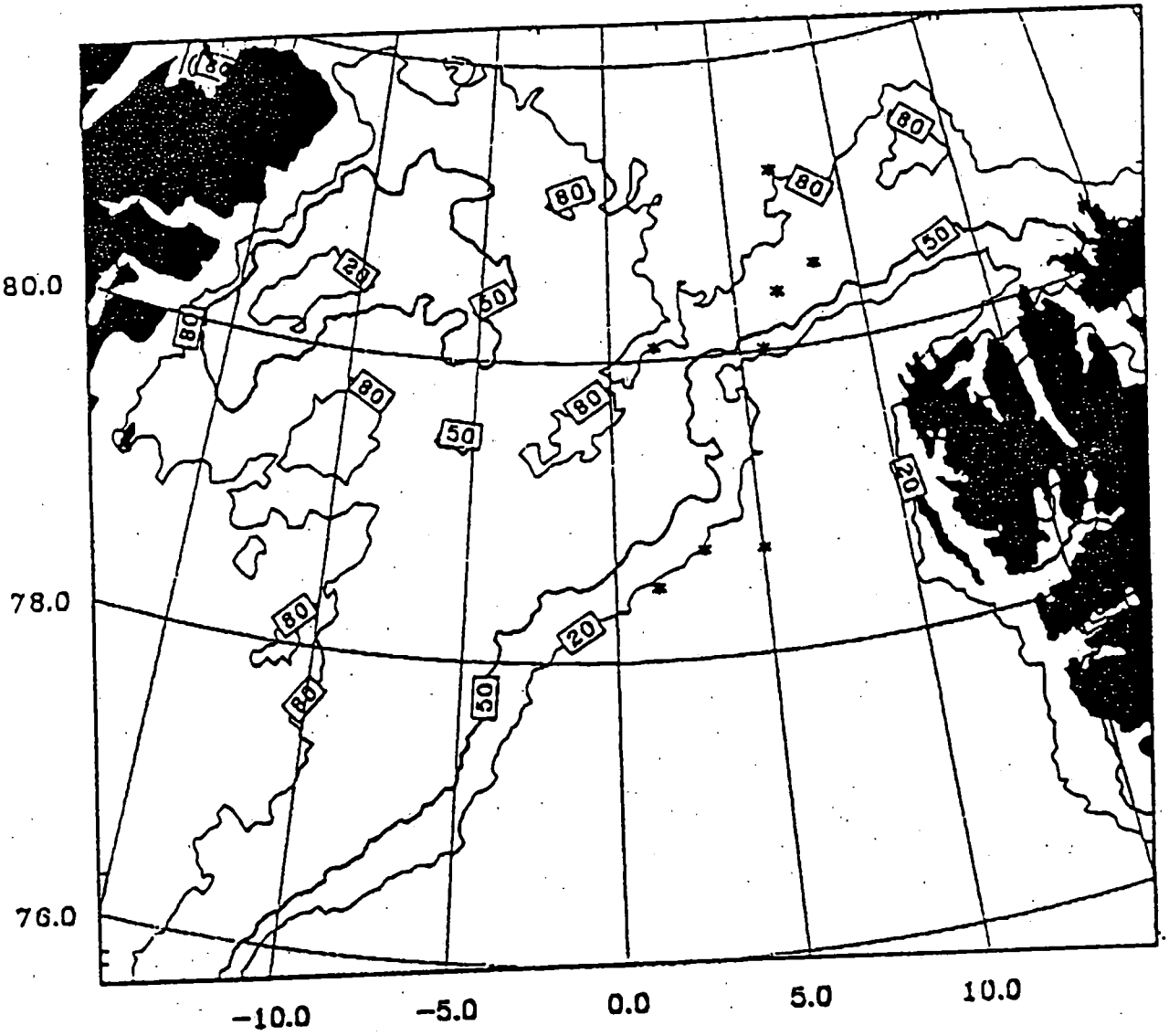
	5"	5 1/2"
LEG 150	303 JOINTS	361 JOINTS
LOADED IN ST JOHN'S JULY 1993	130	
LEGS 151 152	433	361
TO BE LOADED IN ST JOHN'S NOVEMBER 1993	220	
LEG 153	653	361

Appendix 3.6

ODP
Leg 151



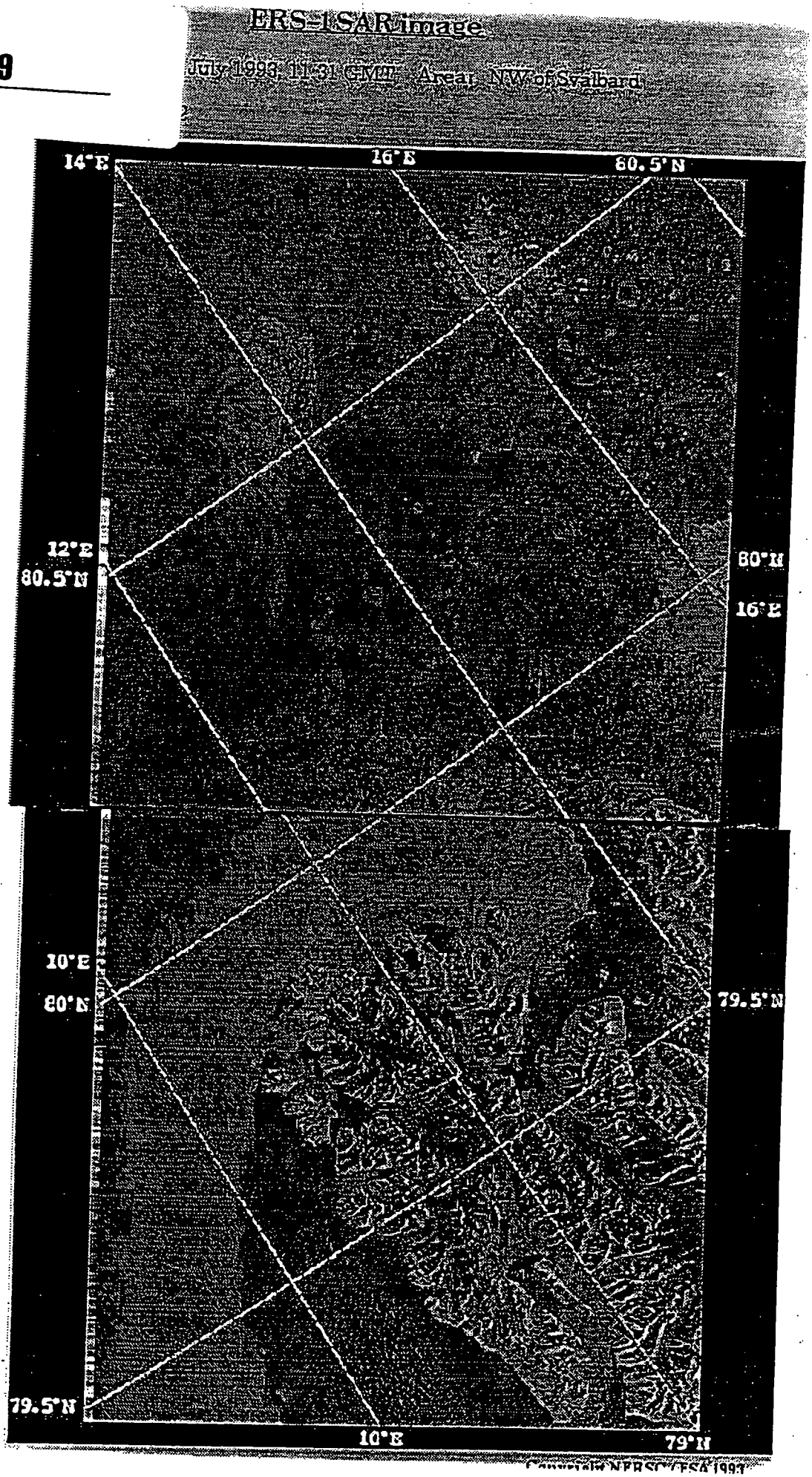
GMT May 4 22:01 *Adam Klaus*



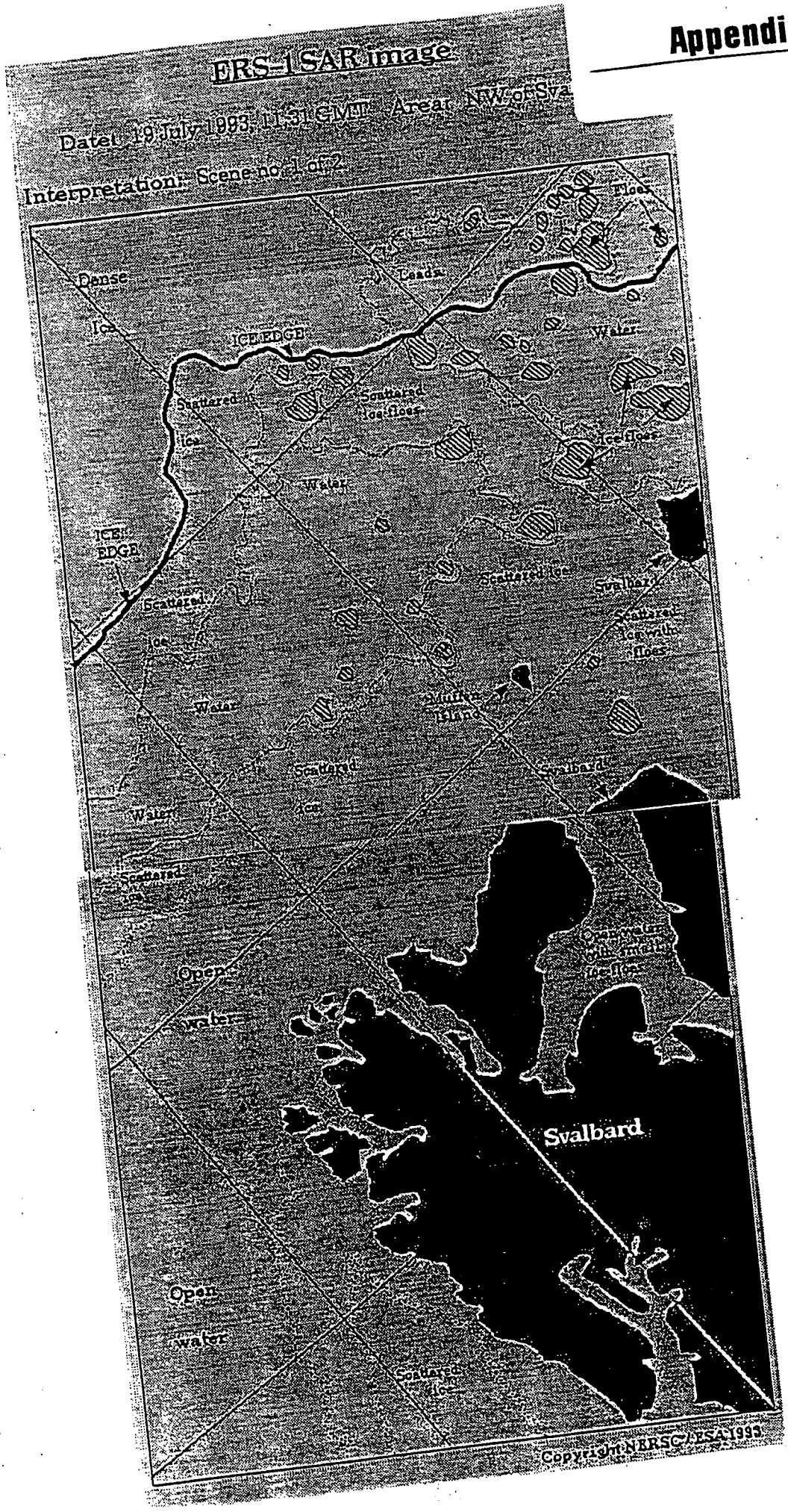
DATE: 14.07.93 FILE: cc8390

SSMI TOTAL ICE CONCENTRATION IN %

Appendix 3.9


ERS-1 SAR Image
July 1993 11:31 GMT Area: NW of Svalbard
14°E
16°E
80.5°N
12°E
80.5°N
80°N
16°E
10°E
80°N
79.5°N
79.5°N
10°E
79°N
Copyright NPRSC / ESA 1993

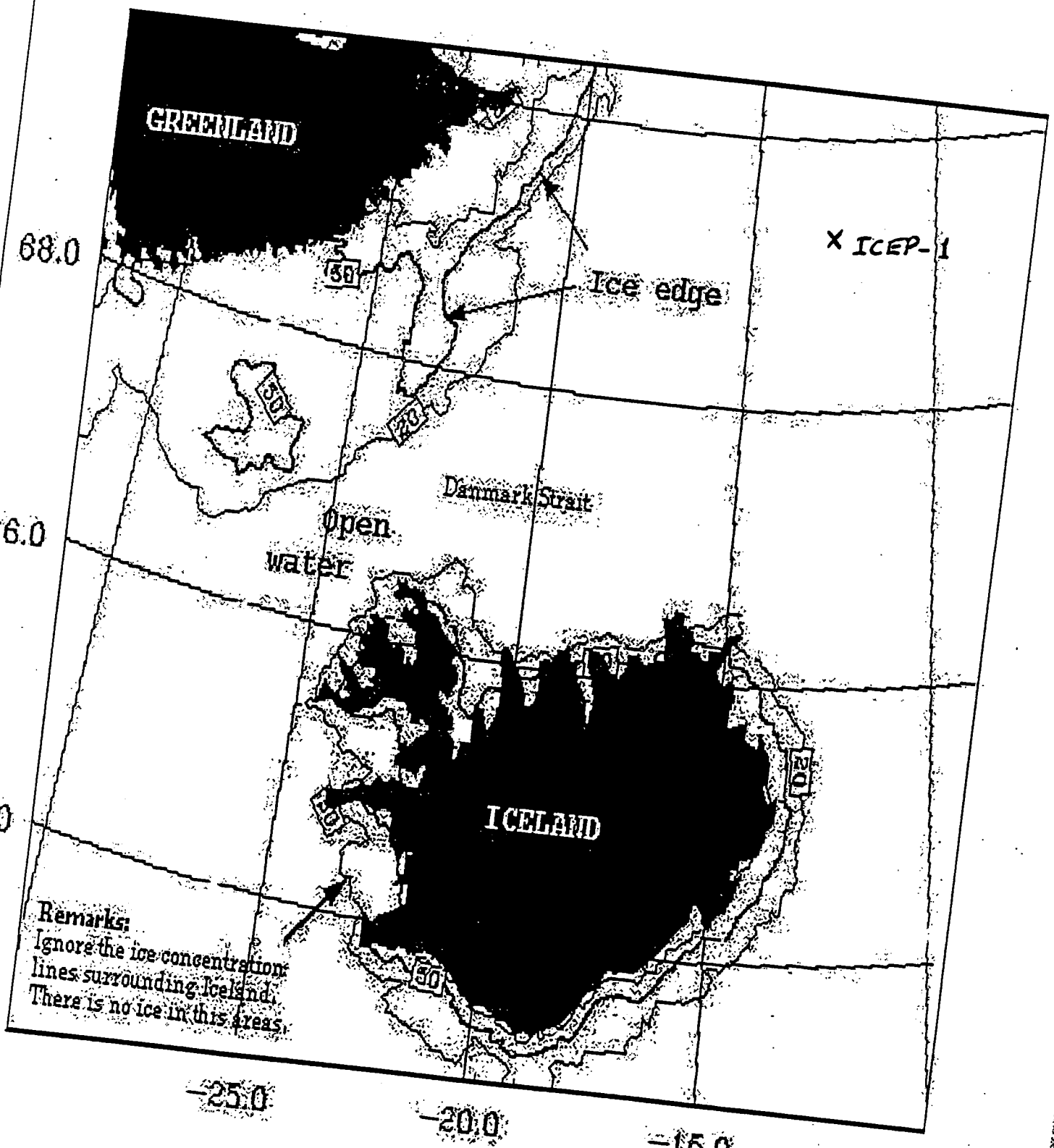
Appendix 3.10



Appendix 3.11

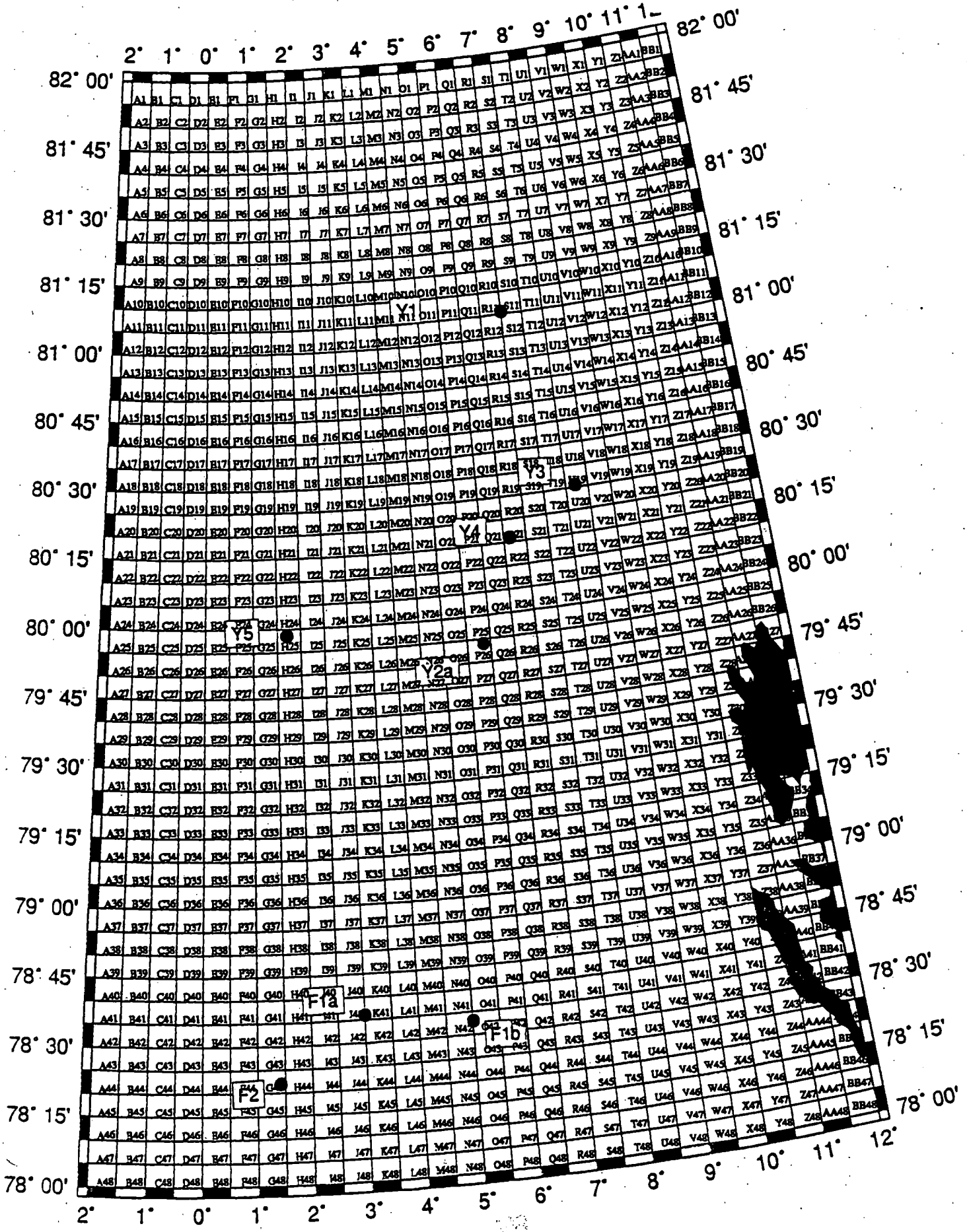
Ice concentration map

3. Area Danmark Strait



ODP Leg 151

Appendix 3.12



LEG 152	CO-CHIEF SCIENTISTS:	HANS-CHRISTIAN LARSEN (DENMARK) ANDREW SAUNDERS (UK)
EAST GREENLAND MARGIN	ODP STAFF SCIENTIST:	PETER CLIFT
	ODP OPERATIONS SUPT:	RON GROUT
	ODP LAB OFFICER:	BRAD JULSON
LEG 153	CO-CHIEF SCIENTISTS:	MATHILDE CANNAT (FRANCE) JEFFREY KARSON (DUKE)
MARK	ODP STAFF SCIENTIST:	JAY MILLER
	ODP OPERATIONS SUPT:	TOM PETTIGREW
	ODP LAB OFFICER:	BURNEY HAMLIN
LEG 154	CO-CHIEF SCIENTISTS:	BILL CURRY (WHOI) NICHOLAS SHACKLETON (UK)
CEARA RISE	ODP STAFF SCIENTIST:	CARL RICHTER
	ODP OPERATIONS SUPT:	GLEN FOSS
	ODP LAB OFFICER:	BILL MILLS

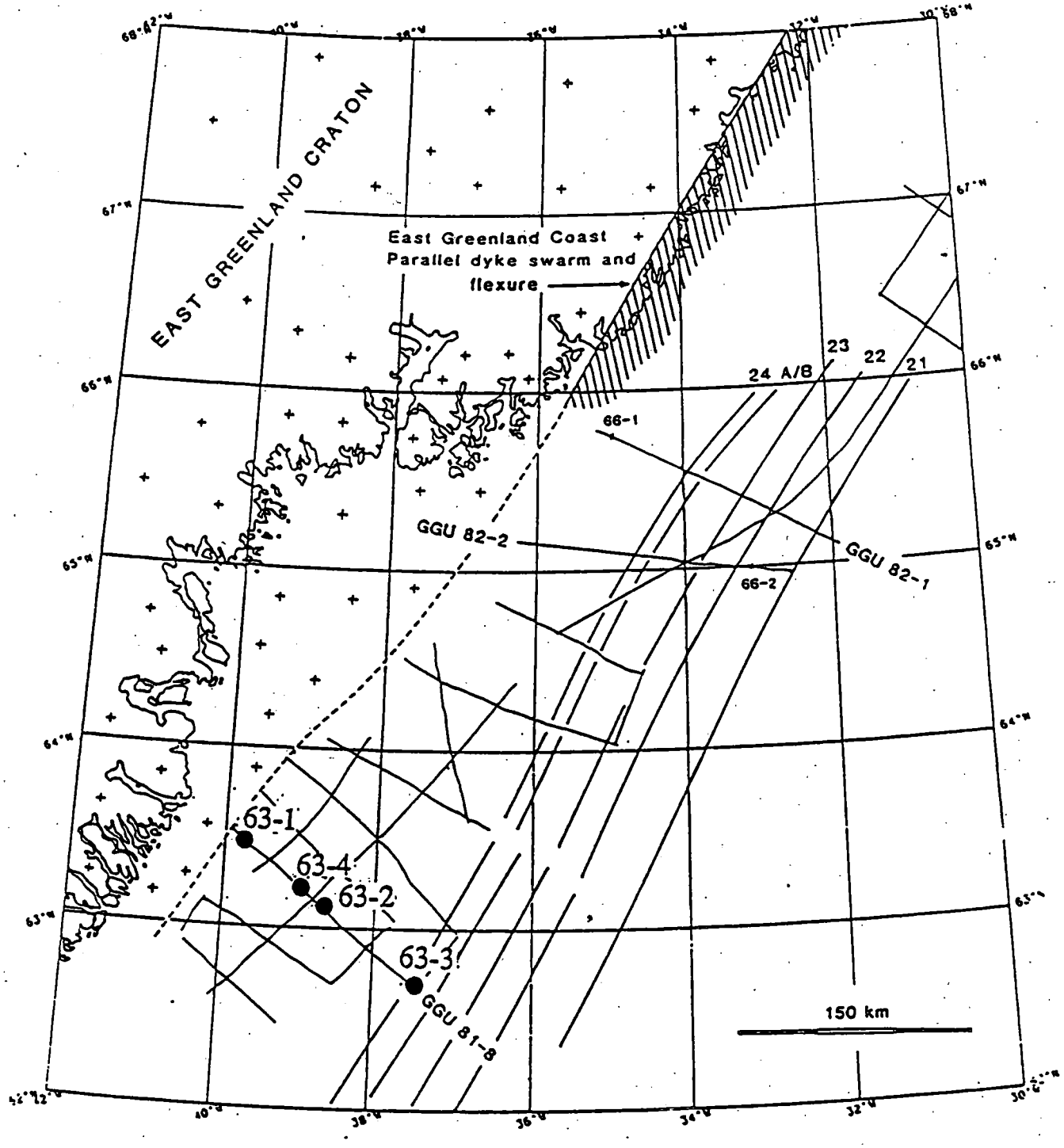


Figure 3. Position of proposed Southeast Greenland sites, Leg 152 transect at 63°N.

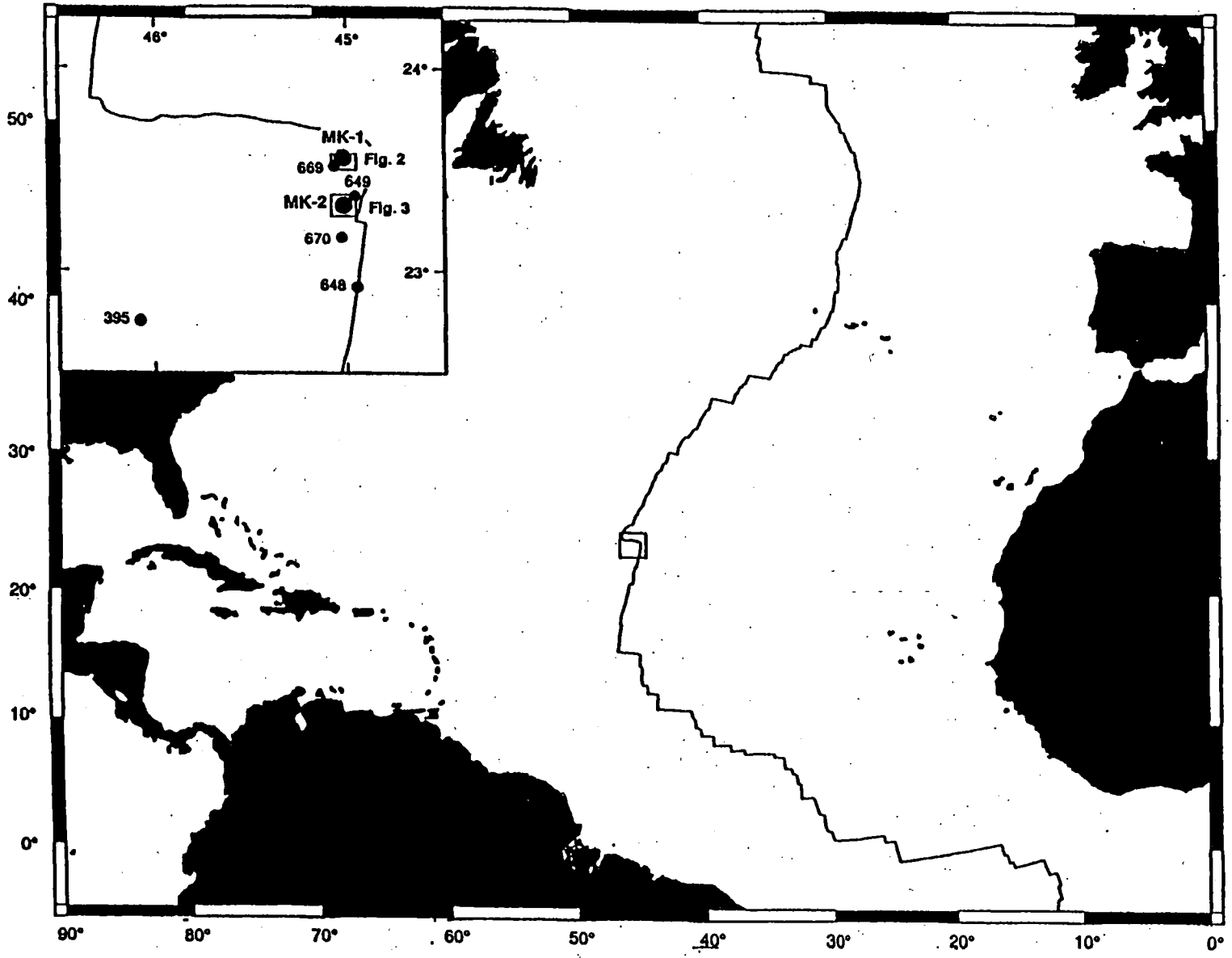


Figure 1. Location of the MARK area on the Mid-Atlantic Ridge. Inset shows Kane Transform, Site 395 (DSDP Legs 45, 78B, and ODP Legs 106 and 109), Sites 648 and 649 (ODP Leg 106), and Sites 669 and 670 (ODP Leg 109). Also shown are locations of Figures 2 and 3, as well as proposed sites MK-1 and MK-2 (larger circles).

CAUSES OF PROBLEMS AT HOLE 894G, LEG 147

1. MISALIGNMENT CAUSED BY THE SHIP OFFSET WHEN SPUDDING, DUE TO STRONG SURFACE CURRENTS. HOLE STARTED WITH 4-5° ANGLE.

2. NON-CONCENTRIC HOLE DRILLED BECAUSE NO CENTERING BUSHING WAS USED. 8 1/2" DRILL COLLARS STAYED ON LOW SIDE OF 15" RE-ENTRY CONE THROAT. HENCE 13 3/8" CASING WOULD ENCOUNTER LEDGE.

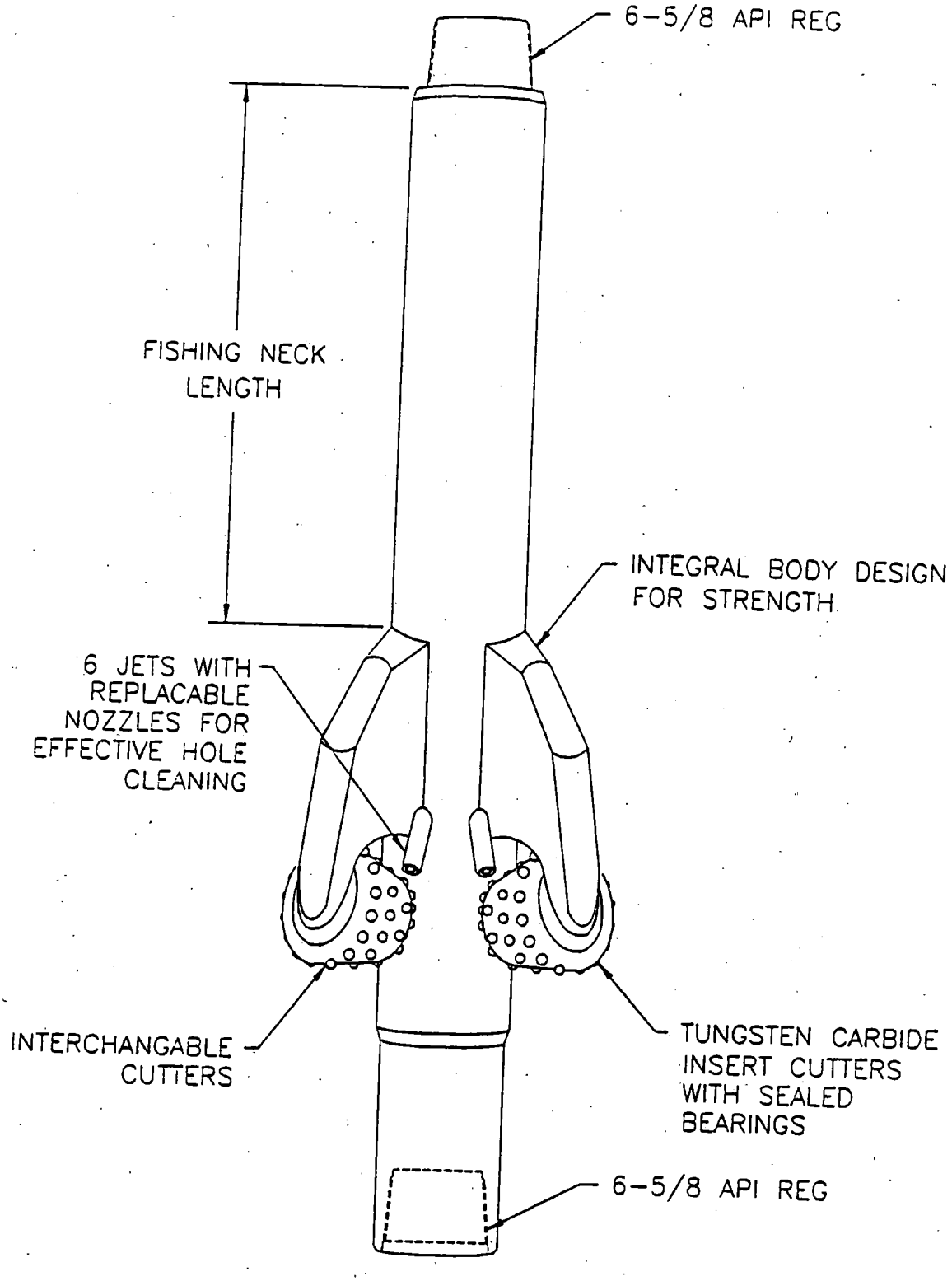
3. HOLE ANGLE INCREASED WITH DEPTH, HENCE INCREASING TORQUE AND DRAG.

4. HRB SETTLED AS SEDIMENTS WERE WASHED OUT FROM UNDER THE DOWN SLOPE LEGS OF THE HRB.

Appendix 3.17

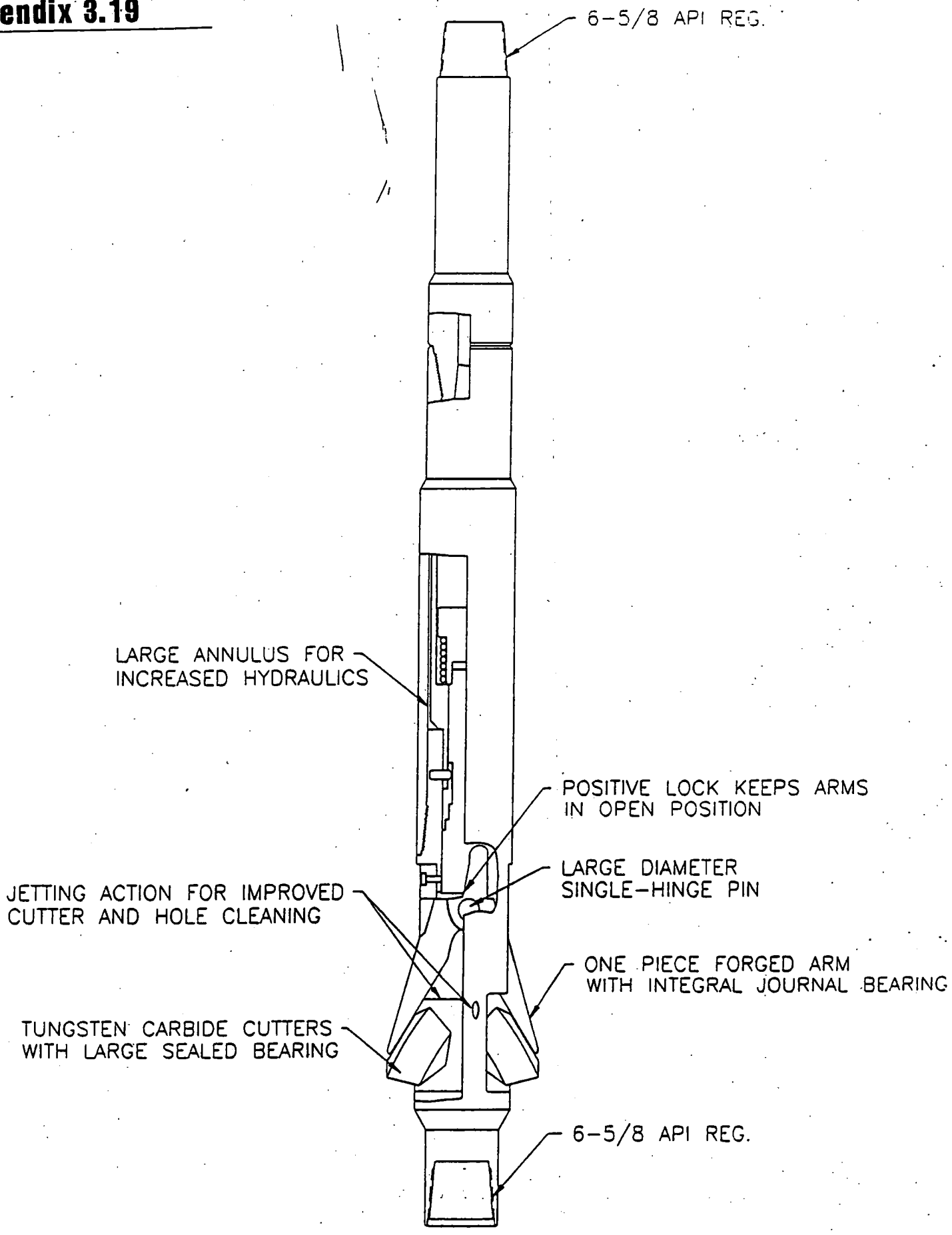
DRILLING EQUIPMENT COMPARISON

	LEG 147	LEG 153
HRB	2	2
GIMBAL LOCKING	NO	YES
DRILLING BUSHINGS	NO	YES
HOLE OPENERS (9 7/8" TO 17 1/2")	NO	YES
13 3/8" CASING	YES	YES
13 3/8" CASING GUIDE SHOES	NO	YES
UNDERREAMERS (9 7/8" TO 15")	NO	YES
10 3/4" CASING	YES	YES
STABILIZERS	NO	YES



SERVCO FIXED DIAMETER HOLE OPENER

Appendix 3.19



SERVCO REAMASTER UNDERREAMER

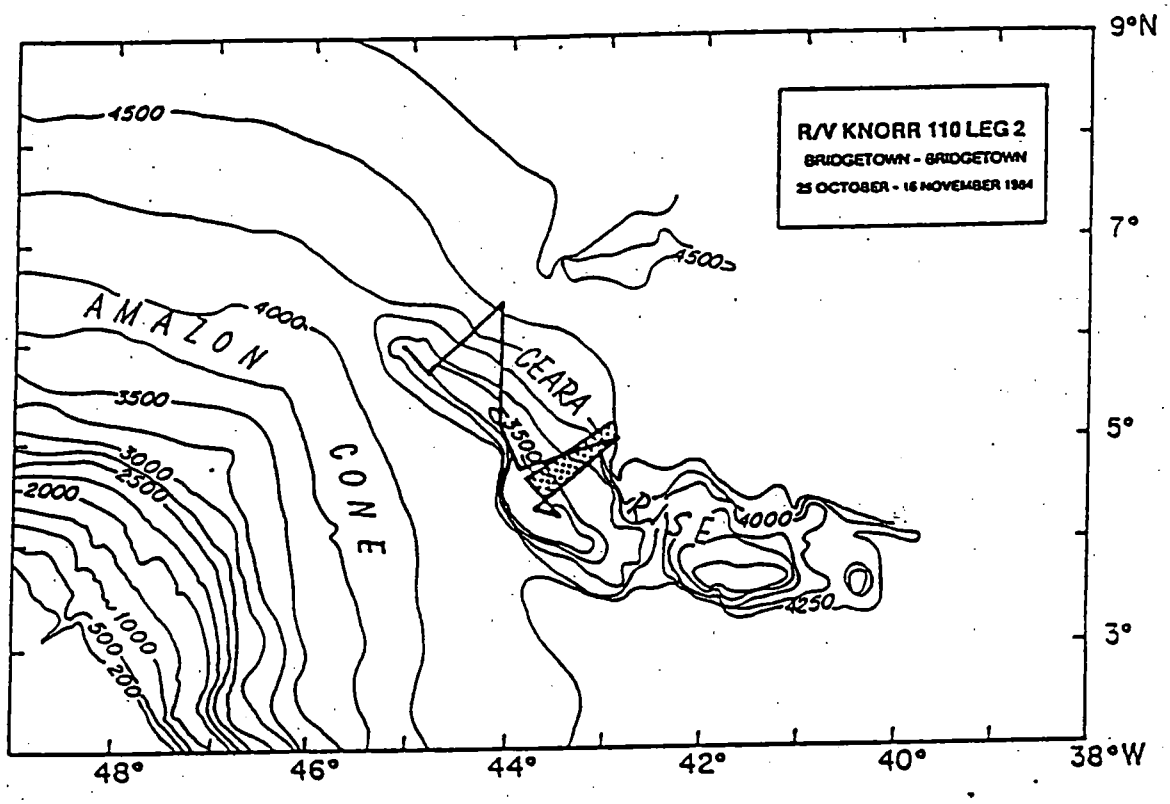


Figure 1. Location of cores recovered during cruise 110 of R/V KNORR. The shaded area marks the best location for Leg 154's APC coring transect.

LEG 155	CO-CHIEF SCIENTISTS:	ROGER FLOOD (SUNY, STONY BROOK) DAVID PIPER (CANADA)
AMAZON FAN	ODP STAFF SCIENTIST: ODP OPERATIONS SUPT: ODP LAB OFFICER:	ADAM KLAUS GENE POLLARD BRAD JULSON
LEG 156	CO-CHIEF SCIENTISTS:	TOM SHIPLEY (UT, AUSTIN) YUJIRO OGAWA (JAPAN)
NORTH BARBADOS RIDGE	ODP STAFF SCIENTIST: ODP OPERATIONS SUPT: ODP LAB OFFICER:	PETER BLUM GLEN FOSS BURNEY HAMLIN
LEG 157	ODP OPERATIONS SUPT:	DAN REUDELHUBER
DCS ENGINEERING	CO-CHIEF SCIENTIST: ODP STAFF SCIENTIST: ODP LAB OFFICER:	TO BE NAMED JOHN FIRTH BILL MILLS

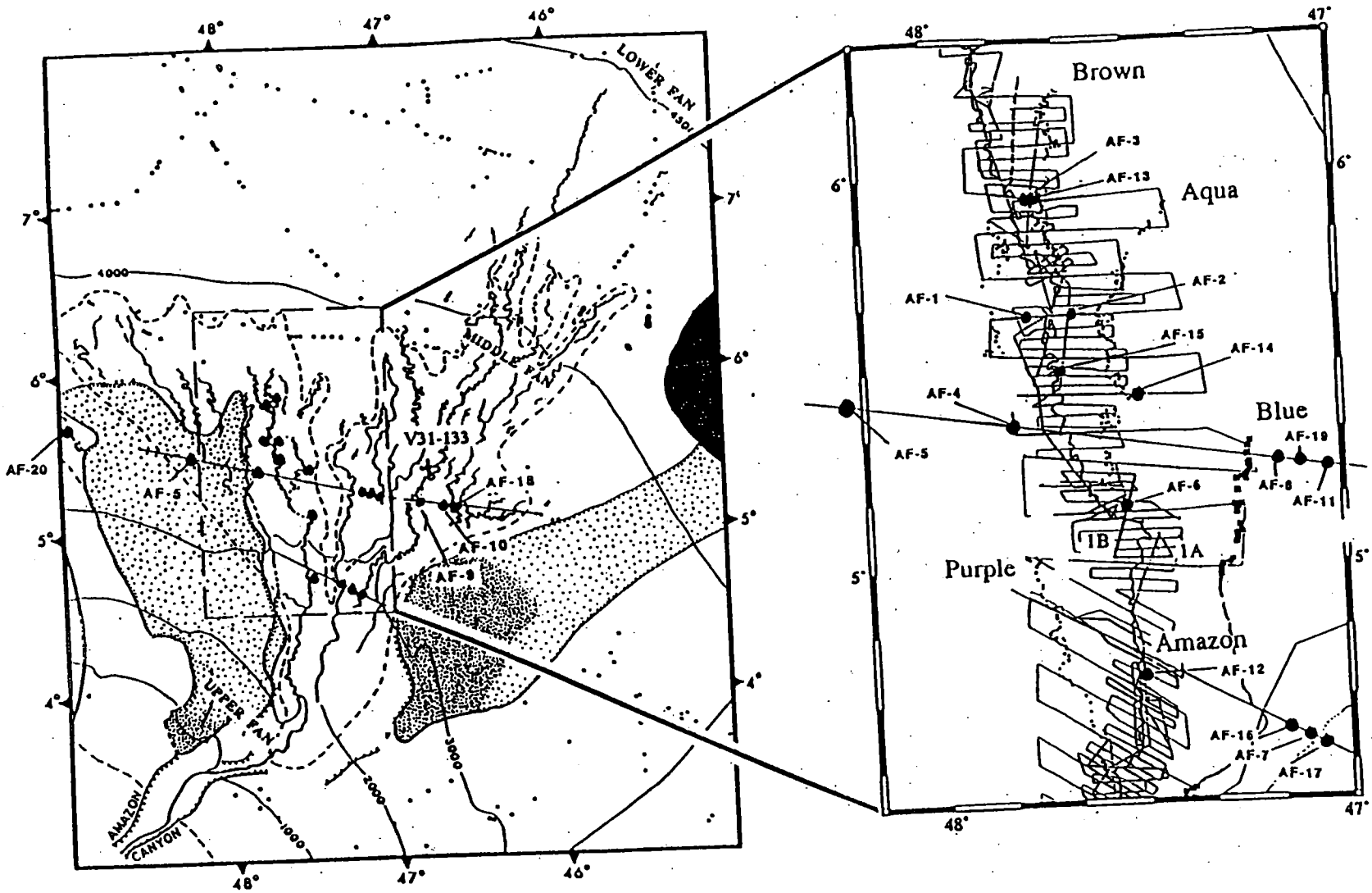


Figure 2. Map of the Amazon fan showing the locations of proposed drill sites (large dots) with respect to surface morphology and bathymetry. Color names are given to many of the exposed, abandoned channel-levee systems.

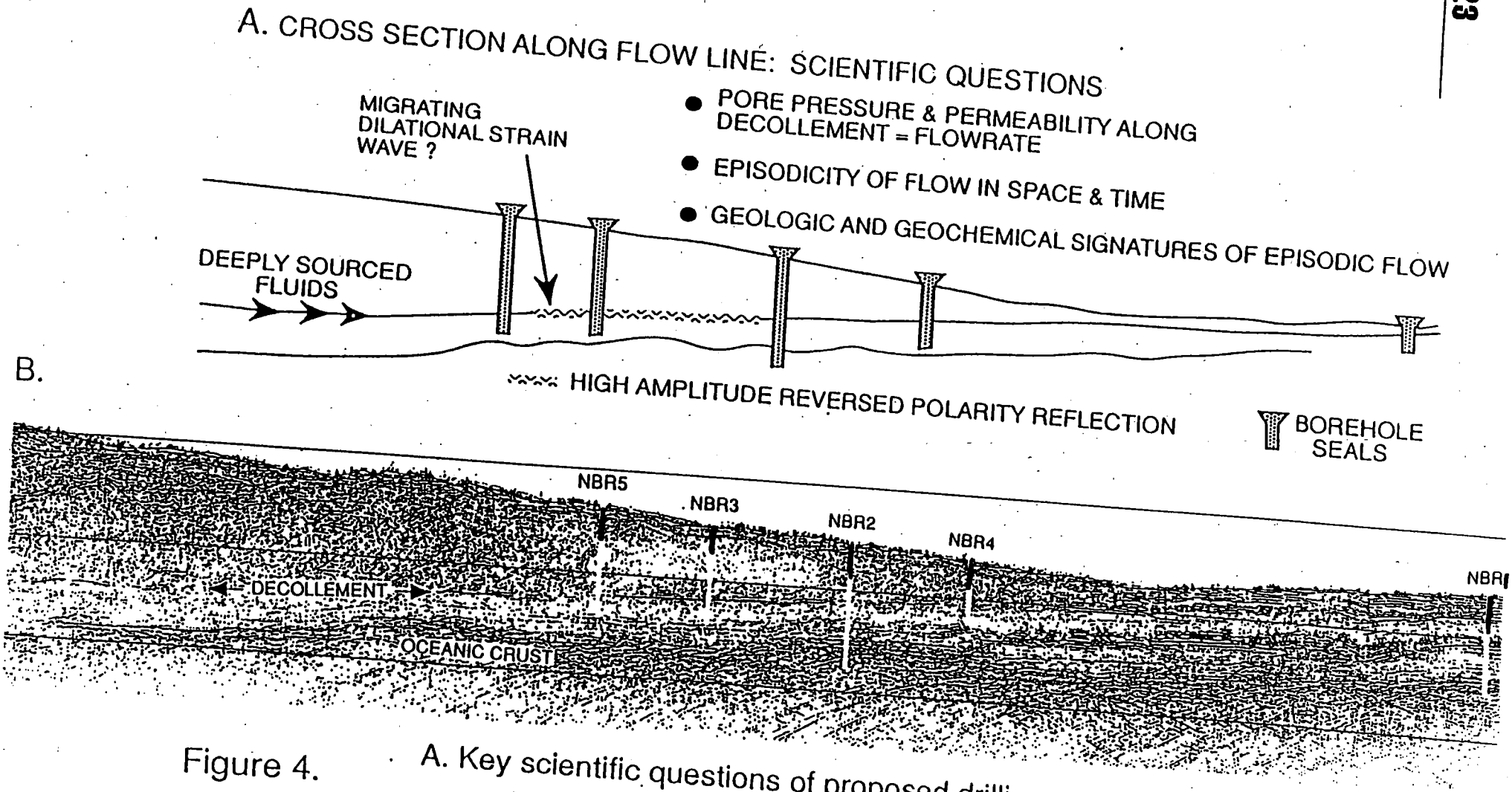
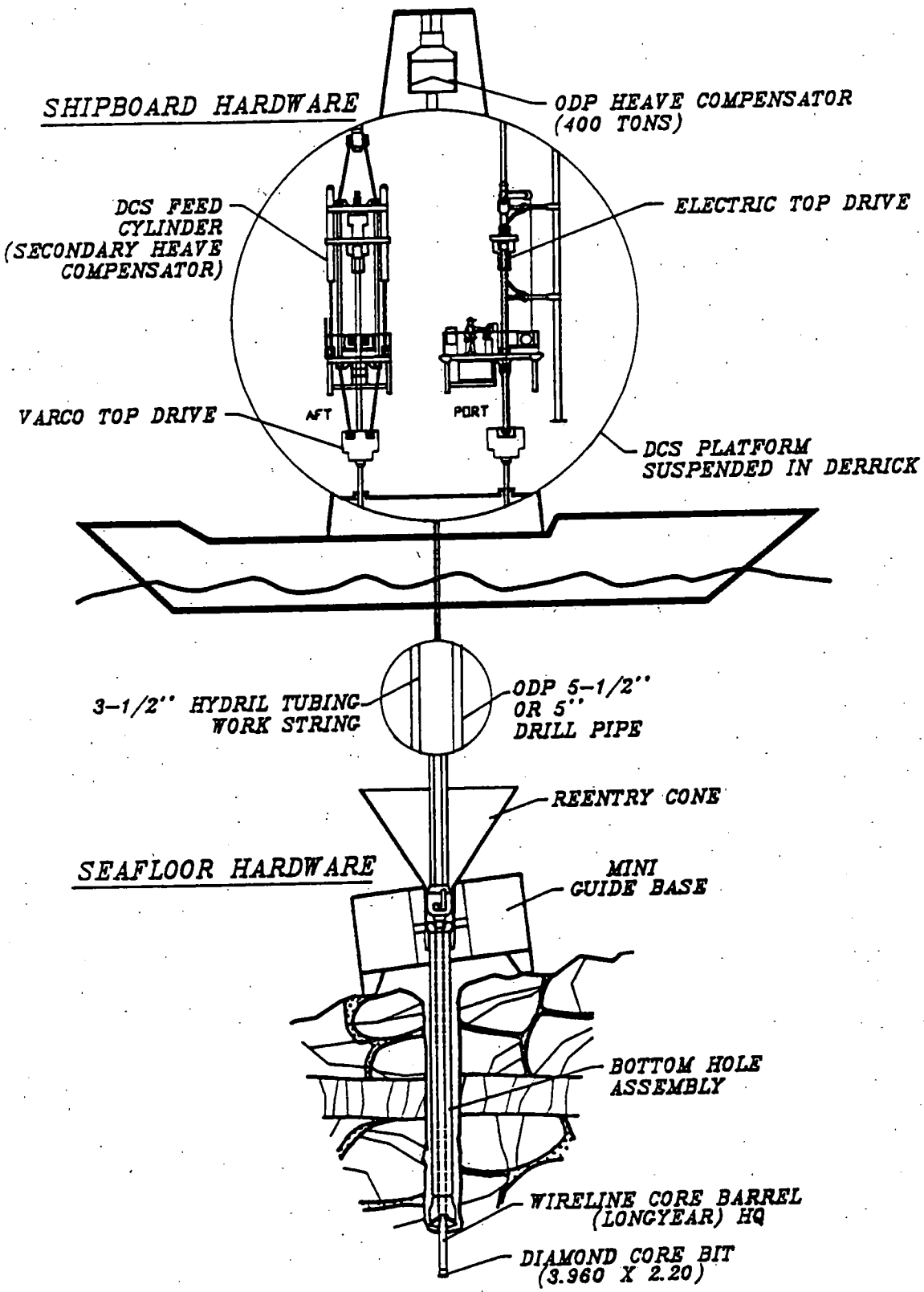


Figure 4. A. Key scientific questions of proposed drilling.

B. Seismic line 204 from 3-D survey with site locations.



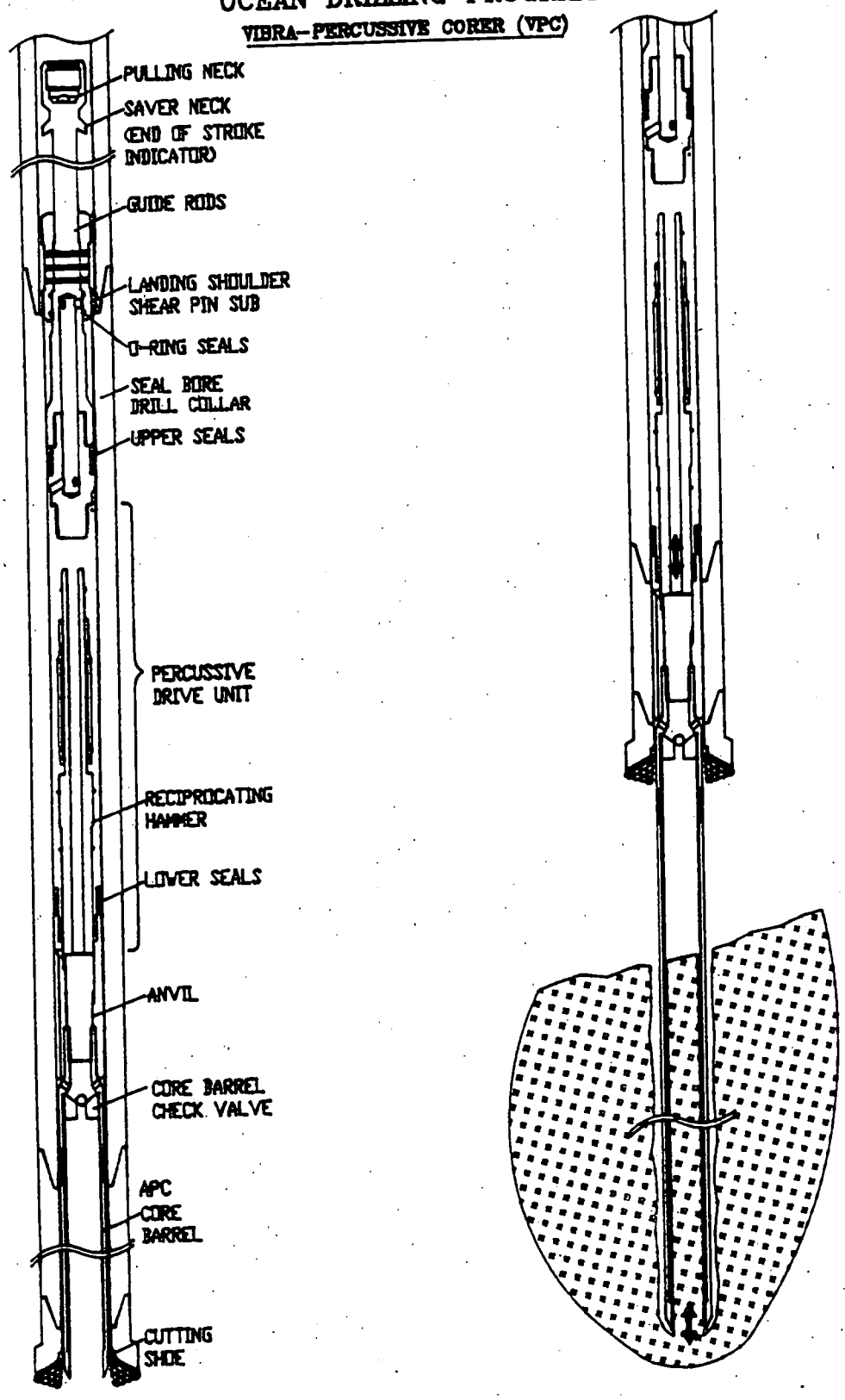
DIAMOND CORING SYSTEM

PHASE II - 4500 METER

LEG 158	CO-CHIEF SCIENTISTS:	SUSAN HUMPHRIS (WHOI) PETER HERZIG (GERMANY)
TAG	ODP STAFF SCIENTIST:	LAURA STOKKING
	ODP OPERATIONS SUPT:	GENE POLLARD
	ODP LAB OFFICER:	BRAD JULSON

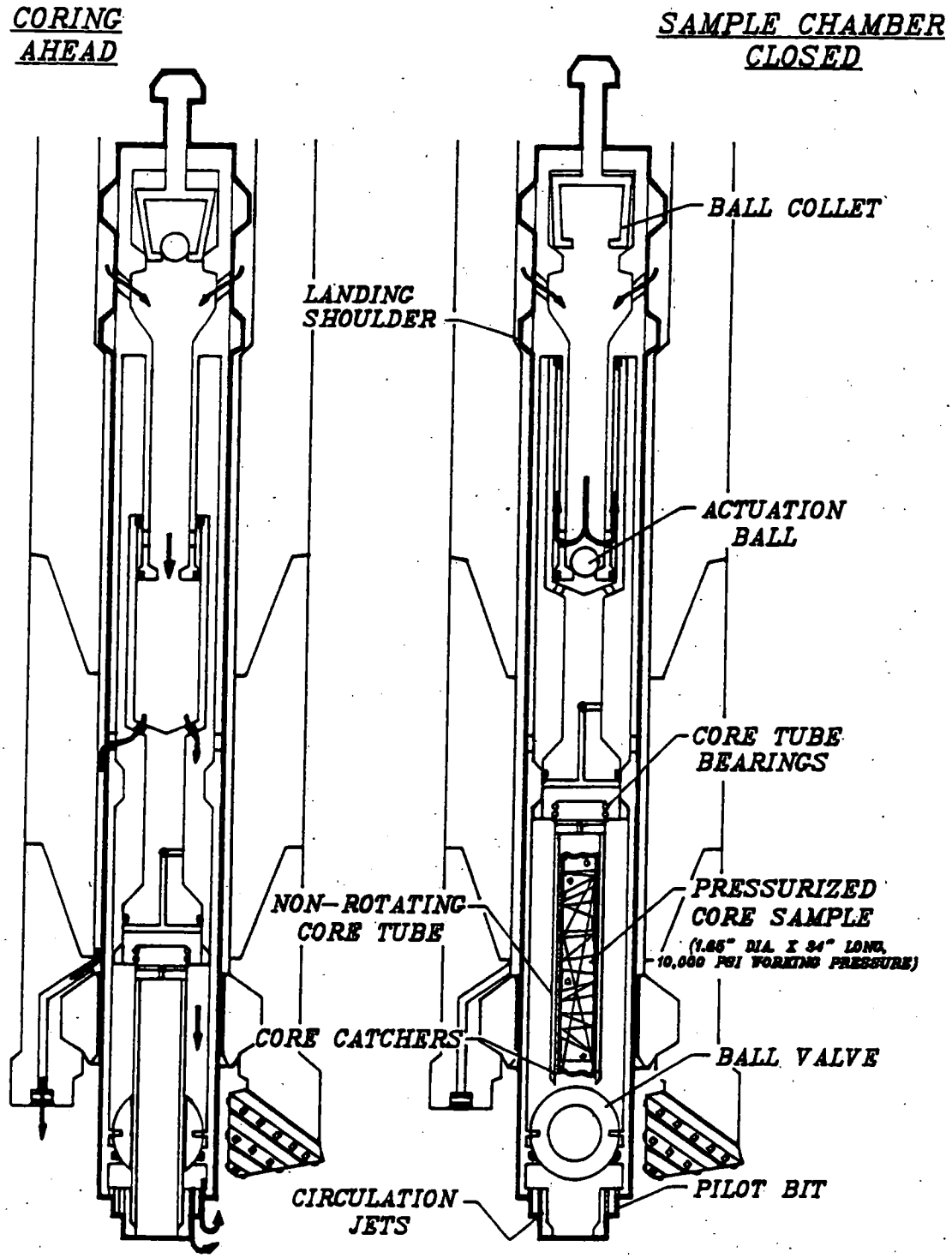
OCEAN DRILLING PROGRAM

VIBRA-PERCUSSIVE CORER (VPC)



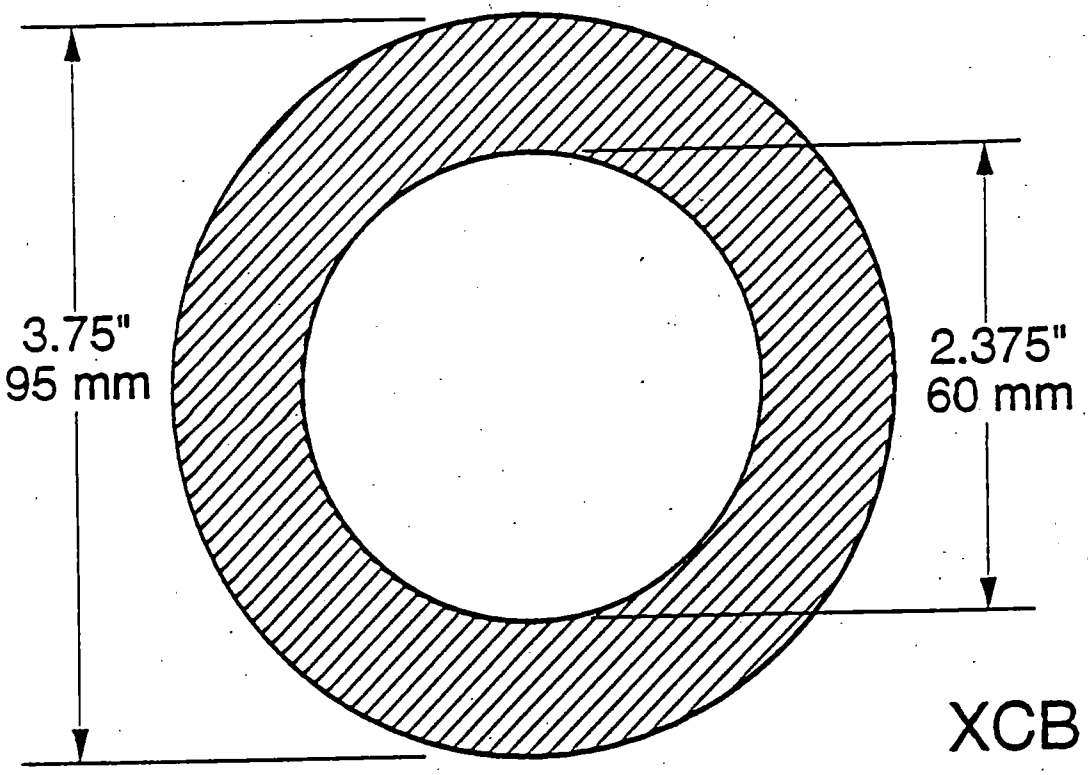
Appendix 3.27

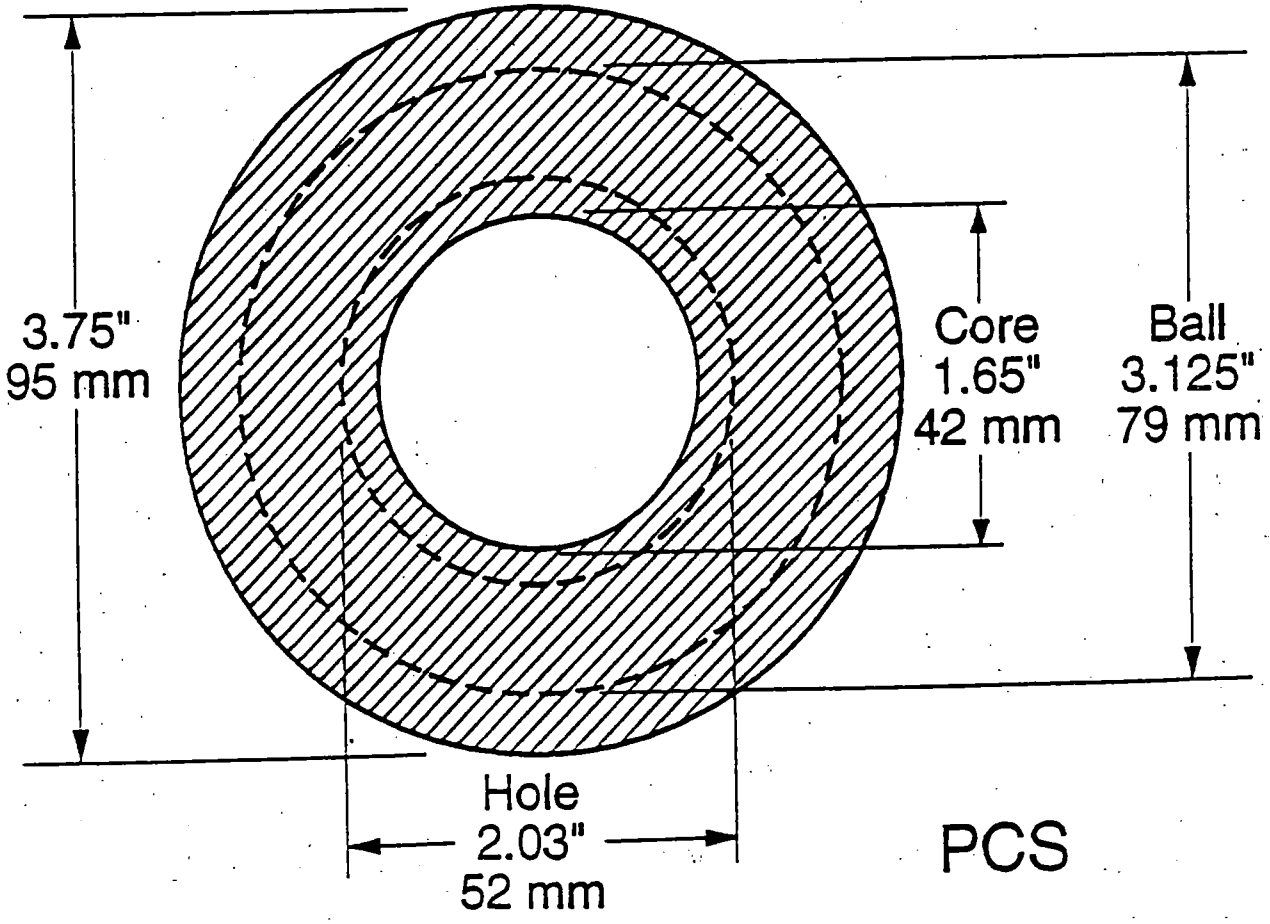
PRESSURE CORE SAMPLER (PCS)
OPERATING SCHEMATIC



APC/XCB BHA Throat

3.8" (97 mm) min. ID





Appendix 3.29

OCEAN DRILLING PROGRAM
PUSH-IN PRESSURE CORE SAMPLER (PPCS)
CONCEPT DESCRIPTION

August 1993

1.0 EXECUTIVE SUMMARY

Since inception, the Ocean Drilling Program (ODP) has continued to develop specialized hardware and equipment for use in recovery of deep sea core samples and data. An idea for a unique sampling tool was recently put forth during an ODP post-cruise debriefing meeting. The idea has since been refined into a bona fide concept by the ODP development engineering group.

The conceptual tool is referred to as the Push-in Pressure Core Sampler (PPCS). The PPCS is conceived to function much like the existing ODP Pressure Core Sampler (Reference: ODP Technical Note No. 17 "The Design and Preparation of a Wireline Pressure Core Sampler-PCS"). The difference between the two tools is the PPCS will be pushed into the sediment as opposed to being drilled in as is the current PCS. The distinction is much like that between the existing Advanced Piston Corer (APC) and the Extended Core Barrel (XCB).

The PPCS is proposed to be used in recovering relatively undisturbed pressurized core samples from soft sediments. Processing of the PPCS fluids, gases and core samples should utilize the same ancillary equipment as the existing PCS.

This paper will describe the PPCS concept in detail. The paper also presents a proposed development time frame, preliminary cost estimate and specific requirements for further development of the PPCS, should the concept be sanctioned as an official "prioritized" engineering development project.

2.0 INTRODUCTION

During a recent Ocean Drilling Program (ODP) post-cruise debriefing meeting a concept for a Push-in Pressure Core Sampler (PPCS) was spawned. The purpose of this document is two fold. First, to disseminate a description of the PPCS concept to the science community. Second, to request feed back from the science community regarding whether ODP should pursue development of the PPCS and if so specifically what configuration should be pursued.

The following description addresses the current PPCS concept. Following the description is a list of "optional" PPCS features which may be included in the design. When necessary, notes are included with each specific feature description to explain its impact on the overall PPCS design and/or operation.

3.0 PPCS GENERAL DESCRIPTION

The PPCS is conceived as an ODP coring tool capable of retrieving squeezable (soft) core samples maintained at near in-situ pressure during retrieval. The PPCS core tube will be mechanically driven into the sediment by latching the PPCS into the BHA and then lowering the BHA. The PPCS can be deployed in any sediment suitable for piston coring. The PPCS is hydraulically actuated by pumping down the drill string. The PPCS will be configured for gas, fluid and core sampling similar to the existing PCS configuration.

The PPCS is based on existing ODP Pressure Core Sampler (PCS) technology. Following is a list of features which are the frame work for the current concept.

1. The PPCS will be compatible with existing Advanced Piston Corer (APC)/Extended Core Barrel (XCB) bottom hole assembly (BHA).

2. The PPCS will be deployed via wireline.

3. The PPCS core tube will be driven into the sediment mechanically by lowering the BHA once the PPCS has been latched in place.

4. The PPCS core sample outside diameter is fixed at 42 mm (1.65 in).

5. The PPCS core sample length is not fixed but is anticipated to be approximately 1 m (39.4 in).

6. The PPCS core tube with captured core sample can be transferred into a suitable shipping bomb or laboratory chamber without loss of pressure.

7. The PPCS detachable sample chamber outside diameter is fixed at 95.2 mm (3.75 in).

8. The PPCS detachable sample chamber length is not fixed but is anticipated to be approximately 2.1 m (7.2 ft).

9. The PPCS ball valve subassembly will allow the ball valve to be opened externally without disassembly of the detachable core sample chamber.

10. The PPCS will have two sampling ports for sampling gas and fluids similar to the existing PCS.

11. PPCS will have a maximum working pressure of 690 bar (10,000 psi).

4.0 PPCS ASSEMBLY

Like the PCS, the PPCS will be composed of six main components or subassemblies (ref. fig. 1). They are, latch subassembly, actuator subassembly, accumulator subassembly, manifold subassembly, ball valve subassembly and detachable sample chamber.

4.1 Latch Subassembly

The PPCS latch subassembly will be a modified XCB latch which provides a landing point and receptacle for attachment of the wireline.

4.2 Actuator Subassembly

The actuator subassembly will channel flow to the appropriate mechanism and retract the core tube through the ball valve subassembly into the sample chamber while closing the ball valve.

4.3 Accumulator Subassembly

The accumulator subassembly will compensate for small changes in sample chamber volume which occur during sealing and for fluid loss due to weeping seals as seal differential pressure increases during PPCS retrieval.

4.4 Manifold Subassembly

The PCS manifold subassembly contains integral valves that enable the detachable sample chamber to be isolated and removed from the core barrel. Two sample ports for collecting gas and/or fluid samples, also controlled by integral valves, are incorporated in the manifold subassembly. The sample ports have separate flow paths. One flow path leads to the inside of the core tube and the other flow path leads to the annular volume surrounding the core tube. The manifold subassembly also contains a burst disk which vents all pressure from the sample chamber should the internal pressure exceed the designed working pressure. An integral pressure transducer enables monitoring of the sample chamber internal pressure once the chamber is removed from the core barrel.

4.5 Ball Valve Subassembly

The PPCS ball valve subassembly forms the sample chamber lower seal. The ball valve is mechanically closed as the actuation subassembly pulls the core tube through the ball valve subassembly.

4.6 Detachable Sample Chamber

The PPCS detachable sample chamber consists of the manifold subassembly, ball valve subassembly and pressure

case. When the sample chamber is closed and removed from the core barrel, the two sampling ports and their associated integral valves as well as the integral pressure transducer are accessible.

5.0 PPCS OPERATION

Operationally the PPCS is deployed as follows:

1. The PPCS is lowered through the drill string on wireline, landed and latched into the BHA (ref. fig. 2).

2. The PPCS core tube is mechanically driven into the sediment by lowering the BHA (ref. fig. 3).

3. The PPCS core tube, with captured core sample, is hydraulically retracted inside the detachable sample chamber and the ball valve closed (ref. fig. 4).

4. The PPCS, with captured core sample, is retrieved via wireline (ref. fig. 5).

5. Once on deck, the detachable sample chamber will be removed and taken to the laboratory for core analysis (ref. fig. 6).

6.0 PPCS SAMPLING OPTIONS

Sampling of solids, liquids and gases can be carried out as well as monitoring and control of the detachable sample chamber temperature and internal pressure.

6.1 Solids Sampling

Until a suitable laboratory chamber exists, the PPCS core sample can only be accessed after the pressure has been vented from the sample chamber, the core tube removed and the core extruded.

6.2 Liquids and Gasses

Sample bottles can be connected to the PPCS sample chamber via a sampling manifold attached to the PPCS sampling ports. Once the sampling manifold and sample bottles are in place, the PPCS gasses and/or fluids can be drawn off. The gasses and/or fluids can also be driven off under pressure by introducing a displacing medium through one sampling port while collecting the sample through the other sampling port.

Note that the annular volume surrounding the core tube will be filled with borehole fluid.

6.3 Pressure Control and Monitoring

A direct pressure reading of the detachable sample chamber internal pressure can be obtained by 1) use of the manifold subassembly integral pressure transducer, 2) attaching an analog gage or pressure transducer to one of the sampling ports and opening the integral control valve or 3) attaching a sampling manifold equipped with an integral pressure gage or transducer. Using a sampling manifold the sample chamber internal pressure can be adjusted via the sampling ports.

Note that small volume changes associated with opening the PPCS integral control valves can create large pressure drops within the sample chamber if little gas is present in the sample.

6.4 Temperature

The temperature can be monitored and controlled by immersing the detachable sample chamber in a temperature control bath.

7.0 PPCS OPTIONAL FEATURES

The PPCS is currently in the conceptual stage only and many other options can be included in the design. The following is a list of optional PPCS design features.

7.1 The PPCS can be designed to drive the core tube into the sediment hydraulically.

This feature adds considerable complexity to the tool. Also, cost would increase while the ability to penetrate stiff sediments would be decreased due to lower thrust capability.

7.2 The PPCS can be designed to be free fall deployable.

The exposed core tube may not be capable of withstanding free fall deployment. Therefore, to be free fall deployable the PPCS design will probably have to be configured for driving the core tube into the sediment hydraulically. As noted above, this will increase the complexity of the tool, increase the cost and lower the ability to penetrate stiffer sediments.

7.3 The PPCS may be made compatible with the Rotary Core Barrel (RCB) BHA.

This is easily done, however, there will not be one tool which is compatible with both the APC/XCB BHA and the RCB BHA. Two distinct tools will be required, each

configured for the appropriate BHA.

7.4 An integral core sample extrusion system which will enable extrusion of the core sample from the core tube without disassembly of the detachable sample chamber can be added to the PPCS.

The integral core sample extrusion system will replace the current PCS type gas and fluid sampling configuration. These two configurations are mutually exclusive. With the ability to externally open the ball valve the integral sample extrusion system will enable the core sample to be transferred into a transfer bomb or laboratory chamber without loss of pressure. This will require the transfer bomb and laboratory chamber be configured so as to make a sealing connection with the PPCS detachable sample chamber. Most likely an intermediate piece of equipment will be required for pressurizing the entire system during core sample transfer.

8.0 PPCS DEVELOPMENT TIME FRAME AND COST ESTIMATES

If development of the PPCS where to begin by second quarter 1994 it could conceivably be ready for sea trials by early to mid 1995.

Cost for development of the PPCS including fabrication of 2 tools and necessary spare parts for sea trials is estimated at $75,000.

9.0 ANCILLARY EQUIPMENT

Numerous ancillary pieces of equipment will be required for operation of the PPCS and proper handling of the core, gas and fluid samples. These pieces of ancillary equipment are not considered part of the development responsibility of ODP should the PPCS project be pursued by ODP. All of the ancillary equipment is considered to be the responsibility of the principal investigator (PI) identified to oversee the development of the PPCS and/or the individual investigating scientist (IS) wishing to use the tool.

9.1 Sampling Manifold

A sampling manifold currently exists for use with the PCS which can be used with the PPCS. However, it is the responsibility of the PI and/or IS to review the existing ODP sampling manifold to determine if it meets the individual scientist's needs. If not, the PI and/or IS must make the necessary arrangements for obtaining a sampling manifold which is compatible with the PPCS and meets the individual scientist's needs.

9.2 Shipping Bomb and Laboratory Chamber

Currently ODP has no plans of designing/procuring shipping bombs or laboratory chambers for the PPCS. It is the responsibility of the PI and/or IS to identify the need for shipping bombs and laboratory chambers and procure such equipment.

9.3 Sample Bottles and Special Sampling Equipment

Sample bottles, special sampling equipment and any other equipment, other than the basic PPCS tool, which may be required for proper handling/processing of PPCS solid, gas or liquid samples must be identified and procured by the PI and/or IS.

10.0 REQUIREMENTS FOR ODP PURSUING DEVELOPMENT OF A PPCS

ODP will pursue development of the PPCS only if the science community expresses a need for such a tool. That need must be made known to, and be sanctioned by, the JOIDES Planning Committee (PCOM). The project must also be approved by the Deputy Director of the Ocean Drilling Program and tool development funding must be identified in the ODP Development Engineering budget. Finally, a champion or PI must be identified who has an interest in the development of the PPCS and who has the necessary funds to acquire all identified required ancillary equipment.

11.0 PLEASE DIRECT INFORMATION OR QUESTIONS TO:

Ocean Drilling Program
1000 Discovery Dr.
Texas A&M Research Park
College Station, Texas 77845-9547

ATTN: Tom Pettigrew
PPCS Project Engineer

Telephone: (409) 845-2329
Telefax: (409) 845-2308

EMAIL: "PETTIGREW @ NELSON.TAMU.EDU"

PUSH-IN PRESSURE CORE SAMPLER (PPCS)

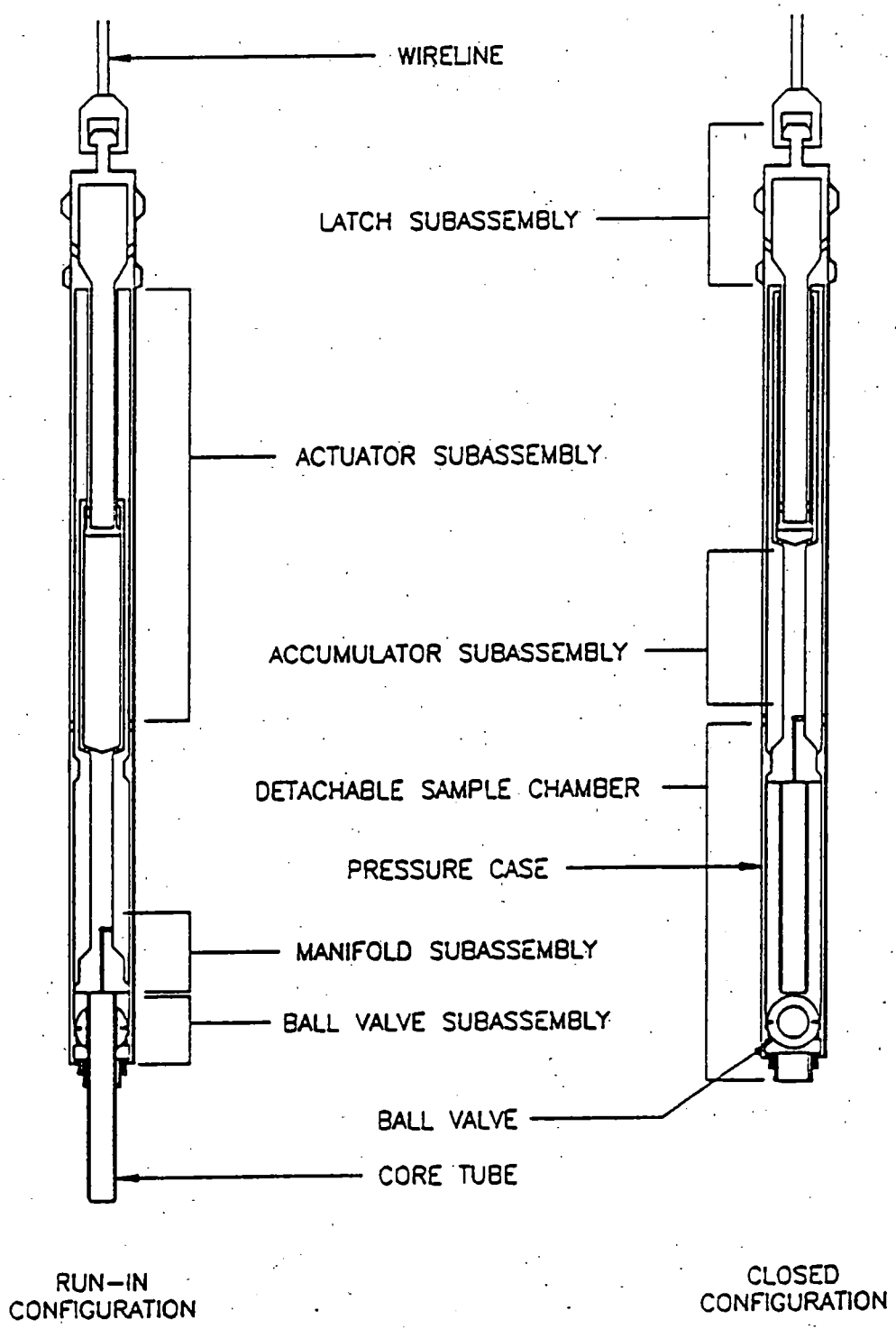


FIG 1: PPCS ASSEMBLY

Appendix 3.37

PUSH–IN PRESSURE CORE SAMPLER (PPCS)

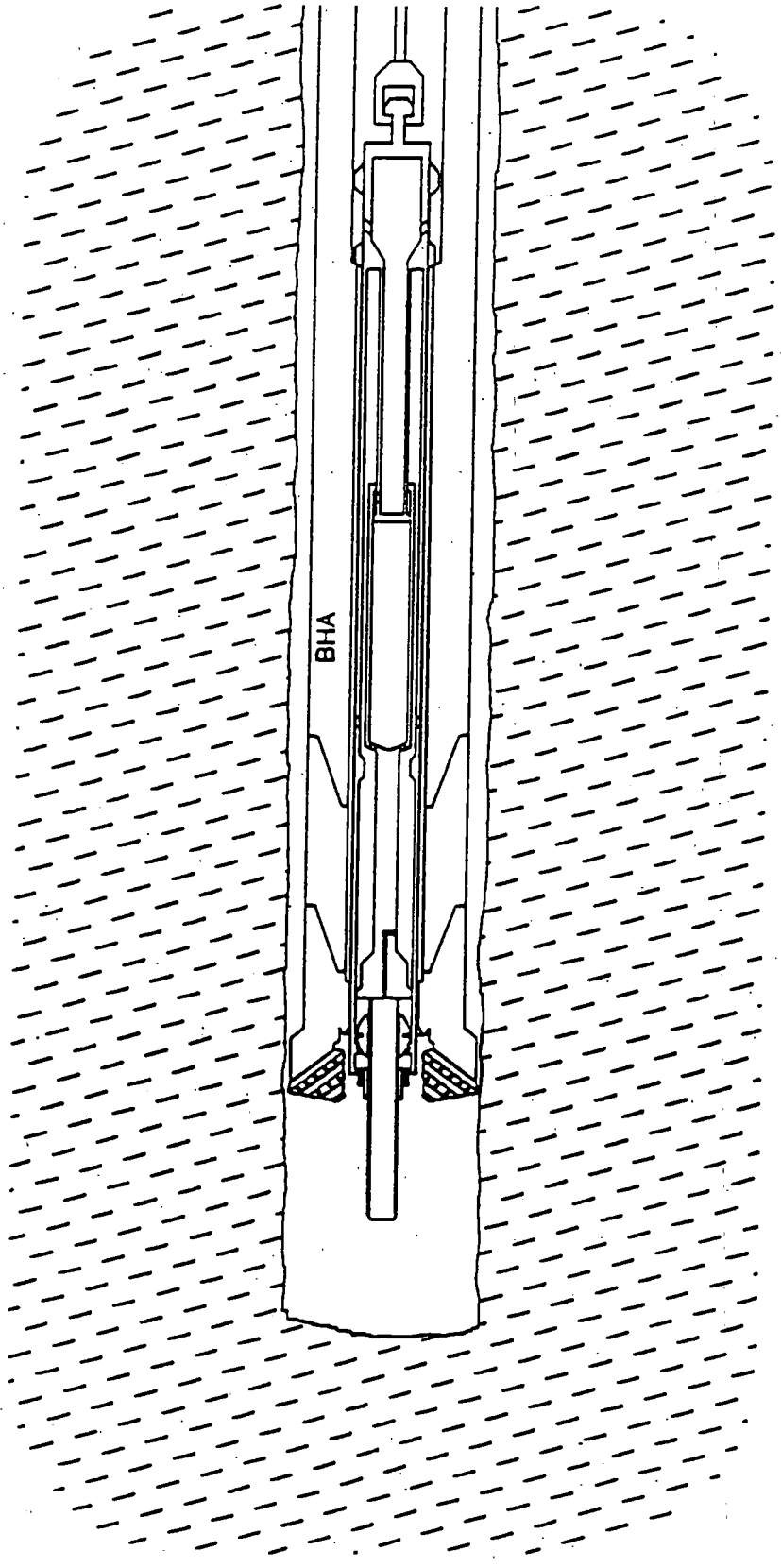


FIG 2: PPCS LANDED AND LATCHED IN BHA

PUSH–IN PRESSURE CORE SAMPLER (PPCS)

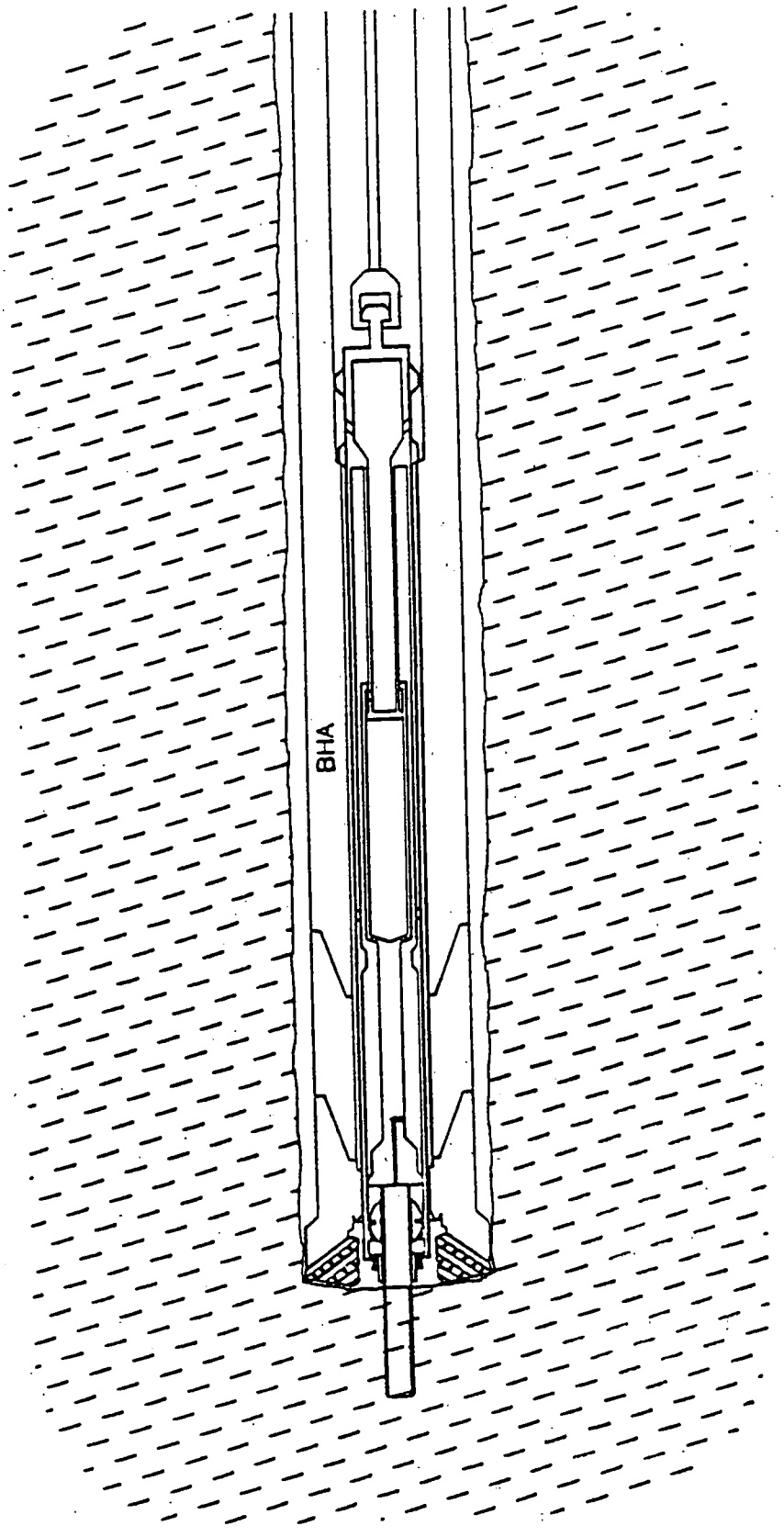


FIG 3: PPCS DRIVEN INTO SEDIMENT BY LOWERING BHA

Appendix 3.39

PUSH–IN PRESSURE CORE SAMPLER (PPCS)

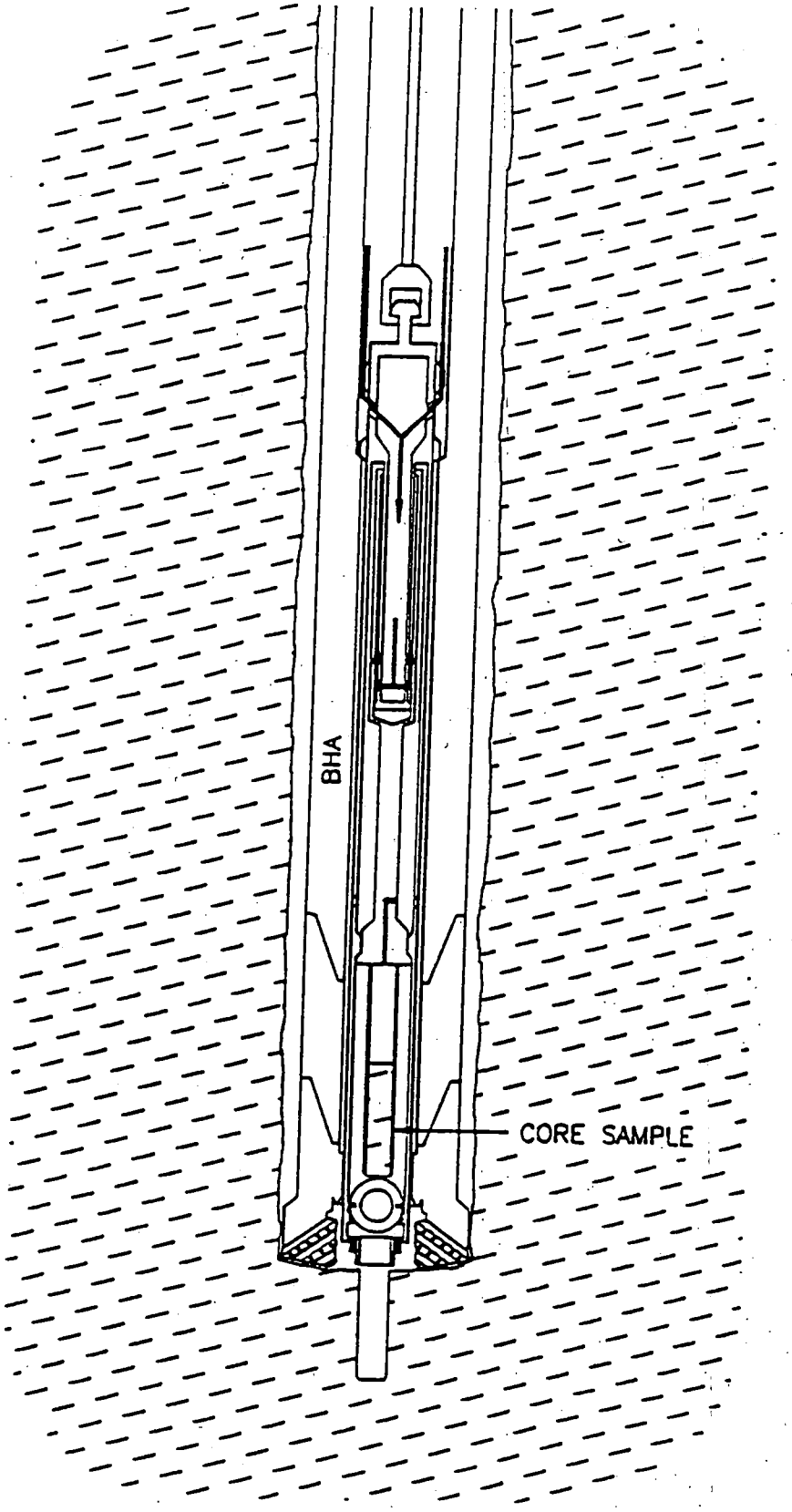


FIG 4: PPCS CORE TUBE RETRACTED AND BALL VALVE CLOSED

PUSH-IN PRESSURE CORE SAMPLER (PPCS)

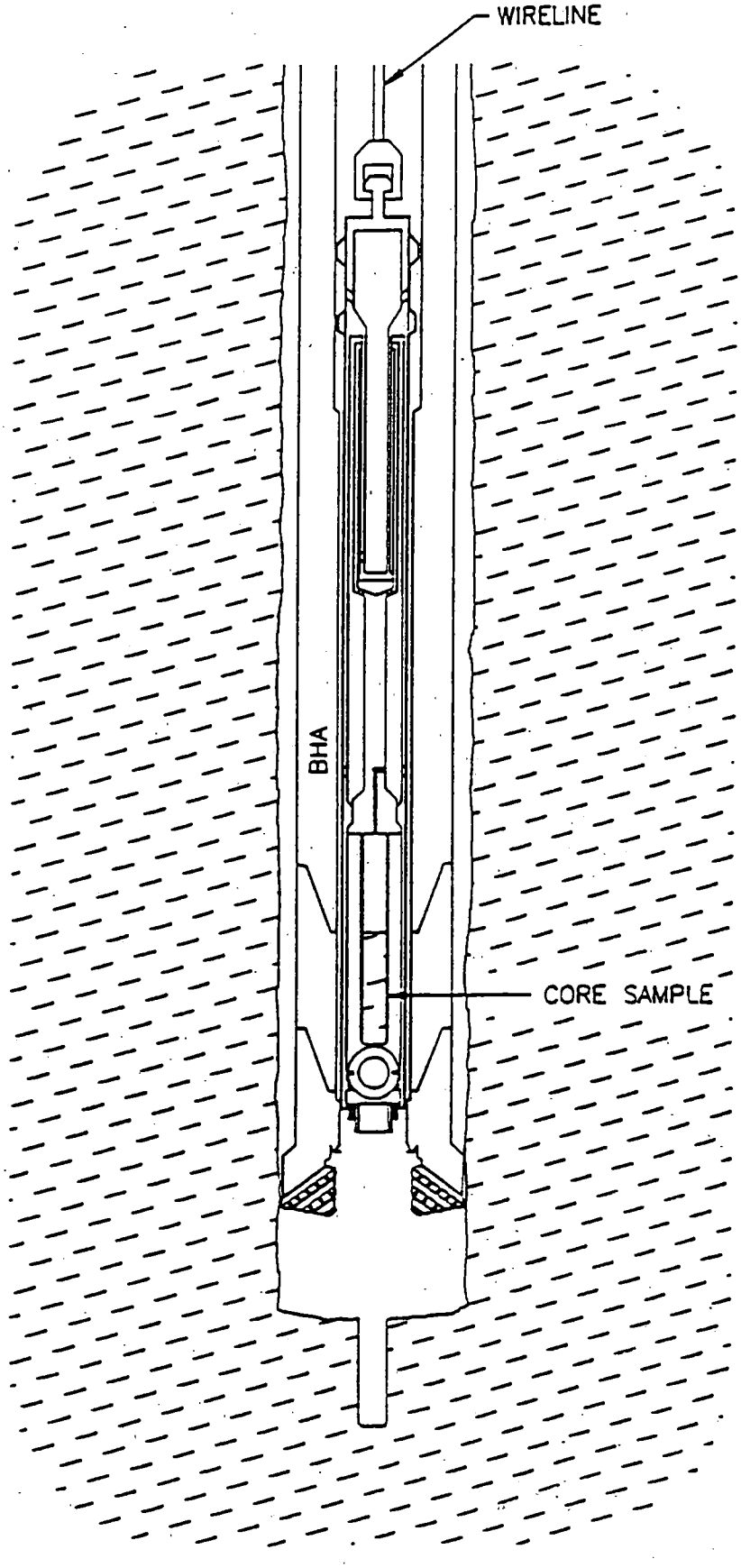


FIG 5: PPCS RETRIEVED VIA WIRELINE

Appendix 3.41

PUSH-IN PRESSURE CORE SAMPLER (PPCS)

DETACHABLE SAMPLE CHAMBER

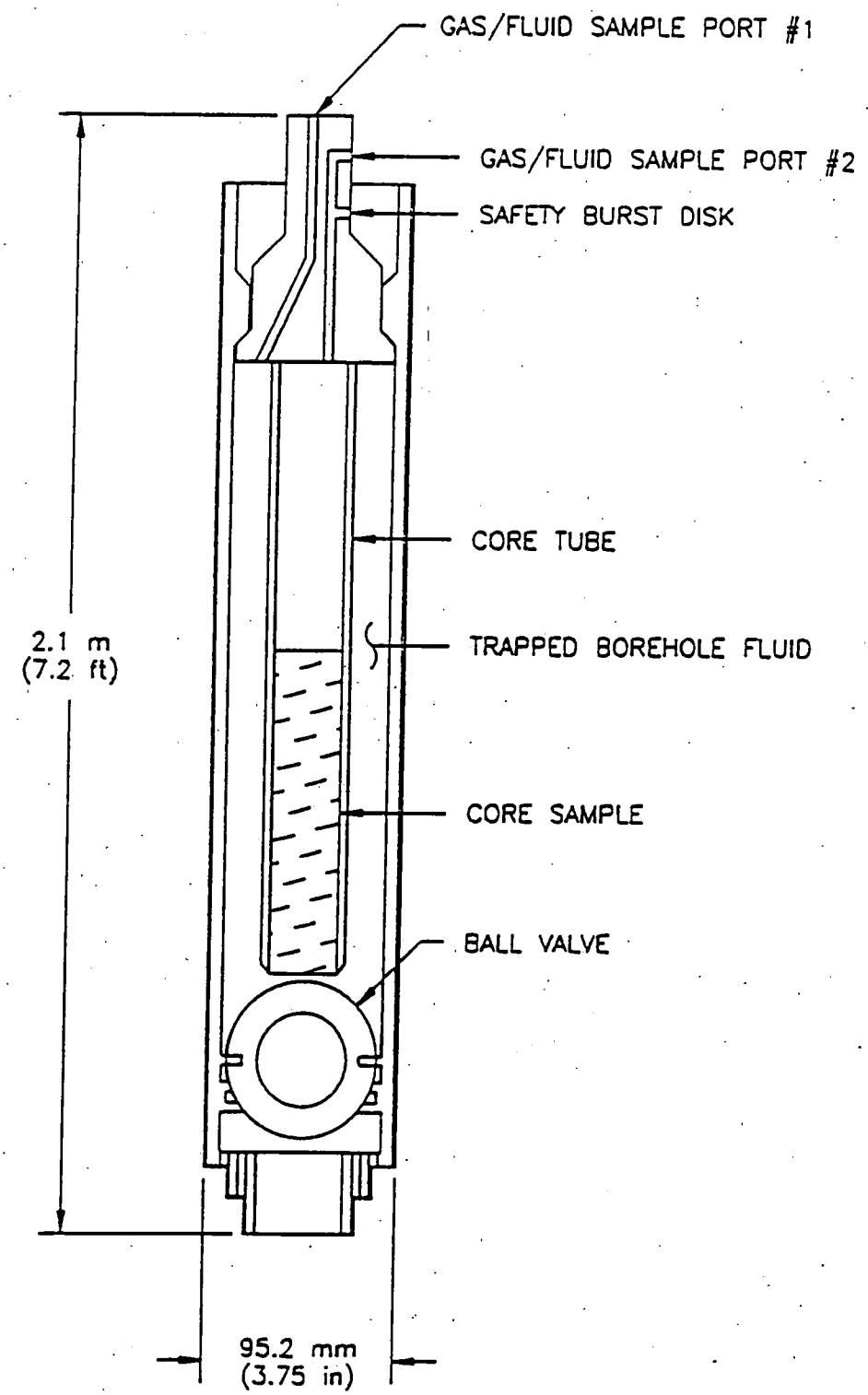


FIG 6: PPCS DETACHABLE SAMPLE CHAMBER

OCEAN DRILLING PROGRAM
VIBRO-PERCUSSIVE CORER (VPC) SUMMARY REPORT

August 1993

1.0 EXECUTIVE SUMMARY

ODP Engineering and Drilling Operations has been working on the development of a Vibra-Percussive Corer (VPC) system since early 1990. The original VPC concept utilized a modified version of a seven inch hammer drill under development by Novatek in Salt Lake City, Utah. This tool was reduced in size to 3-1/2 inch OD and during initial lab testing tool performance was quite promising.

When deployed on Leg 133 the prototype tool exhibited a propensity for downhole stalling. Field reports were confusing in that offshore performance data was very different from lab operating data. Marine corrosion and insufficient stabilization of the finely machined internal mechanism was initially suspected as the primary problem. Subsequently, the original tool was returned to shore, refurbished, critical surfaces protected with anti-corrosion materials, and micro-stabilizers were added to the design to enhance internal tool centralization.

The tool was returned to sea for additional testing on Leg 146. Tool performance was again poor. Downhole stalling continued to occur with regularity. Based on poor field performance and questionable operational data it was decided that a complete analytical analysis of the system should be done. Upon completion of the computer modelling effort it was apparent that it would be highly unlikely for the Novatek concept to work reliably downhole. It was not feasible to maintain the close tolerances required for consistent downhole operation in a marine environment.

Armed with the knowledge gained from the first attempt, ODP engineers are investigating other tools for possible development into an ODP compatible VPC. These include concepts from Rossfelder, a company with a history of designing vibro-coring systems for industry; concepts from Seabed, a Dutch offshore engineering and manufacturing company; and the worlds only operating downhole vibro-coring system designed by Russian engineers.

All concepts are currently under evaluation and it is hoped that at least one system may be ready for sea trials evaluation in time for Leg 155 - Amazon Fan (March/May 1994).

2.0 INTRODUCTION

Since inception, the Ocean Drilling Program (ODP) has continued to develop specialized hardware and equipment for use in recovery of deep sea core samples and data. As part of that effort, ODP was given the mandate to develop a Vibro-Percussive Corer (VPC) capable of being deployed from the JOIDES Resolution. The VPC is intended for use in recovering relatively undisturbed core samples from soft unconsolidated sediments such as loose sands which currently are not effectively recovered.

Industry has never developed a vibro-corer which is capable of being deployed through a long drill string suspended from a dynamically positioned vessel. Development of such a tool for scientific coring therefore fell to ODP. A survey of the geotechnical industry identified several tools which appeared to be candidates for modification into an ODP compatible VPC.

This Vibro-Percussive Corer (VPC) Summary Report is a brief history of the Ocean Drilling Program's (ODP) Vibro-Percussive Corer (VPC) development to date. The report also describes the current status of the project and proposed future development.

3.0 VIBRO-PERCUSSIVE CORER (VPC) DESCRIPTION

The VPC is being designed as a piston type core barrel which is made to vibrate. The vibrations enable the core barrel to penetrate unconsolidated sediments such as sands which the Advanced Piston Corer (APC) historically has not been able to penetrate. The vibration frequency and energy are such that the sediment in contact with the VPC is liquified. When liquified the sediment's mechanical resistance is minimized allowing the VPC to penetrate. Only the sediment in direct contact with the VPC is liquified. Therefore the bulk of the core sample recovered should remain undisturbed.

The VPC is being designed for compatibility with the standard ODP APC/XCB bottom hole assembly (BHA). The VPC can be deployed when sands or similar unconsolidated material is encountered and the APC/XCB BHA is in the drill string. Power and thrust are applied to the VPC by pressurized sea water pumped down the drill string.

4.0 INITIAL VPC DEVELOPMENT HISTORY

In mid 1989 the geotechnical industry was canvased for an "off-the-shelf" vibro-corer. Since no off-the-shelf vibro-corer, compatible with ODP drilling hardware was found, a new tool had to be specifically developed.

Various means of vibrating a core barrel were originally explored. Hydraulically driven impactors which work against

mechanical springs including positive, negative, and double action mechanisms were investigated. Fluid-jet type mechanisms both positive and negative acting, were also investigated.

Based on geometrical constraints, power medium requirements, anticipated tool life, tool repair-ability, and cost, a simple hydraulically driven spring-less impactor with slide valve was selected. This tool was more of a vibro-percussive or hammering tool rather than purely a vibrator. A large (7 inch O.D.) version of this tool was already under development for the oil industry by a small engineering firm in Salt Lake City, Utah.

This company, Novatek, was approached in early 1990 regarding the feasibility of scaling down their tool for use by ODP. Their initial feedback indicated that the tool could be scaled down and still produce the required frequency range and energy output. Novatek was subsequently contracted to produce a prototype (3.5 inch O.D.) tool suitable for bench testing and sea trials.

Initial bench testing of the tool proved that it functioned well and it's operating parameters were very near those predicted. However, the tool did exhibit a tendency to stall. The decision was made to proceed with the Novatek tool and to deploy it as an integral part of the VPC assembly during Leg 133 sea trials (August/September 1990). The sea trial results were confusing and conflicted greatly with predicted operating parameters as well as observed operating parameters during bench testing.

An internal corrosion problem which affected the close toleranced moving parts was identified and corrected. It was also determined the sliding control valve was moving off center thus changing the fluid dynamic regime surrounding the valve which controls the valves actions. This situation was corrected by the addition of stabilizers which prevented the valve from moving off center.

To collect more data for further evaluation of the VPC a second sea trials was scheduled for Leg 146 (August/September 1992). The Leg 146 sea trials showed the Novatek tool consistently stalled and could not be "jump started".

To investigate the stalling phenomenon further, Stress Engineering Services, Inc., was contracted to evaluate the Novatek tool using a computer model previously developed for work on the Extended Core Barrel Flow Control (XCB-FC) and Motor Driven Core Barrel (MDCB) coring systems. The computer model was "refined" until it predicted stalling and operating parameters as had been observed during bench testing. The computer model was then used to evaluate ways of eliminating stalling. These studies indicated stalling could be prevented, however, the necessary changes relied on extremely close tolerance parts which were subject to erosion. The computer model also indicated that only a slight amount of erosion could significantly increase the stalling tendency.

The computer analysis was then expanded to included the entire VPC assembly placed inside the BHA and the computer model was modified to determine the maximum possible energy output of the tool. Results indicated that the energy output of the existing tool design was well below that necessary for ODP coring operations. The analysis also indicated that the maximum possible energy output of the tool was only minimally acceptable for ODP coring operations.

5.0 CURRENT STATUS OF THE VPC DEVELOPMENT PROJECT

Based on the results of the computer modeling, bench testing and sea trials, the Novatek tool has been dropped from consideration by ODP.

Rossfelder, a manufacturer and supplier of commercial subsea vibro-coring systems and services, has been approached by ODP regarding development of a vibro-corer to meet science needs. Rossfelder is currently developing a through-pipe vibro-corer which can be modified for ODP use. Rossfelder has expressed an interest in developing a vibro-corer for ODP and indicated it may be possible to produce the tool in time for use during Leg 155 (Amazon Fan) or Leg 156 (North Barbados). Rossfelder is currently preparing a VPC development proposal for submittal to ODP.

Subsequent to the Rossfelder talks a company in the Netherlands, called Seabed, also expressed an interest in developing a VPC for ODP. In addition, the Russians have recently indicated that they are interested in supplying ODP with a VPC. Detailed requirements for the ODP VPC have been mailed to Seabed and the Russians accompanied by a request for a preliminary development proposal.

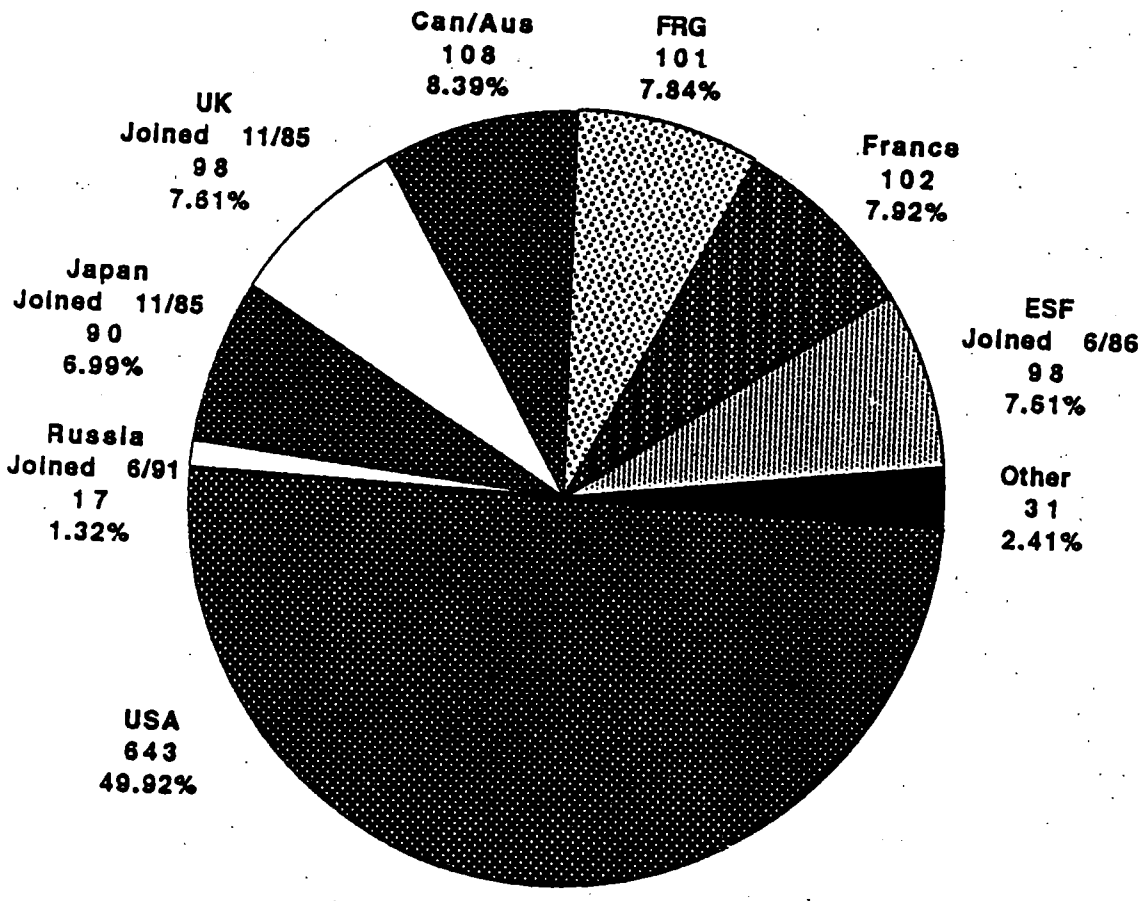
6.0 FUTURE VPC DEVELOPMENT

Since Rossfelder has experience in the design and deployment of commercial subsea vibro-corers ODP will initiate development of the VPC through them. However, further communication with Seabed, the Russians, and all other viable sources will be pursued on a parallel path.

A suitable way to perform an analytical analysis of the interface between the VPC and the sediments being cored is currently being sought out. Once an appropriate vendor has been identified an analysis will be performed to determine optimum operating parameters for various unconsolidated sediments. A determination of the possible affect that lithostatic pressure may have on VPC coring must also be analyzed. The BHA configuration, vibro-corer configuration, sediment parameters and system fluid mechanics will be input to the analysis.

Shipboard Participant Tally

Leg 101 - Leg 151



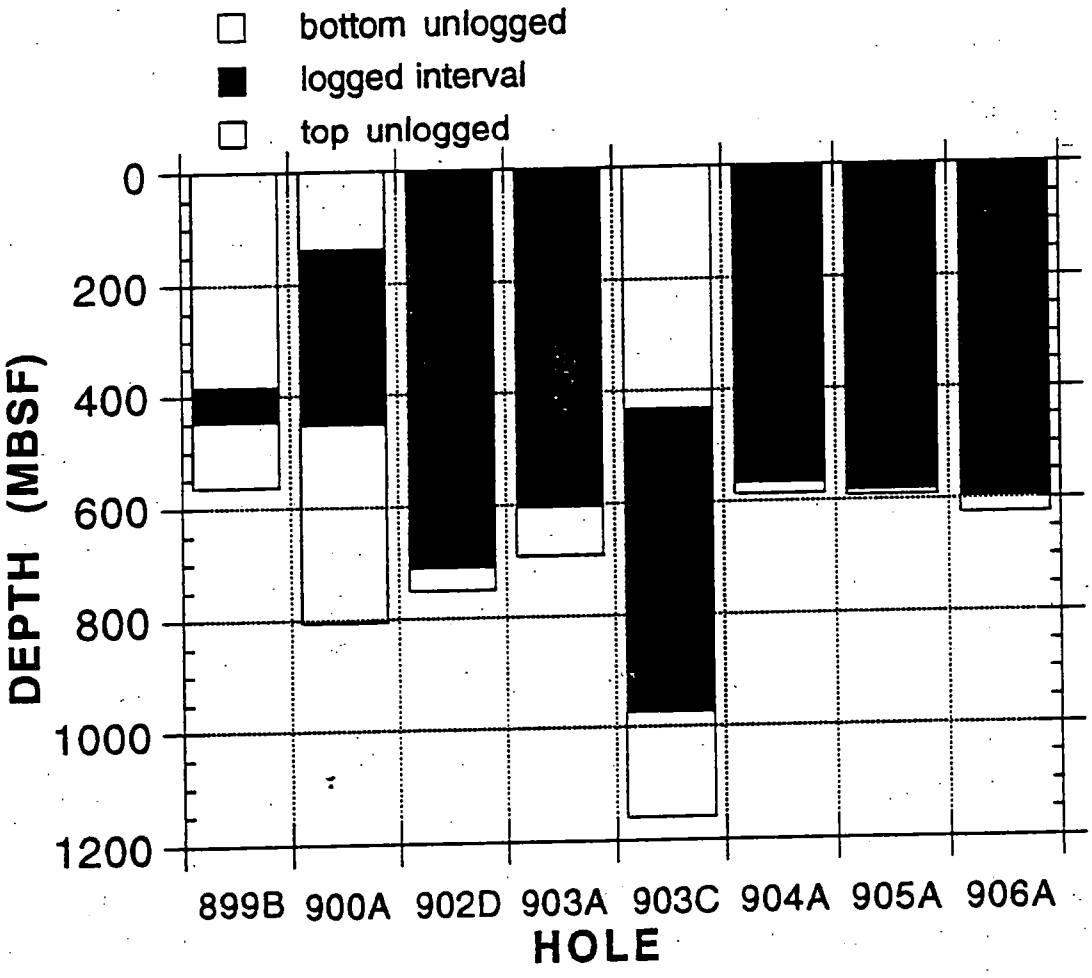
TOTAL = 1288 Participants including Staff Scientists and LDGO/LDEO Logging Scientists

Recent Logging Operations

Leg 148: Equatorial Pacific
- Upper oceanic crust studies
- 504B and 896A logged
- Max. bottom hole temp 180°C

Leg 149: Iberian Abyssal Plain
- Characterization of rifted margin
- difficult hole conditions
- 899B and 900A logged
- Dipole sonic & std tools in both holes
- MAXIS/winch installation on transit
- Sun IPX installed on ship
- Khoros software development

Leg 150: New Jersey Margin
- high-resolution sea level change
- difficult hole conditions
- 6 holes (902-906) logged with SES
- Dipole sonic & std tools in all holes


bottom unlogged
logged interval
top unlogged
DEPTH (MBSF)
0
200
400
600
800
1000
1200
899B
900A
902D
903A
903C
904A
905A
906A
HOLE

Appendix 4.2

Future Logging Operations

Leg 151: N. Atl. Arctic Gateways
- high-latitude sedimentation
- standard tools planned
- CLI package prelim. sea-testing

Leg 152: E. Greenland Margin
- N. Atlantic tectonic history
- standard tools planned
- digital BHTV planned
- Schlumberger mag/suscept. possible

Leg 153: MARK
- Mid-atlantic crustal processes
- standard tools planned
- digital BHTV planned
- VSP proposed

Leg 154: Ceara Rise
- high-resolution sea level change
- standard tools planned
- CLI package planned for ship usage
- Schlumberger mag/suscept. planned

LOGGING PLANS FOR ODP LEGS DURING FY 1994

The JOI Planning Committee met in December, 1992 to establish the scientific objectives for the FY93-94 drilling schedule. To meet these objectives and to achieve results consistent with the COSOD conceptual frameworks, LDEO has designed a "straw man" logging program for the FY 1994 Science Plan.

Leg 152: Volcanic Rifted Margin (SE Greenland Margin)

The nature of the transition between continental and oceanic lithosphere at rifted continental margins is important for the understanding of plate tectonics and seafloor spreading. The break-up unconformity, and basement below, on the SE Greenland Margin is deeply buried, limiting the resolution of geophysical observations in the absence of drilling. Leg 152 will consist of a transect across the continent-ocean transition through a sequence of seaward dipping reflectors and into normal oceanic crust.

The logging program at volcanic rifted margins can provide supplementary data to address questions about the lithospheric deformation, the mechanisms of magma emplacement, syn- and post-rift subsidence of the seaward-dipping reflector sequence, the timing of the break-up processes, and the influence of the Iceland Hotspot on the formation of this volcanic rifted margin. Logging will provide the critical depth/seismic tie from drilling and core data to seismic profiles; continuous porosity profiles to reconstruct subsidence history; images of volcanic sequences and faults as well as structural dips from FMS data; regional stress indications in basement sections from BHTV and FMS logs; and continuous lithological variations as a function of time and location in response to the rifting. With the exception of the BHTV, three standard logging runs in most holes will accomplish these goals.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Operations
EG63-1	520	440	440	Std. logs+FMS+BHTV+mag/susc
EG63-2	1875	1220	1220	Std. logs+FMS+BHTV+mag/susc
EG65-3	2095	1420	1420	Std. logs+FMS+BHTV+mag/susc
EG65-4	1840	1180	1180	Std. logs+FMS+BHTV+mag/susc

Leg 153: MARK (Mid-Atlantic Ridge)

Drilling in the mid-Atlantic MARK area is scheduled in FY94 to investigate the generation of oceanic lithosphere at slow spreading centers. The Mark area is the most extensively surveyed and mapped region of the mid-Atlantic Ridge with a wide variety of detailed bathymetric, geophysical and geological studies at a variety of scales. Two offset sites in the MARK area of the mid-Atlantic ridge will be drilled to achieve: (1) deep penetration into an exposed gabbro massif and recover a long section of lower crust, and (2) deep penetration into an exposed residual mantle section along strike of the gabbroic massif to recover upper mantle peridotites.

A number of tectonic, petrologic, hydrothermal and geophysical objectives can be addressed by drilling this crustal section of slow spreading lithosphere. Definition of the "petrologic" and "seismic" Moho transition, the architecture of the crust, as well as

tectonic mechanisms responsible for the exposure along the rift valley, may be studied. A complementary logging program is extremely important to drilling for understanding the structural and seismic changes through the lower crust, its hydrothermal history, geochemical variations, and deviatoric state of stress as a function of depth, particularly as hard rock core recovery is typically less than perfect. Three standard logging runs will provide most of the geophysical and geochemical data needed. In addition, the BHTV could provide information about the state of stress, crustal structure and rock fabric, and fracture orientation. VSP or check shot data can provide critical depth correlation to surface seismic profiles. The possible deployment of the dipole shear sonic tool could also provide a valuable Vs profile in the ocean crust, constraining the velocity-depth function for seismic modeling studies.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Operations
MK-1	2500	0	1000	Std. logs+FMS+BHTV+mag
MK-2	3500	0	1000	Std. logs+FMS+BHTV+mag

Leg 154: Ceara Rise (Equatorial Atlantic)

The circulation of large oceanic water masses and the resulting sedimentation of the underlying sea bed can provide a direct link to understanding global climate change. The Ceara Rise lies in a zone of mixing of North Atlantic Deep Water and Antarctic Bottom Water. Leg 154 offset drill sites aim at studying how the Atlantic deep water circulation has affected equatorial carbonate production/dissolution and the resulting sedimentary record of climate change. Leg 154 will utilize a bathymetric transect drilling approach to piece together past global ocean circulation patterns by eight holes with APC/XCB coring over a range of 2800 to 4450 m below sea level.

Standard geophysical and geochemical logging will enable cyclical lithologic variations in short-period climatic transitions to be identified by density, porosity, and velocity profiles. Identifying the variability in sediment physical properties can be supplied by logging data as a continuous depth function. The input of lithogenic turbidites from Amazon Cone and possible contamination of the carbonate sequence may also be identified by characteristic signatures in gamma ray and resistivity log responses. Also, if core recovery in the carbonates or turbidite sequences is incomplete, the correlation of log data to sediment core properties will provide critical depth-ties to resolve the depth of individual sediment strata as well as provide an important sequence correlation tool between offset sites. The two standard logging runs in the deeper penetration holes will accomplish these goals.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Operations
CEA-1	2800	250	250	Standard logs
CEA-2	3050	250	250	Standard logs
CEA-3	3300	250	250	Standard logs
CEA-4	3300	250	250	Standard logs
CEA-5	3800	250	250	Standard logs
CEA-6	4000	250	250	Standard logs
CEA-7	4200	250	250	Standard logs
CEA-8	4450	250	250	Standard logs

Leg 155: Amazon Fan (Equatorial Atlantic)

This equatorial Atlantic drilling program is designed to sample and date the stratigraphy of the Amazon Fan and determine the lithology of its seismostratigraphic units. Also, by drilling through the stratigraphic record on the fan, the history of sea level changes, subsidence and uplift, paleoclimate and paleoceanography can be studied. High resolution seismic profiles and deep, continuous sampling of strata over the fan is needed to understanding its growth process. Leg 155 will drill a series of sites on the fan to sample sediments within different seismically distinct units. Combined with the core lithology and biostratigraphic ages, continuous logging data of porosity and acoustic velocity will make it possible to determine the detailed deposition rates of particular acoustic units.

The volumetric growth of the Amazon fan can be used to infer the history of relative sea level change from glacial and interglacial periods in the late Cenozoic. Similar to the program on Leg 150 (NJ Transect) and DSDP Leg 95 (Mississippi Fan), a complementary logging plan will provide essential information for: (1) inter-site correlation on the fan using variations in geophysical and geochemical profiles; (2) identification of seismic reflectors using synthetics from velocity and density logs; (3) observations of sedimentary structure and turbidite flows from FMS images; (4) subsidence and compaction history of the fan deposits from continuous porosity data and its relationship to relative sea level change; and (5) short-period climate change identified by cyclicality in log responses. Three standard logging runs in the deeper penetrating holes will accomplish these goals.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Operations
AF-1	3570	568	568	Std. logs + FMS
AF-2	3600	369	369	Std. logs + FMS
AF-3	3685	226	226	Std. logs + FMS
AF-4	3450	115	115	Std. logs + FMS
AF-5	3390	344	344	Std. logs + FMS
AF-6	3180	301	301	Std. logs + FMS
AF-7	2845	320	320	Std. logs + FMS
AF-8	3520	226	226	Std. logs + FMS
AF-9	3500	226	226	Std. logs + FMS
AF-10	3500	207	207	Std. logs + FMS
AF-11	3384	568	568	Std. logs + FMS
AF-12	2790	100	100	

AF-13	3710	100	100
AF-14	3475	100	100
AF-15	3415	100	100
AF-16	2810	100	100
AF-17	2780	100	100
AF-18	3475	100	100
AF-19	3450	100	100
AF-20	3364	100	100

Leg 156: N. Barbados Ridge (North Atlantic)

The Northern Barbados Ridge drilling plan calls for a transect of holes that penetrate the decollement zone across the deformation front of the accretionary prism. Previous drilling and experimentation in the Barbados accretionary prism (Leg 110) enabled some specific structural features to be correlated with distinct fluid flow regimes. With the recent success of drilling, logging, and instrumentation during Leg 146, the complex relationship between tectonics and fluid dynamics in accretionary prisms is ever increasingly solvable. The Leg 156 drilling and downhole measurement plan targets a seismic anomaly in the decollement zone and will utilize an instrumented borehole seal to monitor long-term fluid pressure, temperature, and resistivity.

In pursuit of similar problems as previous drilling on accretionary prisms, such as the observation of depth profiles of fluid pressure and flow, seismic attributes, and geochemical signals through the prism decollement and other fault zones, a similar package of logging experiments are planned to supplements core and cork experiments. Standard geophysical and geochemical logs, FMS images and VSP will measure signal profiles and determine geometric constraints on sedimentary structures. FMS and BHTV data can be used to identify local stress orientations and enable the correlation of core properties to seismic profiles. A temperature log can identify hydrothermal flow along faults and constrain zones for packer tests, which measure the bulk permeability as a function of depth. In light of likely poor hole conditions during drilling on the N. Barbados Ridge, the SES (Side Entry Sub) is recommended for use in the drillstring.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Operations
NBR-1	5477	750	800	Std.log +FMS+BHTV+cork+packer
NBR-2	4890	900	950	Std.log +FMS+BHTV+cork+packer
NBR-3	4755	820	820 (1200?)	Std.log +FMS+BHTV+cork+packer
NBR-4	4965	570	570 (900 ?)	Std.log +FMS+BHTV+cork+packer
NBR-5	4852	960	960 (1500?)	Std.log +FMS+BHTV+cork+packer

Leg 157: DCS (Vema Fracture Zone - North Atlantic)

The principal objectives of Leg 157 will be testing new drill floor systems, including the diamond coring system (DCS). A shallow-water test site on the median ridge of the Vema Fracture Zone has been targeted, capped by subaerially-formed carbonates. Possible APC coring of the upper pelagic section may be carried out, time permitting.

After DCS test drilling is completed, logging may be possible using normal-diameter tools, if the hole is reamed. As an alternative to reaming, the slimhole temperature, gamma-ray and caliper tools could be deployed for use. Logging the sequence with temperature and gamma ray tools would enable characterization of variations in lithology and temperature and fluid flow regimes on the flank of the Vema Fracture Zone. If normal-diameter tools can be used, FMS and BHTV imaging of structures would add greatly to the understanding of not only structural features near the hole, but fracture zone properties and processes, both primary lithospheric objectives.

Leg 158: TAG (North Atlantic)

The TAG hydrothermal mound offers an exiting opportunity to drill through a large, hydrothermal deposit and into the underlying stockwork on the slow-spreading mid-Atlantic ridge. The major objectives of Leg 158 focus on the definition of spatial variations in mineralogy, physical properties, structure, and fluid flow around this active hydrothermal deposit. The drilling strategy consists of a transect of three holes, one penetrating into the near-surface stockwork and the others into the underlying stockwork and root zones. Ideally, continuous alteration, porosity, and mineralization profiles could be obtained in all three holes.

Drilling in and near the TAG hydrothermal system is expected to present some of the most challenging conditions encountered in ODP to date, possibly reaching temperatures of 350°C. Unless hole cooling can lower temperatures below 175°C, however, standard geochemical and geophysical tools cannot be used. These tool strings could be run in cooler, nearby holes, however, to measure offset profiles of alteration, porosity, and mineralization as a function of depth. Alternatively, high-temperature tool development for ODP over the previous two years has been targeting measurements of *in situ* temperature and electrical resistivity in a 350°C environment such as this. These logs would constrain the spatial extent of active flow zones, high-conductivity stockwork or altered mineral assemblages, and heat transfer in this hydrothermal plumbing system. If more tools, both specialty and third-party, are developed and tested for hostile environment logging in time for this high-temperature leg, they may be added to the logging program.

Site	Water Depth (m)	Sed. thickness(m)	Total Depth (m)	Logging and Downhole Ops.
TAG-4	3660	60	200	(hi-T tools)
TAG-2	3660	60	500	(hi-T tools)
TAG-3	3680	20	180	(Std. logs or hi -T tools)

1993 - 94 (Straw Man) Logging Plan

	TOOL	LEG 150 N J MARGIN May-July	LEG 151 ARCTIC GATEWAY July-Sept	LEG 152 NARM Sept-Nov	LEG 153 MARK Nov-Jan	LEG 154 CEARA Jan-Mar	LEG 155 AMAZON March-May	LEG 156 BARBADOS May-July	LEG 157 DCS July-Sept	LEG 158 TAG Sept-Nov
1	sonic (DSST= XX)	XX	XX	XX						
2	resistivity	X	X	X	X	X	X	XX		X*
3	density	X	X	X	X	X	X	X		X*
4	neutron	X	X	X	X	X	X	X		X*
5	geochemical	X	X	X	X	X	X	X		X*
6	gamma ray	X	X	X	X	X	X	X		X*
7	caliper	X	X	X	X	X	X	X		X*
8	televiewer	X	X	X	X	X	X	X		X*
9	VSP			X	X	X	X	X		X*
10	RMS			X	X			X		X*
11	temperature tool	X	X	X	X			X		X*
12	drillstring packer			X	X		X	X		
13	flowmeter				X	X	X	X		X*
14	MAG/SUSP-GHMT				X			X		X
15	HI-T MAG-BGR		X	X		X	X			
16	HI-T Resistivity				X			BU		?
	HI-T BHTV			BU	BU					X
										X
	*temp permitting or HEL tools									X
	BU = backup									

Downhole systems development

High-T temperature tool (BRGM)
- tool successul in Hole 504B to 180°C
- tool planned for Leg 158 use to 265°C with high-T Schlumberger cable

High-T resistivity tool (CSM)
- ceramics *delivered to CSM*
- high-T field test *Winter 1993*

Directional shear sonic tool (LDEO)
- prototype *test results compiled* and compared with other tools

VSP
- 3-comp. tool proposed for Leg153
- ASI tool proposed for Leg 156

LWD
- 10-day lease possible for Leg 156

New Initiatives

CD-ROM

- Leg 143-146 CD-ROM published in IR
  MST and GRAPE data included
- Legs 140, 147-8 combined CD-ROM
  in production

ODP field tape backup project

- 70% of field edit tapes now on DAT
- projected completion in ~ 6 mos.

Logging schools

- 2-day school in Brussels (Nov '93)
- 1-day school at AGU (Dec '93)

Staffing

- Chief Scientist interviews in August
- Subcontractors at LDEO (Jun '93)

GENERAL PROBLEMS OF NON-VOLANIC RIFTED MARGINS

- Asthenospheric temperature at time of rifting
- Rifting by pure or simple shear
- Symmetric or asymmetric rifting
- Axial or off-axial break-up
- Rate of strain during continental thinning
- Nature of the ocean-continent transition
- Initiation of sea-floor spreading
- Age
- Subsidence

NARM DPG GENERAL SCIENTIFIC OBJECTIVES

- Describe and understand upper crustal to upper mantle igneous and deformational processes related to continental break-up and, in turn, how they relate to deeper mantle processes and dynamics.

- Carry out drilling-supported transect studies along selected margins, including conjugate pairs, which show strongly contrasting modes of continental break-up and encompass much of the variability in this process.

- Test deformational models (e.g. simple versus pure shear, cold/strong versus hot/weak extension etc.).

- Sample basement on both volcanic and non-volcanic transects.

PROBLEMS ADDRESSABLE BY ODP DRILLING

- Basement rocks help to determine,

  the extent of continental and oceanic crust

  whether the continental basement has an upper or lower crustal origin

  the nature of the ocean-continent transition

  the extent and volume of extrusives/intrusives

  the thermal and tectonic history of a margin

  the age of onset of seafloor spreading

- Sediments help to determine,

  the nature and age of the pre- and syn-rift sediments

  the subsidence history, including onset of subsidence below sea-level

  the age of break-up

  the age of onset of seafloor spreading

- Drilling crustal low-angle faults (eventually)

Appendix 5.3

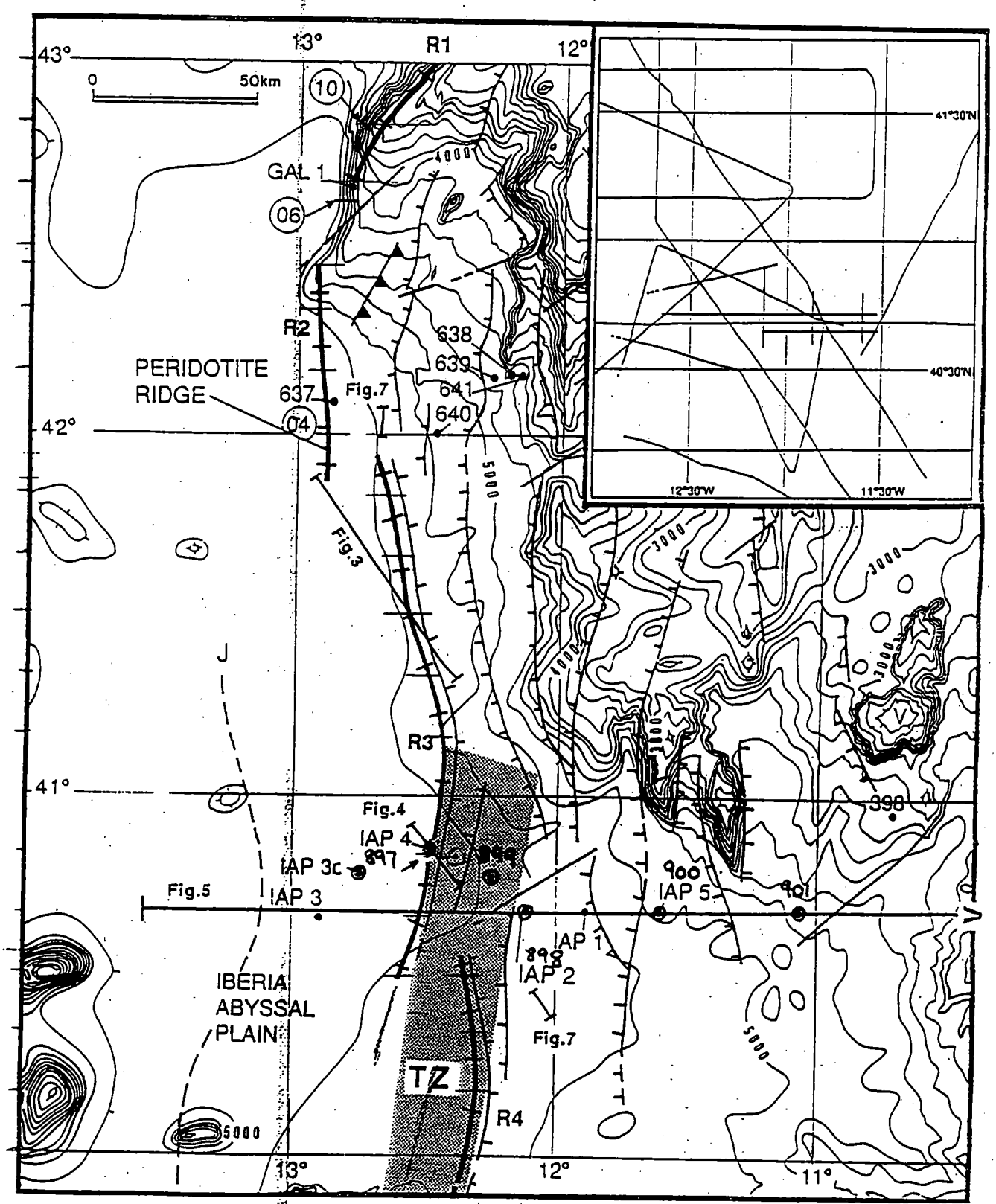
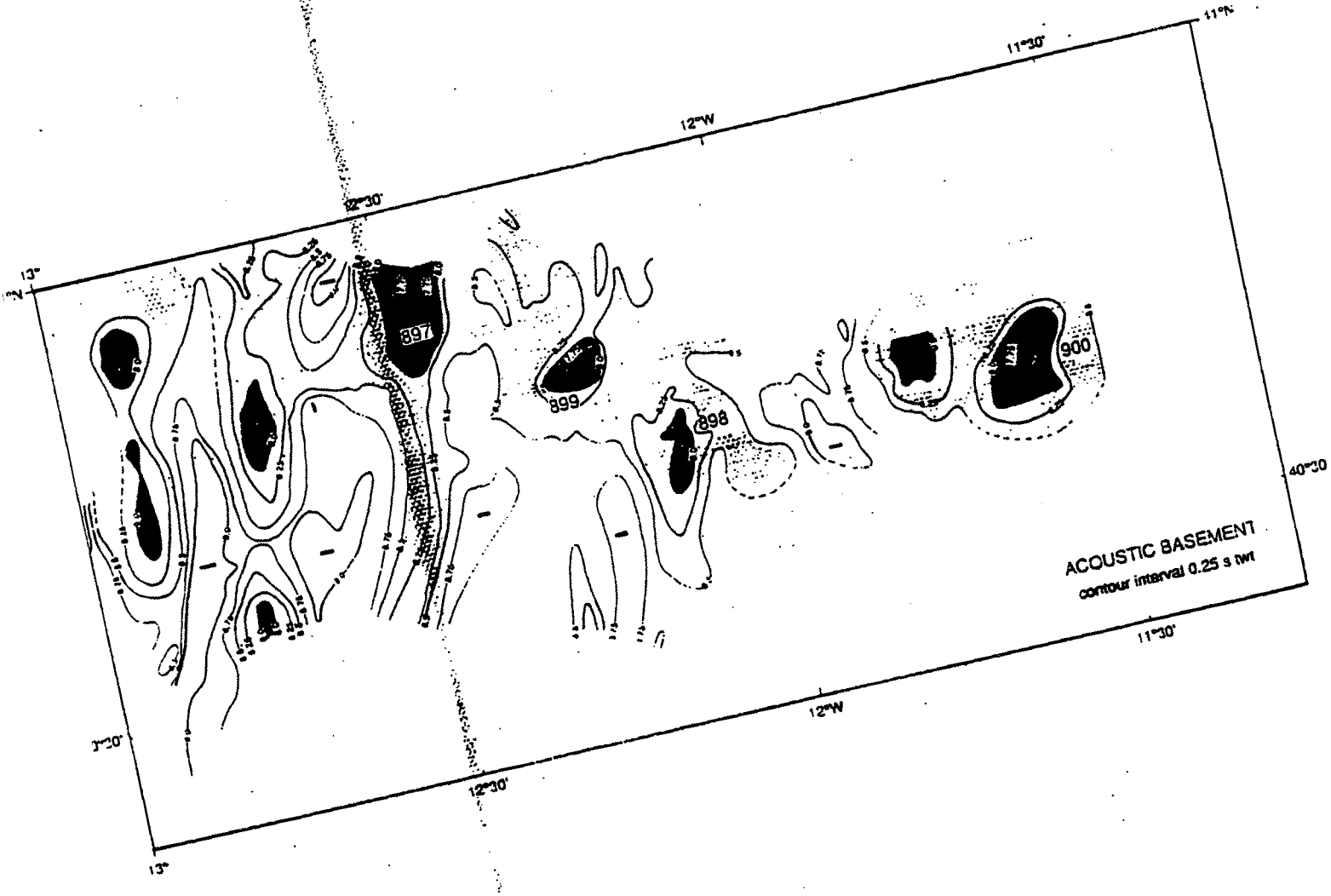
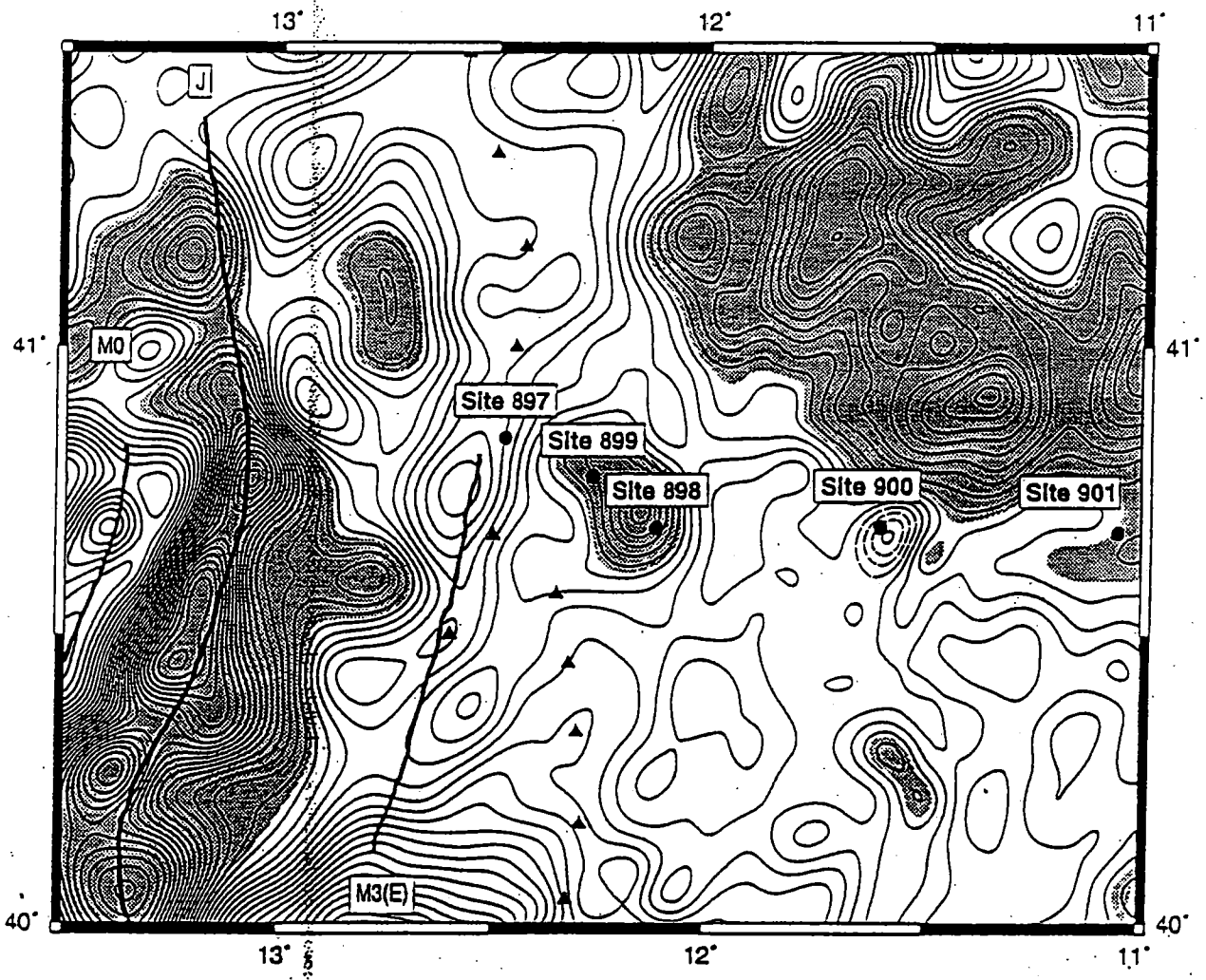


Fig. 2. Structural sketch of the West Iberia passive margin north of 40°N (location on Fig. 1). *TZ* (Transition Zone) and the *J* anomaly from Whitmarsh et al. (1990). Structural sketch of the Galicia margin after Thommeret et al. (1988) slightly modified, and after Murillas et al. (1990). *R1*, *R2*, *R3* and *R4* are segments of the ridge bounding the oceanic and continental domains. *R3* and *R4* are assumed to be made of serpentinized peridotite as are *R1* and *R2*. Bathymetry after Lallemand et al. (1985). *V* = Vigo seamount. ODP legs 47b and 103 drill sites, dive sites (circled numbers) where peridotite was sampled, and

Appendix 5.4


11°30'
12°W
12°30'
13°
897
899
898
900
ACOUSTIC BASEMENT
contour interval 0.25 s twt
11°30'
12°W
12°30'
13°

Appendix 5.5



20 nT contours

shaded area > 50nT

ODP LEG 149 - SITE BY SITE OPERATIONS NARRATIVE 1

Site 897 (IAP-4) Water depth 5330 m Sediment thickness ca. 690 m

Hole A - RCB hole. Drawworks brake problem at 55 mbsf. Brake pads replaced.

Hole B - 'Penetrated' to 52 mbsf. Could not retrieve core-barrel. BHA lost. POOH.

Hole C - RCB hole. Cored 50-745 mbsf; TD 68 m into basement. Then attempted a bit change using FFF. Pulled up pipe and dropped FFF. Funnel not visible on camera. Tried to carry on but pipe stuck. BHA broke off.

Decision - to continue drilling and coring. An important site, need for logs and to get deeper to meet PCOM mandate. Options were,
a) Re-entry cone and 300 m casing, 8.5 days to get back to TD
b) wash-in and 80 m casing. Risky.
c) single-bit hole cored beyond 740 mbsf.

Hole D - Planned as a single-bit RCB hole. Drilled to 607 mbsf then cored to 838 mbsf to allow 48 hrs for logging before portcall. Geophysical tool stuck at ca. 230 mbsf. Pipe lowered over tool. Logging cable broke on deck. Repaired but broke on deck again. Tool freed at third attempt. Could not splice logging cable at sea; needed a part (available in Lisbon) to install spare cable drum. Pipe then became stuck too. Freed with difficulty.

Decision - carried out a seismic reflection survey during time remaining before portcall over IAP-2 and IAP-3C. Discovered a basement high as shallow as 7.5 secs twt.

LISBON PORTCALL TO CHANGE CREWS

Appendix 5.7

ODP LEG 149 - SITE BY SITE OPERATIONS NARRATIVE 2

Site 898 (IAP-2) Water depth 5290 m Sediment thickness ca. 850 m

Hole A - APC/XCB cores to 342 mbsf. Planned for a re-entry cone and casing. Pulled pipe for jet-in test but abandoned due to bad weather.

Hole B - Offset for mudline core, then POOH. Depression off Cape Finisterre giving winds up to 45 knots. Pipe broke at rig floor while BHA in mid-water. 123 stands (ca. 3500 m) lost . First estimate was that we could deploy only 5950 m of drillstring but this was revised to 6180 m.

Conclusion - basement was now too deep at Site 898 but we could still drill Sites IAP-6 (newly discovered alternate to IAP-2 approved by ODP) and IAP-3C without more pipe from ODP.

Site 899 (IAP-6) Water depth 5303 m Sediment thickness ca. 370 m

Hole A - Planned for re-entry cone and casing. Jetted in to 64 mbsf, RCB drilled to 82 mbsf. Cored to 236 mbsf. POOH to set cone and casing.

Hole B - Set re-entry cone and casing to 216 mbsf. Cored to 563 mbsf (basement at 370 mbsf) then stopped due to overpulls, high torque and unstable hole. Reamed hole for logging with difficulty ,so dropped bit in hole. Pipe pulled to just below top of peridotite breccia. Two logging runs to 455 and 445 mbsf. GST-A source malfunctioned on third run. Hole filling up. Pulled pipe to 194 mbsf (inside casing). FMS unable to go more than 4 m beyond casing.

Decision - Which site to drill next, IAP-3C (west) or IAP-5 (east)? It was now 10th May and leg to end 25th May; time for only one more site. Shipboard Party chose IAP-5,

a) to fill the 'gap' between Sites 897 and 899 (both serpentinized peridotite basement) and the continental shelf. We still had not found definite evidence of continental crust.

b) to hopefully better constrain the eventual Newfoundland Basin leg.

ODP LEG 149 - SITE BY SITE OPERATIONS NARRATIVE

Site 900 (IAP-5) Water depth 5049 m Sediment thickness ca. 750 m

Hole A - Planned for RCB single-bit hole. Cored to 805 mbsf; basement at 749 mbsf. Very slow penetration (8-10 hrs/core), suspected imminent bit failure (vibration) and needed time for logging. Dropped bit in hole. Pulled pipe to 137 mbsf. Logging run 1, tool stopped at 238 mbsf. Run 2, tool stuck at 452 mbsf. So picked up CSES. Pipe down to 754 mbsf but tool stopped at 789 mbsf. Pipe pulled to 694 mbsf but tool stuck at 647 mbsf. Freed tool by washing pipe down over tool. Carried on, tool stuck again and tool and cable damaged. Logging abandoned.

Site 901 (IAP-7) Water depth 4730 m Sediment thickness 100-200 m

Hole A - Only ca. 40 hrs to complete the leg. New site approved by ODP. Washed to 183 mbsf. Intermittent coring to 248 m.

Appendix 5.9

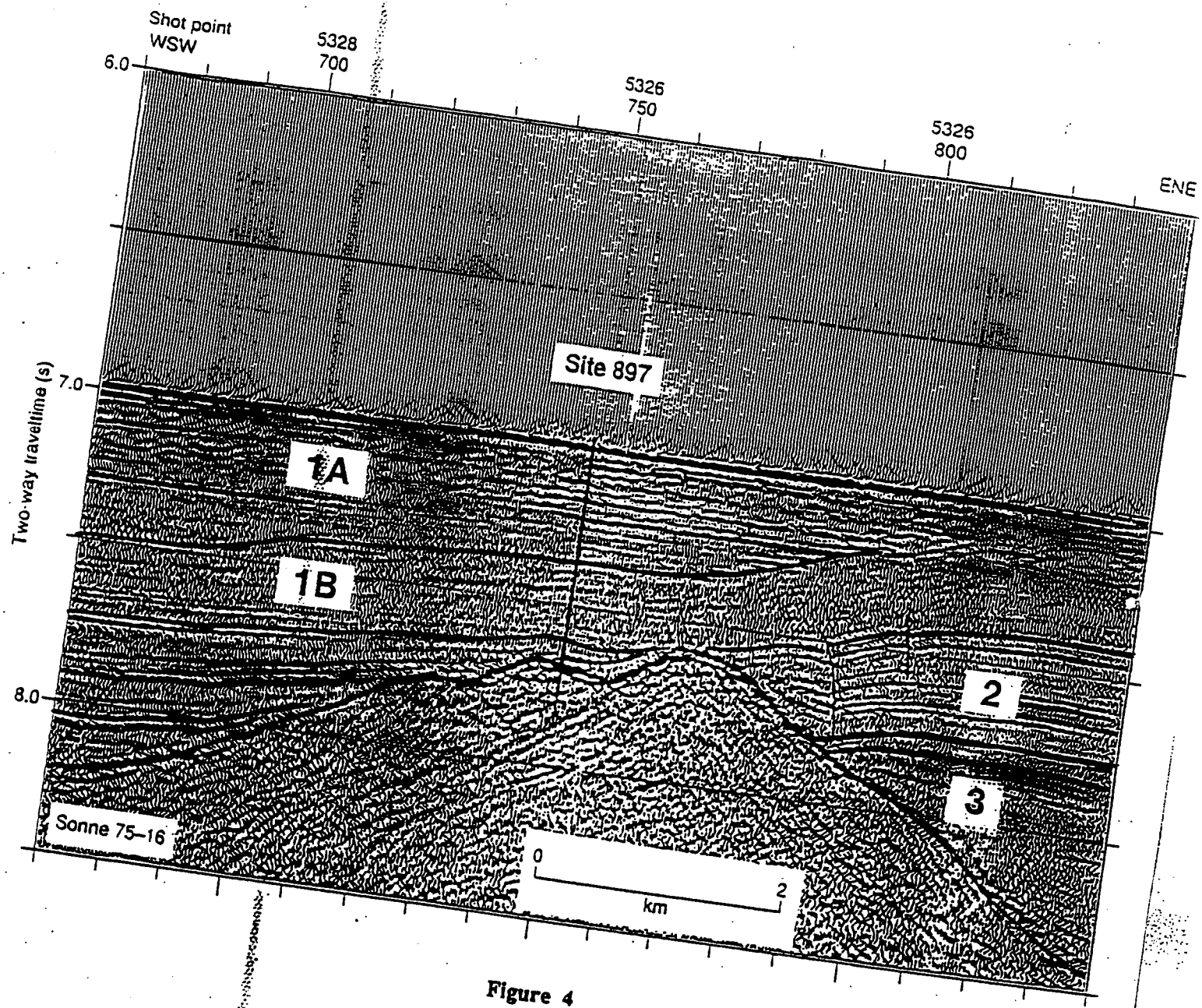
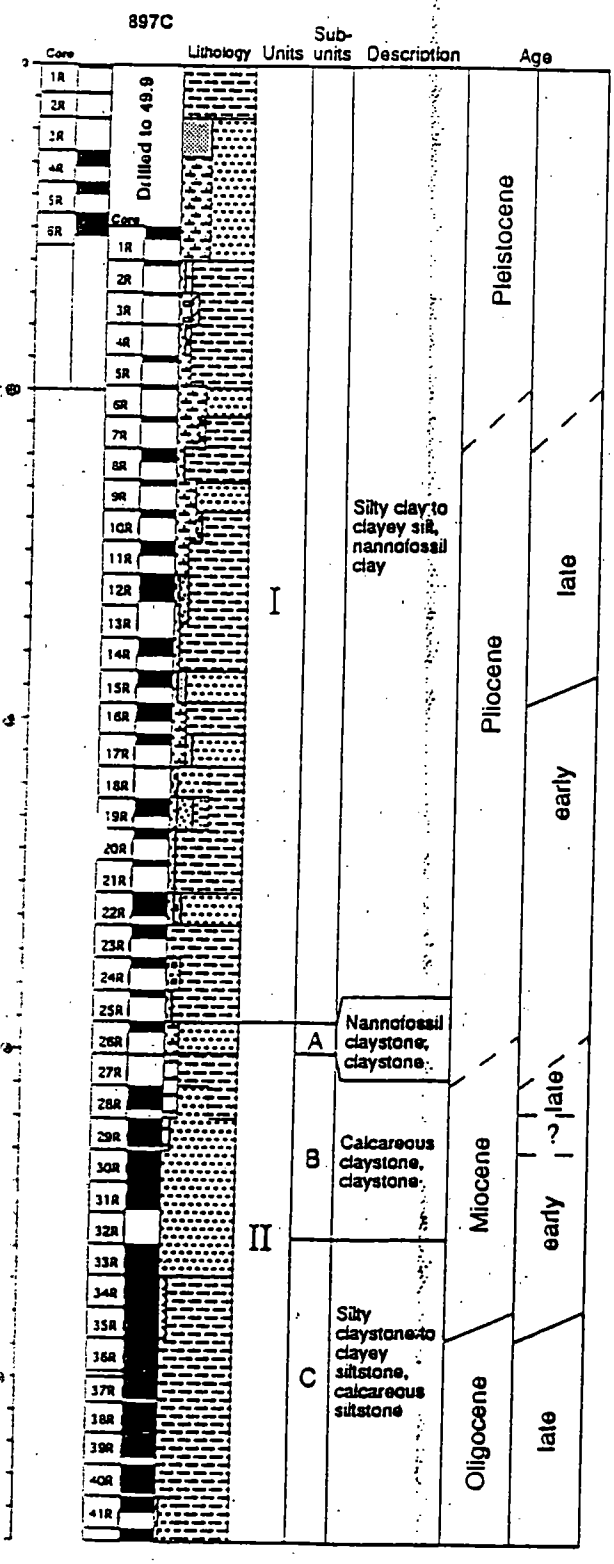
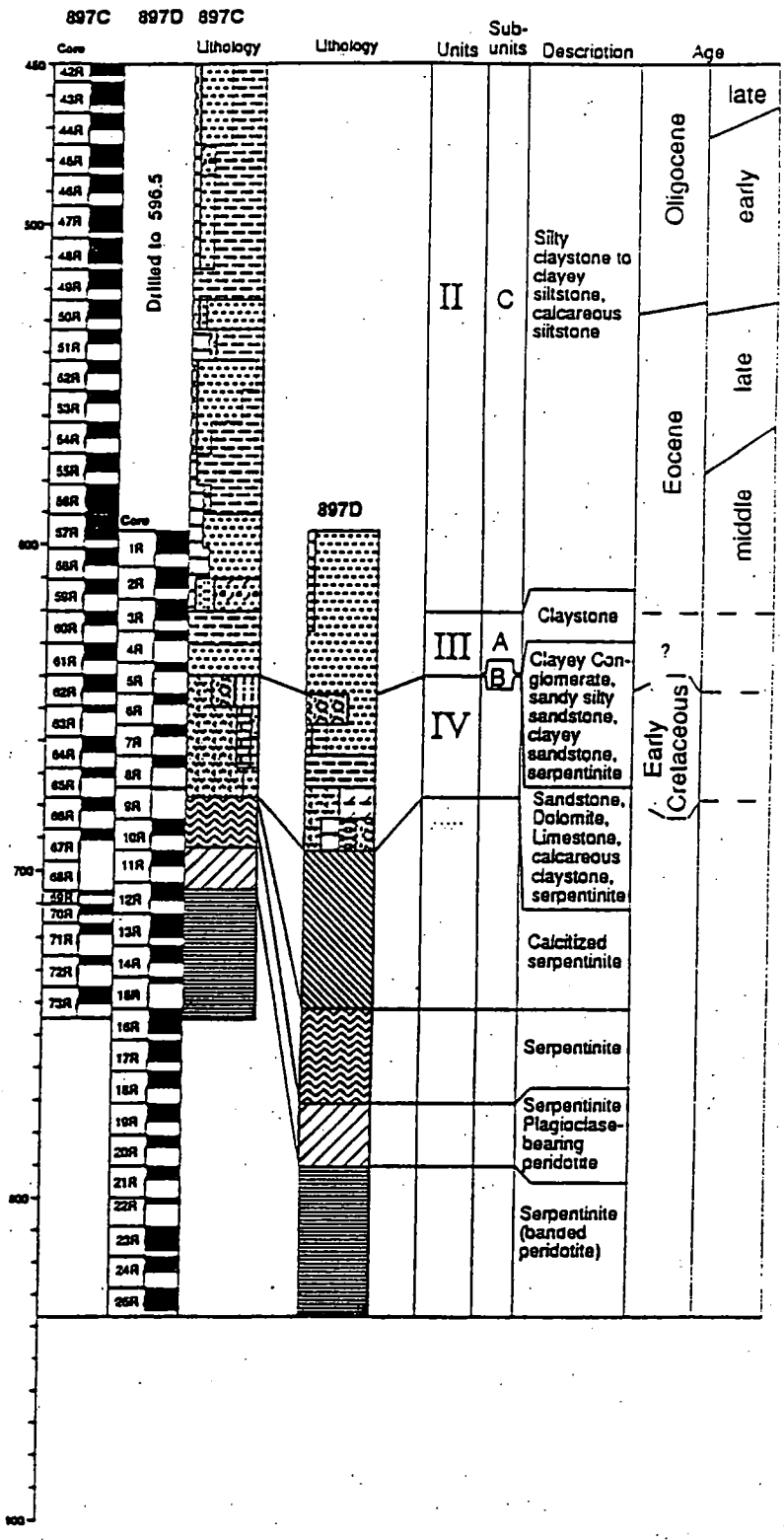


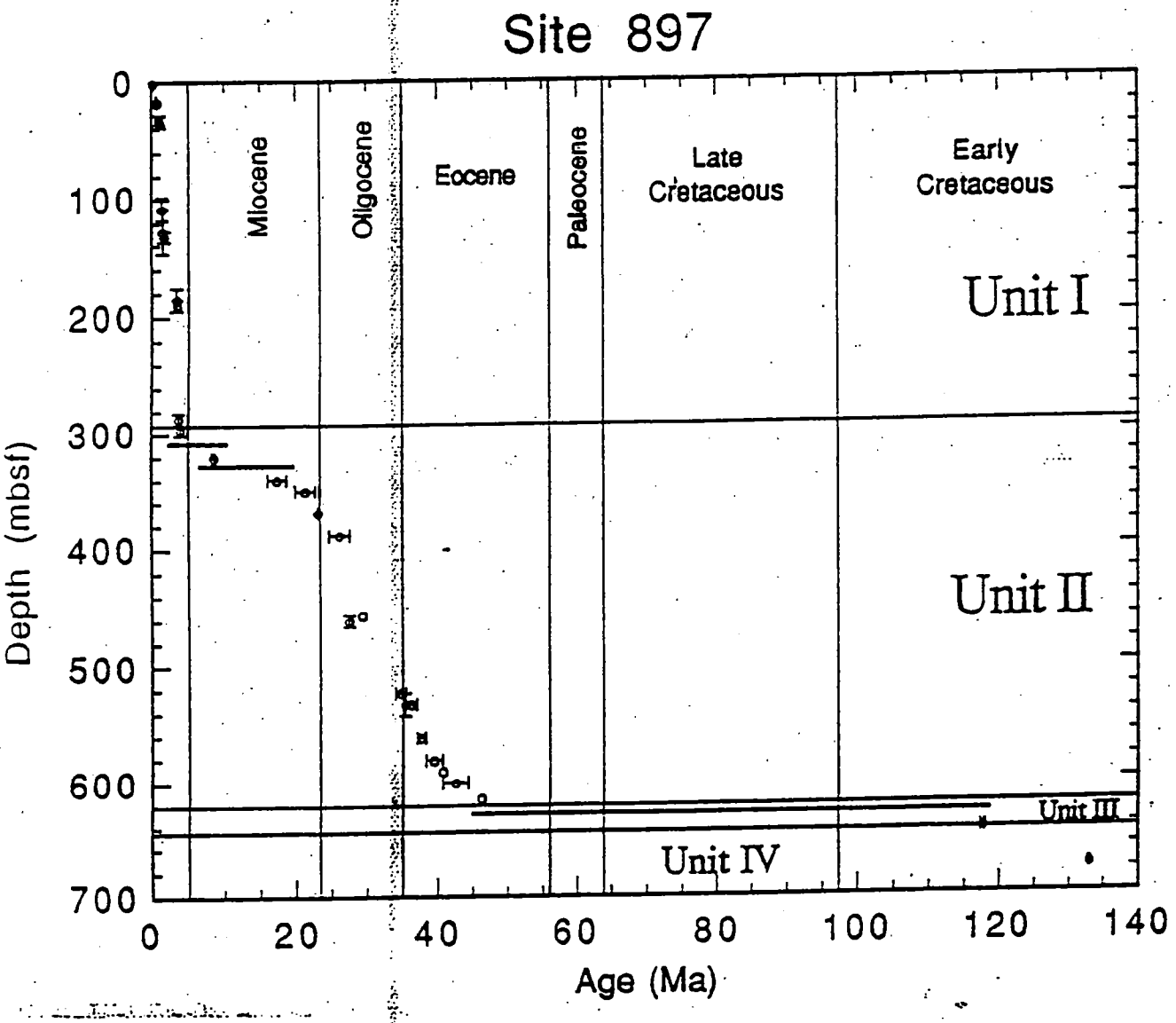
Figure 4

Appendix 5.10





Appendix 5.11



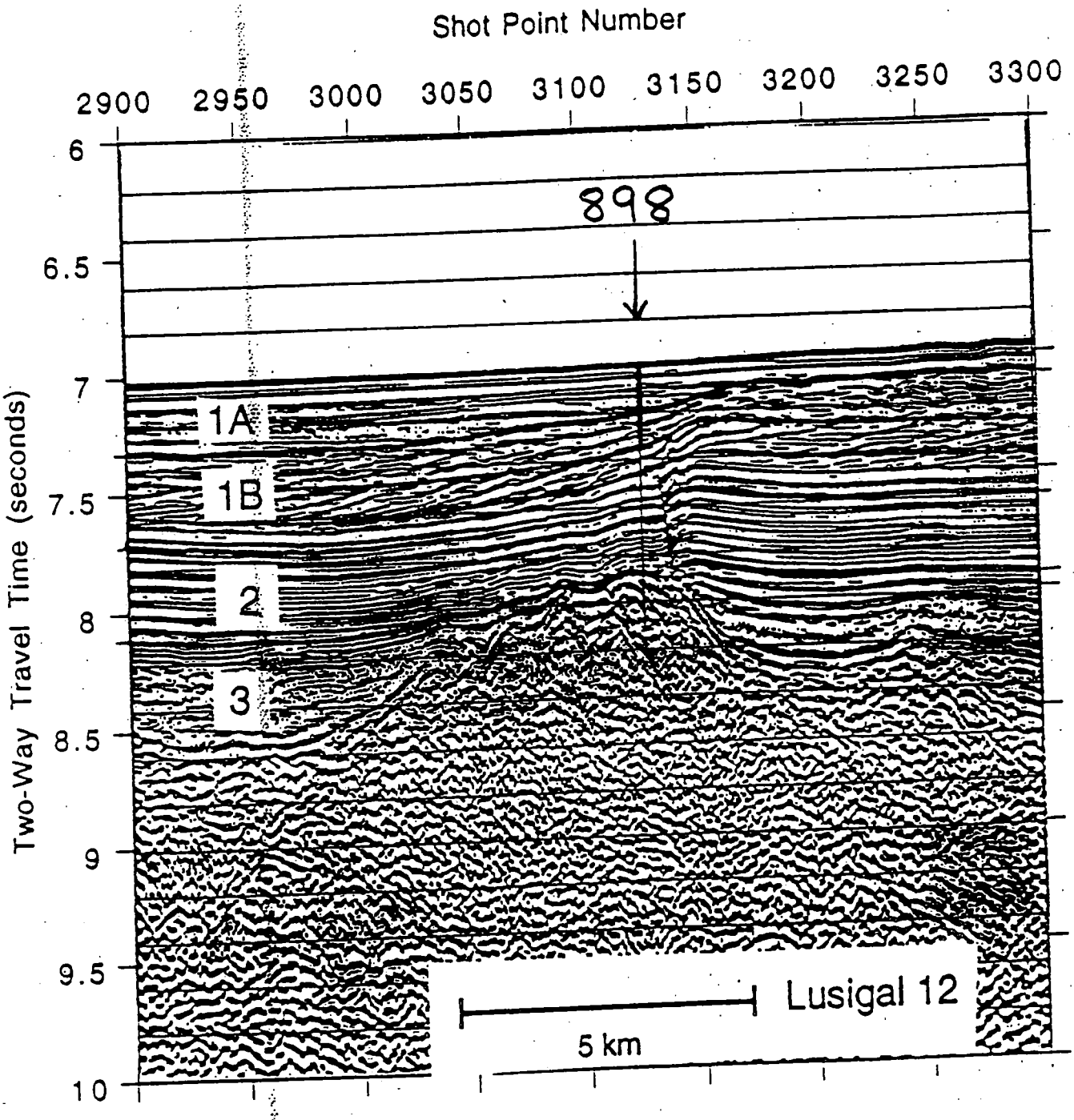
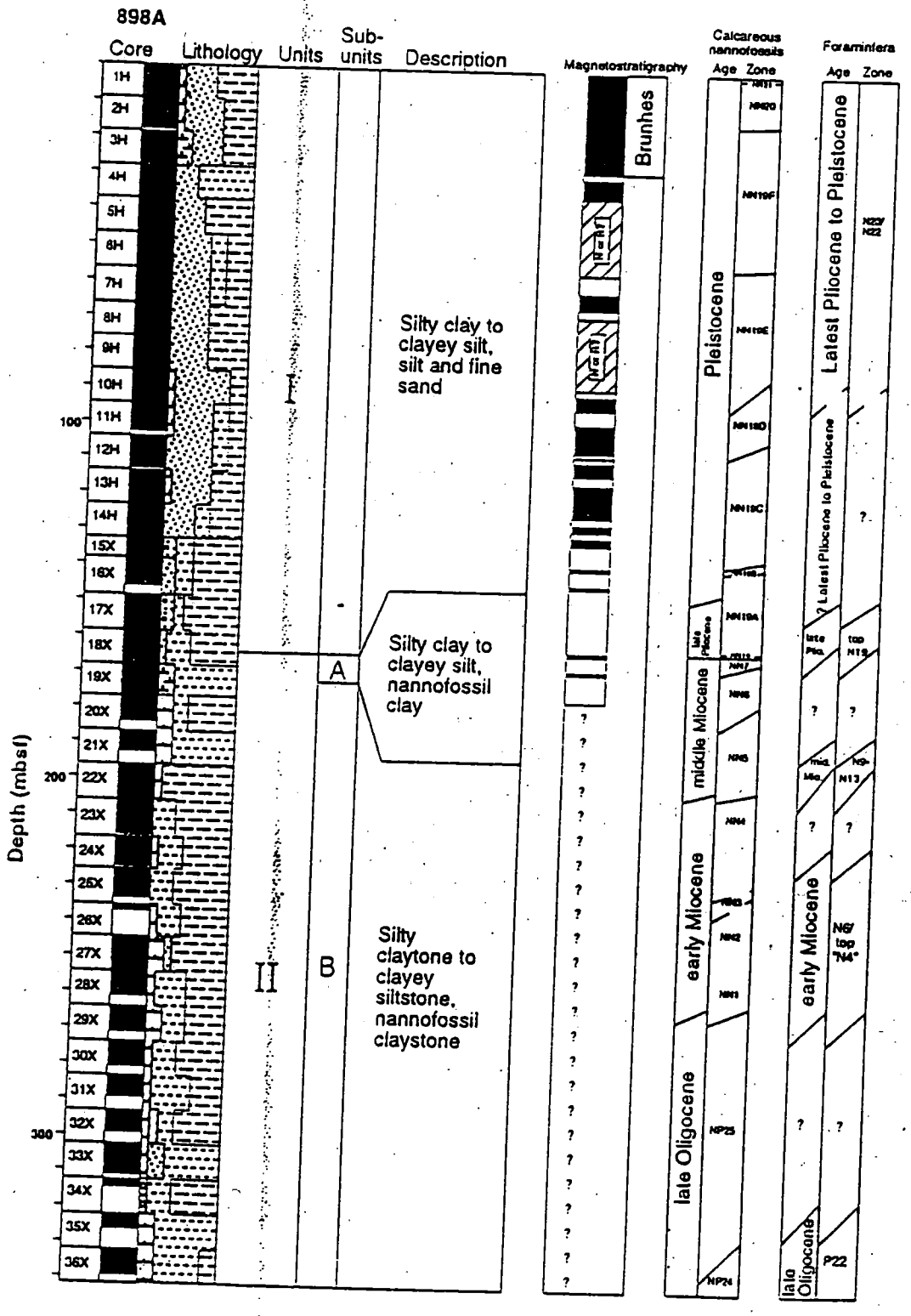
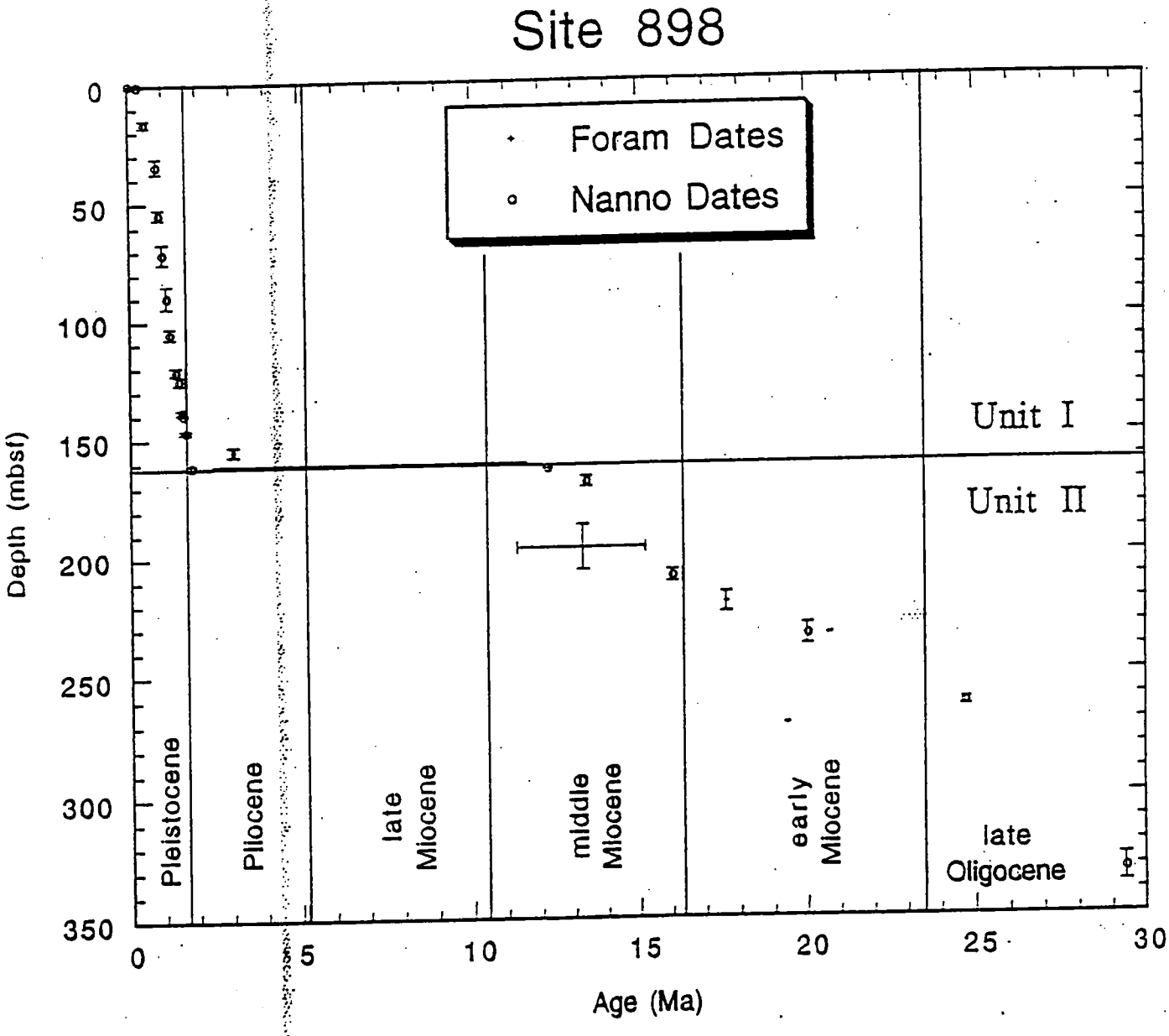


Figure 898-B-3

Appendix 5.13



Appendix 5.14



Appendix 5.15

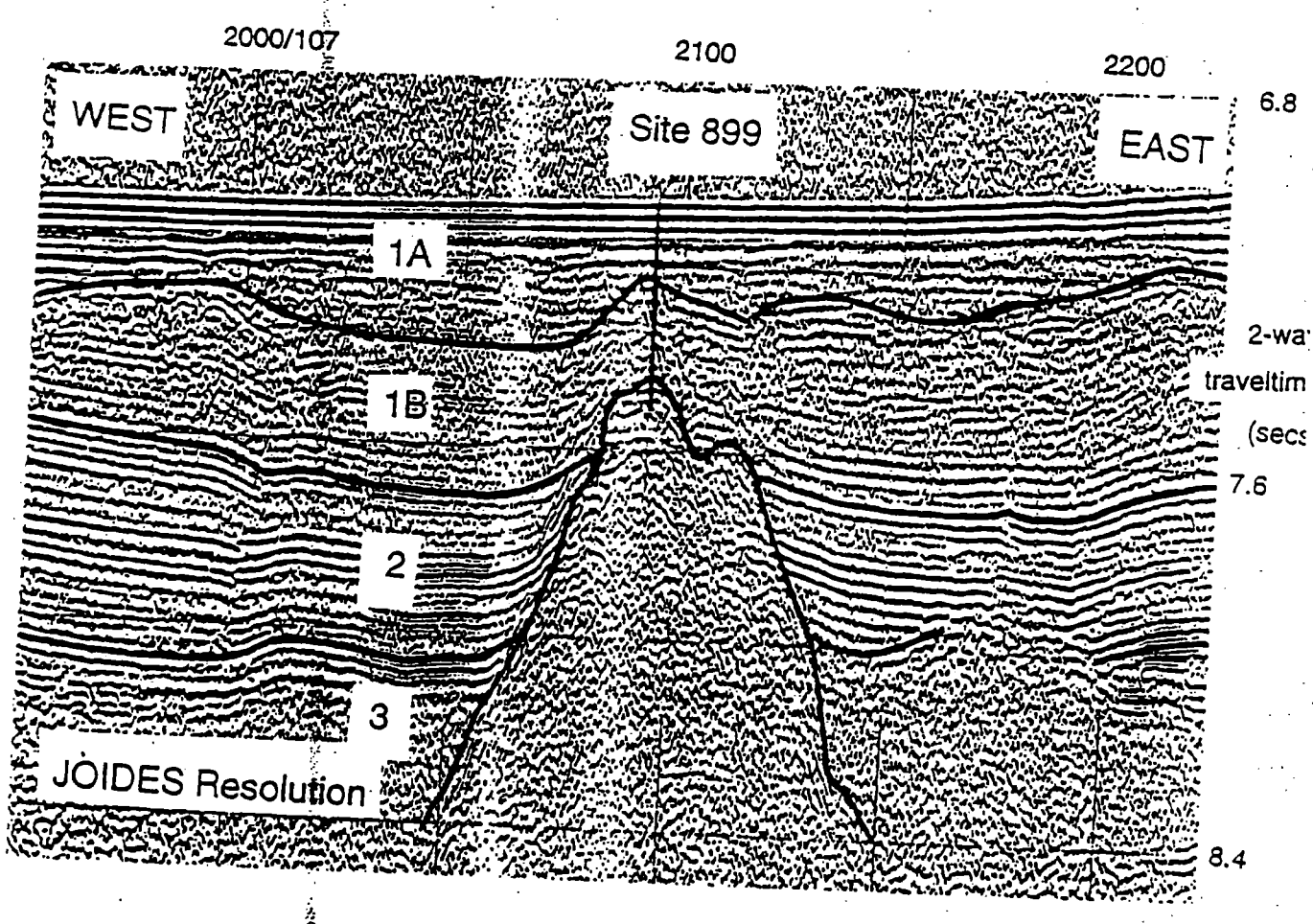
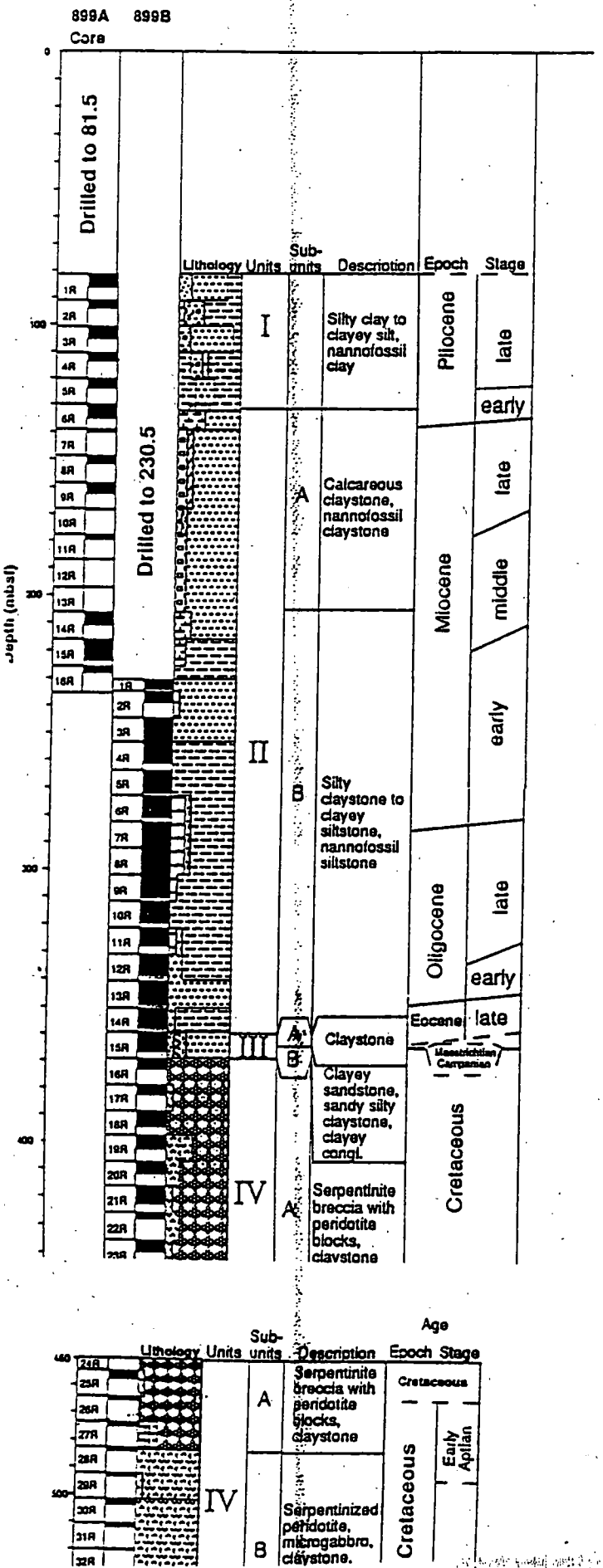
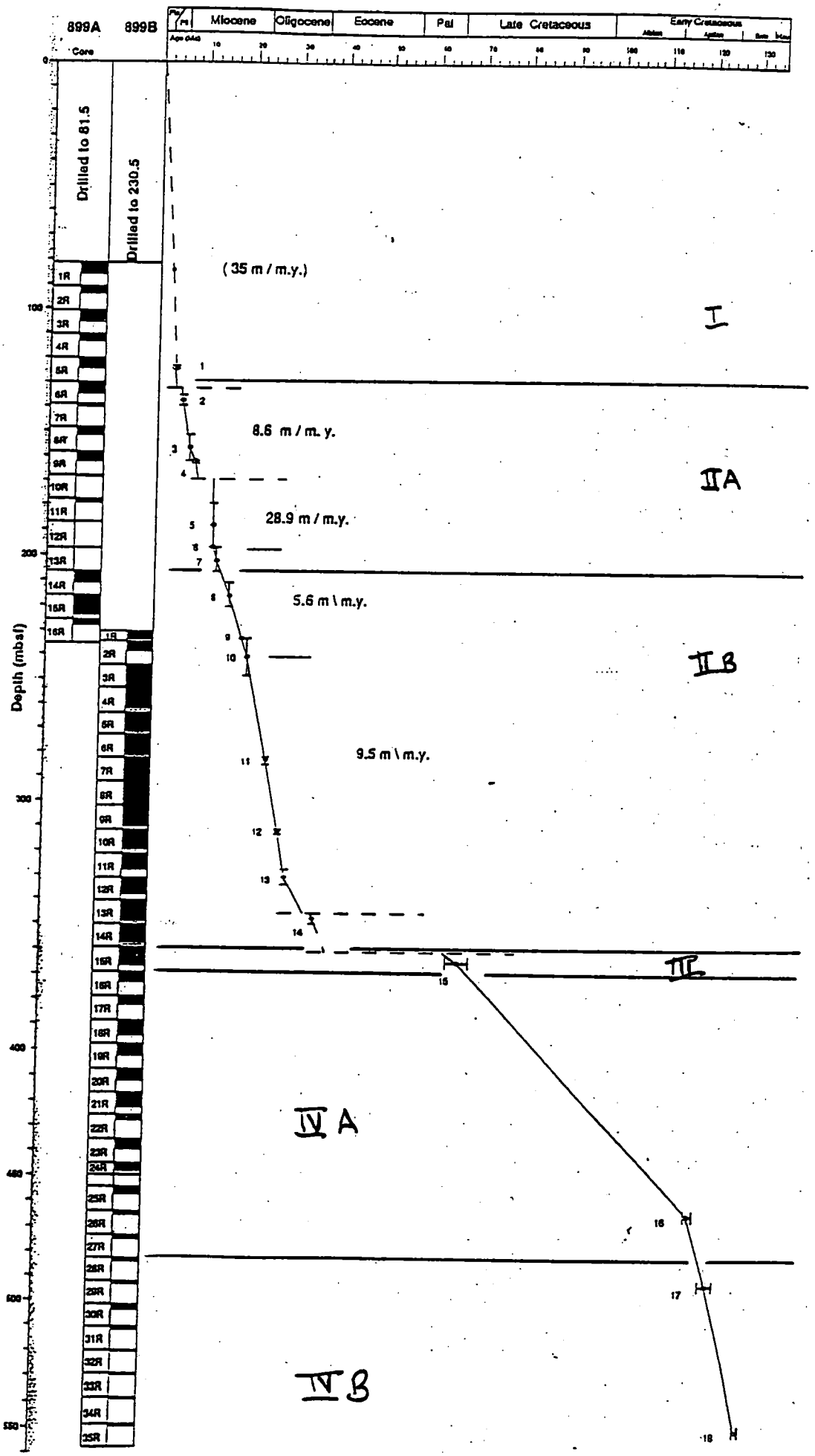


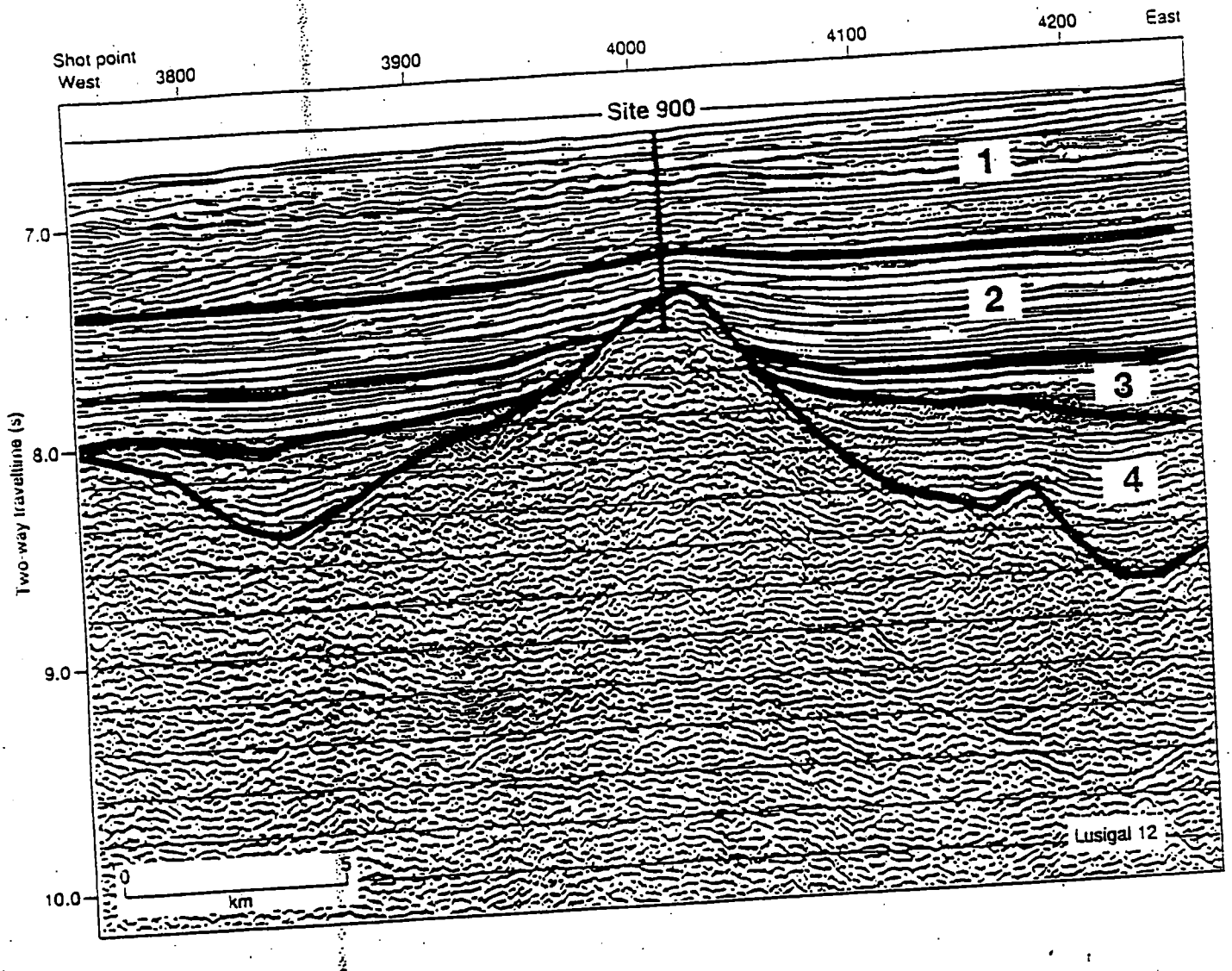
Figure 899-B-3


899A
899B
Core
Drilled to 81.5
Drilled to 230.5
Depth (mbsf)
Lithology
Units
Sub-units
Description
Epoch
Stage
I
Silty clay to clayey silt, nannofossil clay
A
Calcareous claystone, nannofossil claystone
II
B
Silty claystone to clayey siltstone, nannofossil siltstone
III
A
Claystone
B
Clayey sandstone, sandy silty claystone, clayey congl.
IV
A
Serpentinite breccia with peridotite blocks, claystone
Pliocene
Miocene
Oligocene
Eocene
Cretaceous
late
early
middle
Maastrichtian
Campanian
Age
Cretaceous
Early Aptian
B
Serpentinized peridotite, microgabbro, claystone.

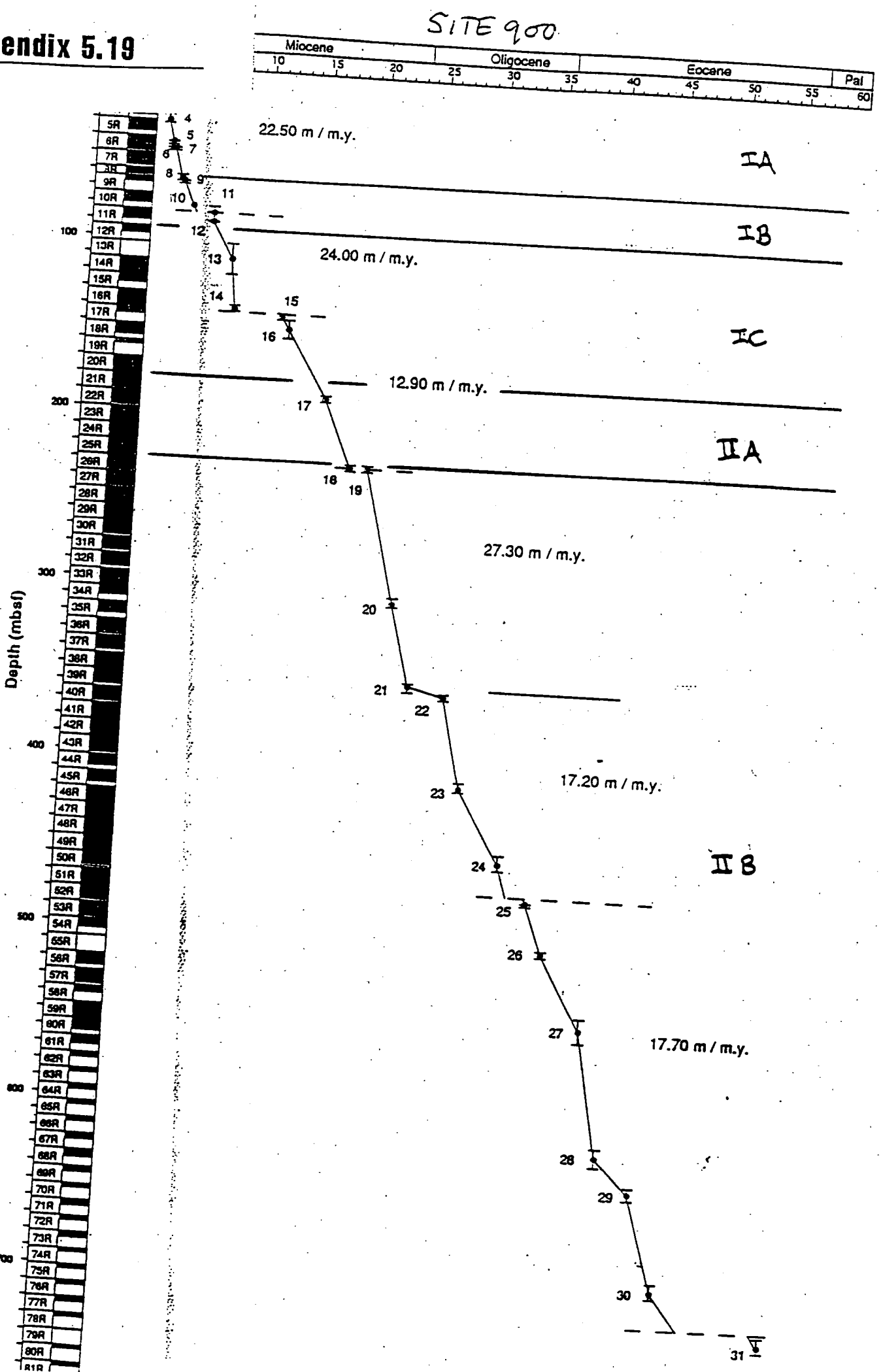
Appendix 5.17



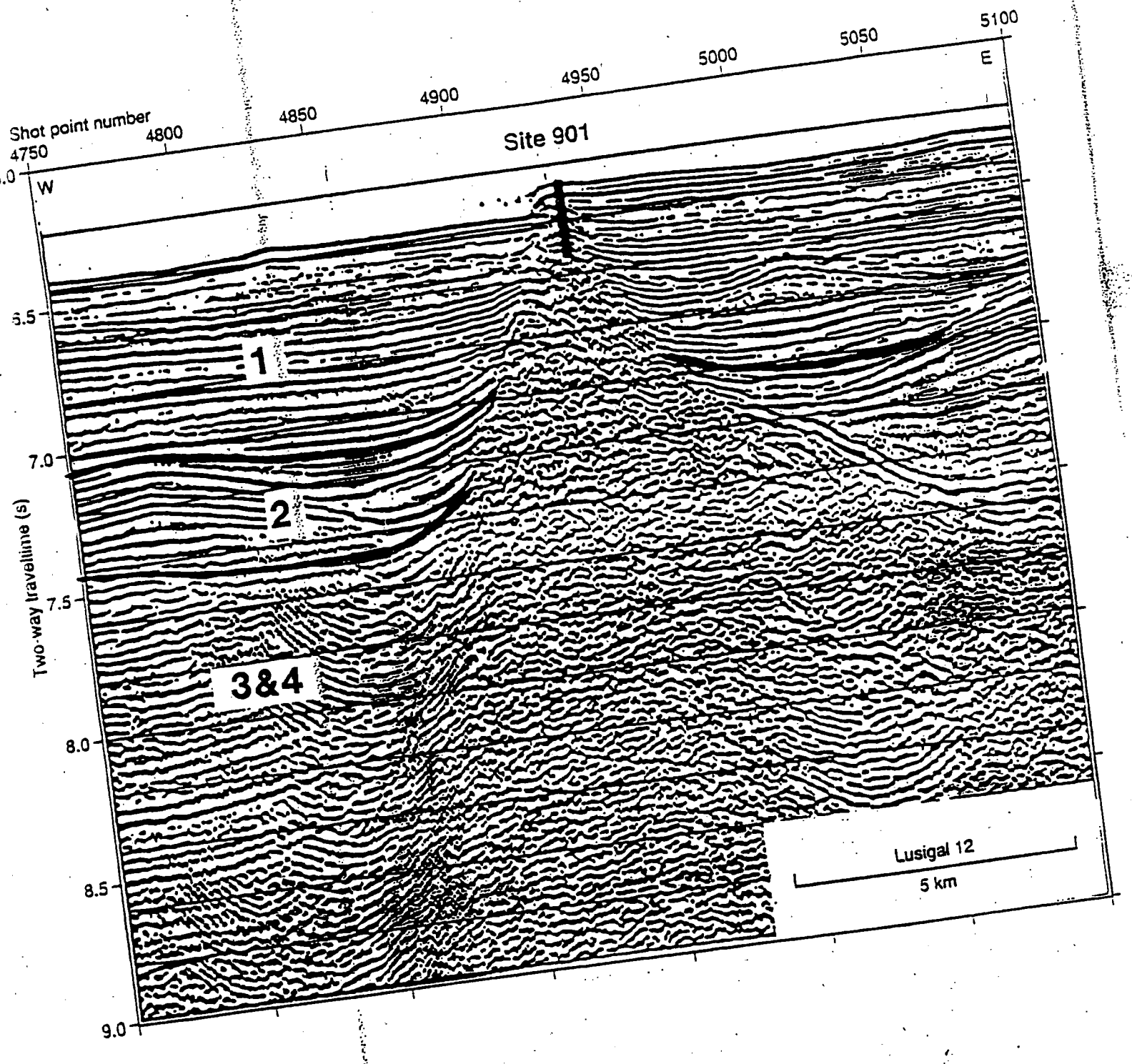
Appendix 5.18

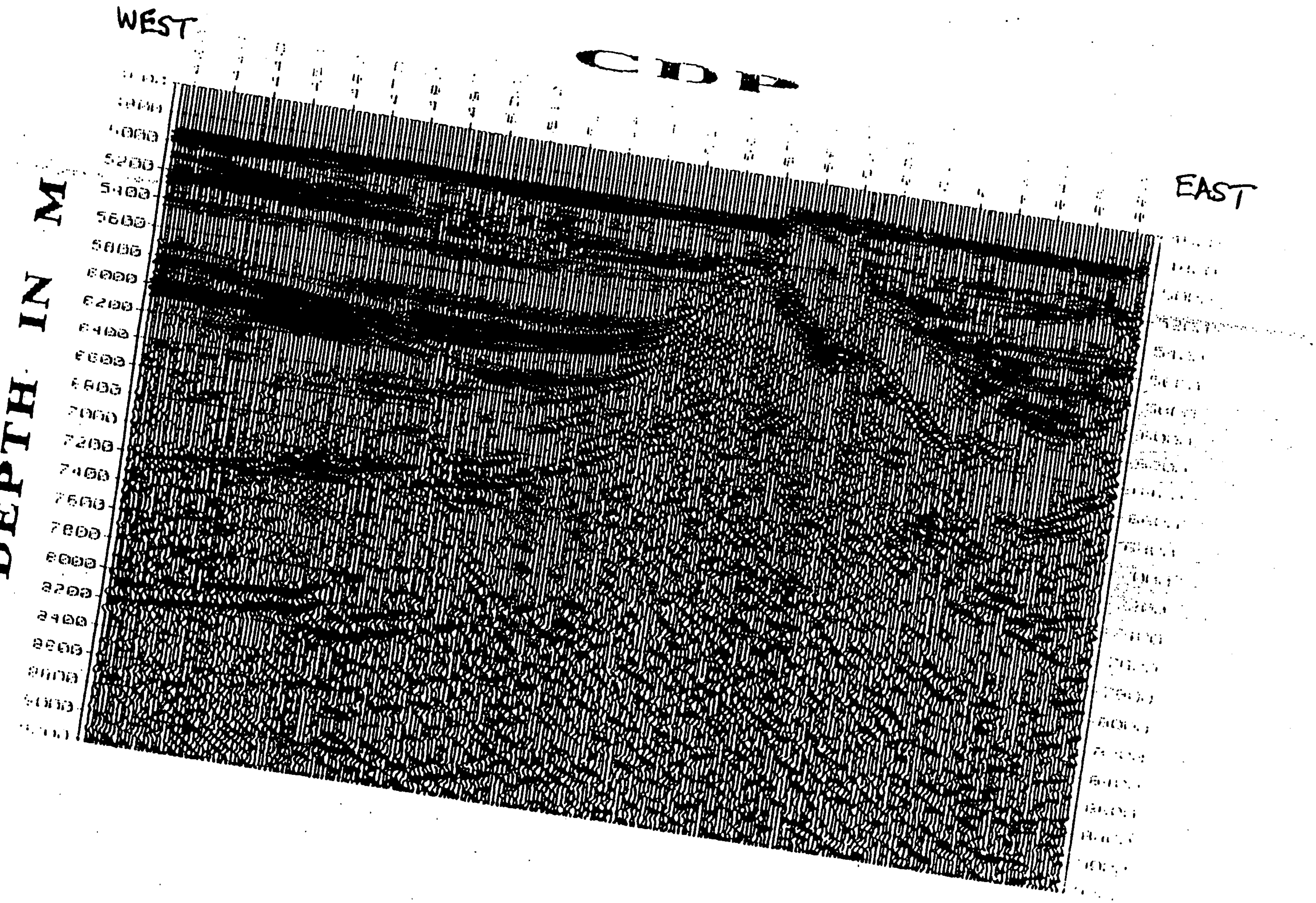


Appendix 5.19

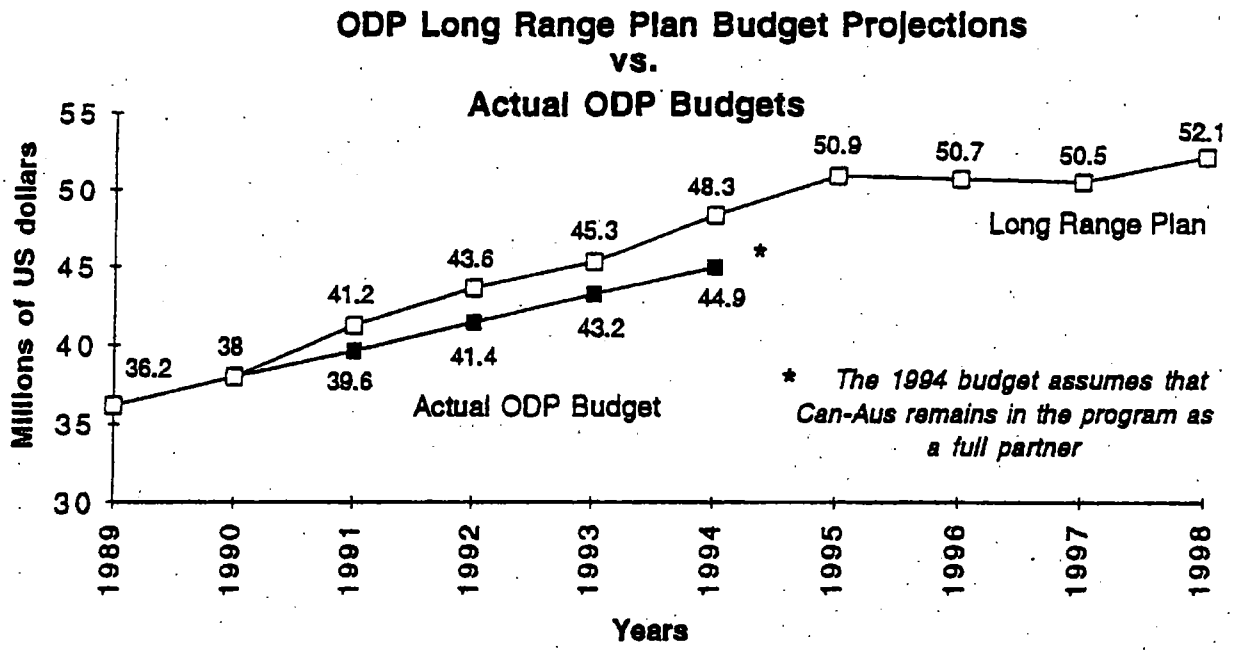


Appendix 5.20




WEST
CDP
EAST
DEPTH IN M
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
7600
7800
8000
8200
8400
8600

Appendix 6.0


ODP Long Range Plan Budget Projections
vs.
Actual ODP Budgets
Millions of US dollars
55
50
45
40
35
30
36.2
38
41.2
43.6
45.3
48.3
50.9
50.7
50.5
52.1
39.6
41.4
43.2
44.9
Long Range Plan
Actual ODP Budget
* The 1994 budget assumes that Can-Aus remains in the program as a full partner
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
Years

Appendix 6.1

1994 Budget		LRP	Program Plan	% change
Science operator		20687	17259	-16.5707933
Ship		21406	21181	-1.05110717
Logging		4196	4800	14.3946616
JOI/JOIDES		2032	1660	-18.3070866
Totals		48321	44900	-7.07973759

Appendix 6.2

FOCUSSING ODP OVER THE NEXT SEVERAL YEARS.

The reasons for focussing are that the actual budgets are well below the planned levels and we cannot accomplish all possible tasks with finite time and budgets.

The goals of focussing are to;
- to derive the best possible science results
- produce a cost effective science program
- to produce results which can be used to sell the program in the future

The general actions and actors required to achieve the goals of focussing are:

1. Review program costs and options.....(JOI inc and PCOM)

2. Review science goals and results.....(Thematic panels and PCOM)

3. Review technology goals and costs.....(Service panels and PCOM)

4. Production of an output which clearly states the foci and goals (using multi-media methods if necessary).....(PCOM)

SPECIFIC ACTIONS REQUESTED AT THIS MEETING

1. Commit to computer/data-base upgrade for funding in 94, 95 , 96

2. Request JOI to prepare for December PCOM an analysis of subcontractor budgets in terms of effor and potential areas for focussing.

3. Request DMP and TEDCOM to prepare a list of all operational tools and a list of tools under development and proposed together with estimated costs. At December PCOM this list will be prioritized

Appendix 7.0

Timeline for Decisions on Relocation of the ODP Atlantic Ocean C
excerpts from JOIDES Panel minutes (p.

11/9	IHP	Russ Merrill reports to IHP that space in the Gulf Coast Repc for the remaining Pacific ocean cores provided the program of drilling in the Pacific was not unduly extended. The workload at the East Coast Repository at LDGO was likely to outstrip the manpower resources available with the resumption of Atlantic drilling. However plans were in hand to increase the refrigerated space to accommodate the influx of material following the resumption of Atlantic drilling in 1993. IHP made a recommendation to PCOM to consider providing additional staff at the East Coast Repository, to avoid increasing the delay in the distribution of samples when Atlantic drilling resumes.
/16/92	EXCOM	Briden Report presented to EXCOM. Dorman subcommittee created to look into the role of subcontractors and tendering for subcontracts.
4/1/92	IHP	IHP was disappointed that its recommendation to PCOM regarding personnel for the ECR was not taken. LDGO explained that plans were in hand to expand the repository to provide adequate space but that the appropriate personnel resources would not be available to deal with the extra load that Atlantic drilling would bring.
6/15/92	EXCOM	Dorman subcommittee recommends that TAMU should retain responsibility for curation and repositories throughout the renewal period. TAMU should recommend to JOI the least-cost procedure (and associated policy) for expanding facilities adequately to curate and manage cores collected during the renewal period. TAMU's procedure in accomplishing this task should include solicitation of offerings from interested partners. TAMU's first priority should be to provide adequate facilities to curate cores from upcoming Atlantic legs. EXCOM passed a motion: ODP-TAMU will retain responsibility for curation and repositories through 1993-1998. ODP-TAMU should recommend to JOI, Inc. least cost procedures/policy for expanding facilities. • The first priority was to curate cores from upcoming legs. • Proposals from interested partners should be sought. (ODP-TAMU is to survey users to determine views regarding multiple repositories and present the results to PCOM.)
8/11/92	PCOM	ODP-TAMU presented PCOM with their preliminary results of a user survey on core repositories. PCOM passed the motion: In order to help ODP-TAMU provide JOI, Inc. and PCOM with least-cost procedures/policy for expanding quality core repository facilities, which will be discussed at the December 1992 PCOM meeting, PCOM requests its member institutions, and especially international partners, to provide ODP-TAMU with information on their interest and ability to host such facilities.
8/18/92	PCOM Chair	Austin writes a letter to the panels asking for opinions on (a) the need to refrigerate cores, (b) under what conditions should cores be shipped.
fall 1992	panels	Panels considered these questions and formulated statements for their minutes on Austin's two questions. Responses follow.
Sept. 92	TAMU	TAMU distributed the *Final Evaluation of Repository Survey Responses* to JOIDES panels.
9/9/92	IHP	IHP was presented with the results of the survey of the ODP community on the possible establishment of an additional core repository outside of the United States. IHP considered that there was no pressing need to establish a new core repository at this time, particularly since recent correspondence from G. P. Eaton indicated a firm commitment on the part of LDGO to the continuation and expansion of the ECR to accommodate all cores from Atlantic cruises through FY1994, and probably possible cores through FY1996.

Appendix 7.1

ecisions on Relocation of the ODP Atlantic Ocean Core Repository — excerpts from JOIDES Panel minutes (p. 2)

		upports the internationalization of the core repositories but, at the same time, ommends that the number of repositories be kept at a minimum. SGPP recommends that refrigeration of the current core collections be continued and that refrigeration should be maintained during transport. In order to protect core quality, the cores should remain in the repositories where they are currently housed.
9/22/92	TECP	In general TECP recognizes the need to internationalize collections, but cautions that the number of repositories should be kept at a minimum. Perhaps the US repositories could be consolidated into one, to which one might add one in Europe and one in Japan-Australia.
9/30/92	OHP	Should cores be moved? No, definitely not! There were no advantages and many disadvantages perceived, and no support at all for moving cores under any circumstance. Should additional repositories be established? This was obviously a thorny issue for the panel, with both scientific and political aspects which were not always easy to separate. One view, probably that of the panel majority, felt that the ideal arrangement would be one central facility, and that the three existing repositories represented as large a compromise from the idea as acceptable. In particular, it was emphasized that the existing core repositories have a consistent philosophy for core handling, with long experience and a demonstrated successful track record. Since core quality and integrity are key issues, there was concern that additional new facilities may not achieve this high standard. For research focused on thematically-based, time-interval-type questions (e.g., a specific boundary or specific time interval), additional repositories mean more work, beyond that imposed by the current system, for the scientist to be able to examine the cores, a requirement for many people. Others on the panel felt that, although a small number of repositories was obviously idea, three was not a magic number; why not four or five? Clearly, some of the European partners were strongly interested in having core repositories, and this view held that this would not compromise core handling or core quality. Some other more indirect, scientific benefits might accrue as well: increased visitation of North American scientist to European institutions during repository visits and so increased interaction, increased access (real or perceived) of the European community to cores, and increased access of the European core repository for teaching purposes. There was clearly no support for the idea of repositories in Japan or Australia, for example.
10/14/93	LITHP	LITHP recognizes the need to internationalize ODP, as well as the requirement for additional storage of cores in the very near future. However, LITHP does not support transporting cores that are currently in storage to a new facility. LITHP recommends that the number of repositories be kept to a minimum (as dictated by all the considerations of ODP) and that geographic coherence be maintained in all the collections.
10/28/92	Bremen	G. Wefer sends a letter expressing interest in hosting a core repository facility for Atlantic ODP core material. He indicated that "The University of Bremen would provide the storage area as well as necessary laboratories for the opening and sampling of cores at no cost. A reimbursement would be required for personnel costs and other expenses (shipping, communication, archiving), according to current practice regarding repositories."
/1/92	PANCH	PANCH consensus was following IHP's recommendation: Utilize LDGO repository for all Atlantic cores through 1996. Refrigeration is a small incremental cost and should be continued.

Appendix 7.2

Timeline for Decisions on Relocation of the ODP Atlantic Ocean
excerpts from JOIDES Panel minutes (p.

2/92	PCOM	JOI announced that the TAMU recommendation, in respon that the repositories should continue to remain at TAMU and LDGO through 1993-98. This decision was agreed to by JOI and forwarded to EXCOM. PCOM briefly discussed the issue but because the issue had apparently been decided by TAMU's recommendation to JOI no action was taken. It was noted that the Germans had done a great deal of work toward preparing a proposal to host the core repository in a 'least cost" fashion.
/26/93	EXCOM	EXCOM reopened the issue after discussion and passed the following motion: Given that EXCOM recommended that ODP/TAMU should retain responsibility for curation repositories through 1998, and, given that the program requires not only cost minimization but also scientific, logistic and international considerations, EXCOM requests ODP/TAMU: A) curate cores as appropriate for upcoming legs for an interim period until: B) quotes from any interested JOIDES members have been requested and received to provide curation and repository facilities. Criteria for evaluation will include overall operating cost minimization, performance, total cost — including capital construction, and long-term scientific community benefit to the program. This request for quotes for curation and storage of new core will be promulgated by ODP/TAMU no later than 1 March 1993. Recommendations on the issue will be made by EXCOM in June 1993, based on evaluation by a panel of 3 EXCOM members in June 1993. Furthermore, EXCOM requests all interested members to consider capital construction for repositories in the period 1998—onwards and will issue detailed procedures no later than June 1995
2/23/93	IHP	IHP confirmed that it was NOT in favor of any new arrangement relating to Core Repositories that involved (a) moving cores, (b) storing cores in unrefrigerated space, or (c) further fragmentation of collections specific to particular geographical regions. While sensitive to the needs of European ODP participants, it favored the proposal to expand the space available at Lamont to accommodate Atlantic cores obtained during the next few years of drilling.
2/25/93	TAMU	TAMU distributed the request for letters of interest and quotes from JOIDES members interested in providing curation and repository facilities and services. The letters were due by April 30, 1993 and were to be evaluated in June 1993.
4/26/93	PCOM	Lewis reported to PCOM that the core repository internationalization issue was revisited by EXCOM and that EXCOM had asked TAMU reopen the search for repository space with a new request for proposals. In response to EXCOM's mandate, TAMU issued a letter asking for proposals to operate the facility. No action was taken.
5/22/93	EXCOM	Core Repository Review Subcommittee of EXCOM met to discuss the letters of interest received from Canada, Bremen, GEOMAR and LDEO.
5/23/93	EXCOM	Based on the Core Repository Review Subcommittee report, EXCOM passed the following motion: EXCOM requests JOI advise TAMU to: 1. Definitize procedures for moving cores, with advice from PCOM and the panels. 2. Visit and enter negotiations with Universitat Bremen regarding technical and financial aspects of establishing the ODP Atlantic repository in Bremen. 3. If technical and fiscal aspects of an ODP repository at Bremen are satisfactory, to contract for such services with Universitat Bremen and conclude plans for core movement. 4. If discussions with Bremen do not conclude satisfactorily, accept the offer of LDEO.

Appendix 7.3

sions on Relocation of the ODP Atlantic Ocean Core Repository —
excerpts from JOIDES Panel minutes (p. 4)

-g--d on the following position statement regarding the move of the East Coast Repository to Bremen:

In view of its mandate to advise PCOM on core repositories and core curation, IHP reiterates its original recommendation that cores not be moved from one repository to another. Should this recommendation be ignored again, then IHP recommends that cores not be moved from the ECR to Bremen without measures taken to minimize the consequences of such a move on the quality and integrity of the cores, particularly as it affects future scientific and engineering studies of this unique and valuable collection.

Recent experiences in moving a piston core collection from the University of Washington to Oregon State University and another collection within the Bedford Institute of Oceanography (BIO) in Dartmouth amply demonstrated that core disturbance will occur even when cores are carefully handled and transported. The experience and expertise gained, the lessons learned, and the procedures developed during these moves should be considered and evaluated in considering whether to move cores away from the ECR. For example, prior to moving their cores, BIO re-curated their entire shipment to ensure stratigraphic integrity and minimize damage during the move.

IHP strongly urges re-curation* of the ECR collection PRIOR to shipment in order to mitigate damage to the drill core collections. The need to re-curate the ECR collection in its present state has long been recognized and urged by IHP. This need is now paramount in view of the move being considered.

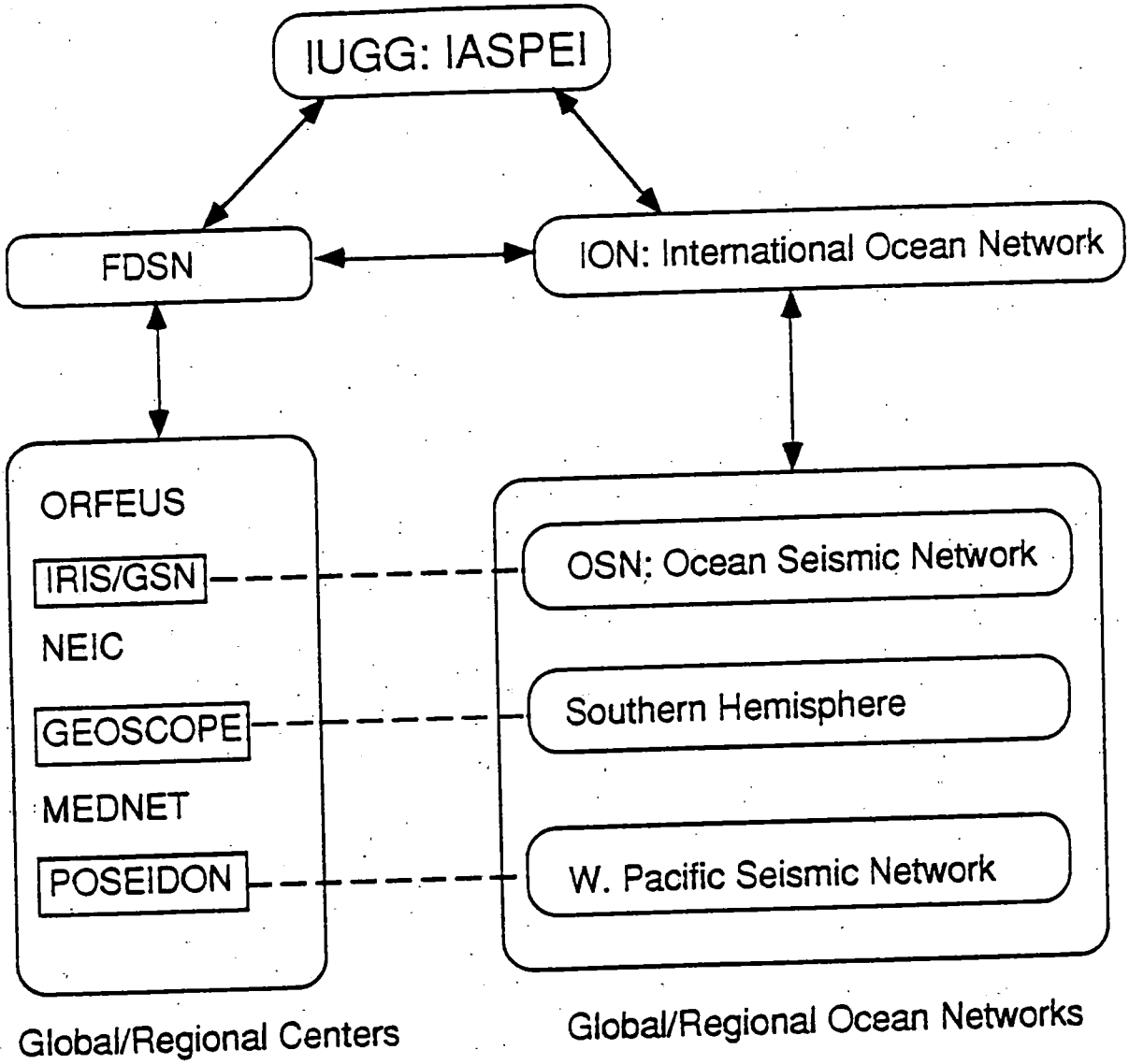
Based on previous experience with drill and piston cores, examples of the types of damage that can be expected to occur in a move from L-DEO to Bremen, particularly if not preceded by re-curation, include:

1) movement and juxtaposition of sediments or rocks within the core liners with consequent loss of stratigraphic continuity (heavily sampled older cores and those with black shales that have expanded beyond the confines of their core liners are especially vulnerable to this type of damage);
2) destabilization and movement of fragile, unconsolidated or poorly consolidated clastic sediments due to vibration, particularly during truck transport; and
3) destruction of sedimentary structures and trace fossils in clastic lithologies due to jostling, jarring, and vibration during transport. Older cores are especially susceptible to damage, particularly those that are desiccated and weakened by shrinkage cracks.

The panel also calls to the attention of PCOM that experience in core transport at BIO indicates the need for well-trained and experienced personnel to handle the cores during packing and container loading and unloading, which must be carried out in a deliberate and methodical manner. This process is likely to be more time consuming, with attendant costs, than seems to be appreciated. The time during which the ECR cores are made unavailable for sampling due to these activities could be considerable.

* re-curation consists of the re-assembly of disturbed core components (sediments, rocks, and fragments thereof) into their original stratigraphic configuration through the use of core photographs and lithologic logs, and the stabilization of those components within their core liners through the use of styrofoam plugs, spacers, liner partitions, liner extensions, foam caps, shrink wrap, etc. in such a way as to prevent movement of these components during handling. Where necessary, drying of the material can be retarded by re-moistening sponges in the D-tubes.

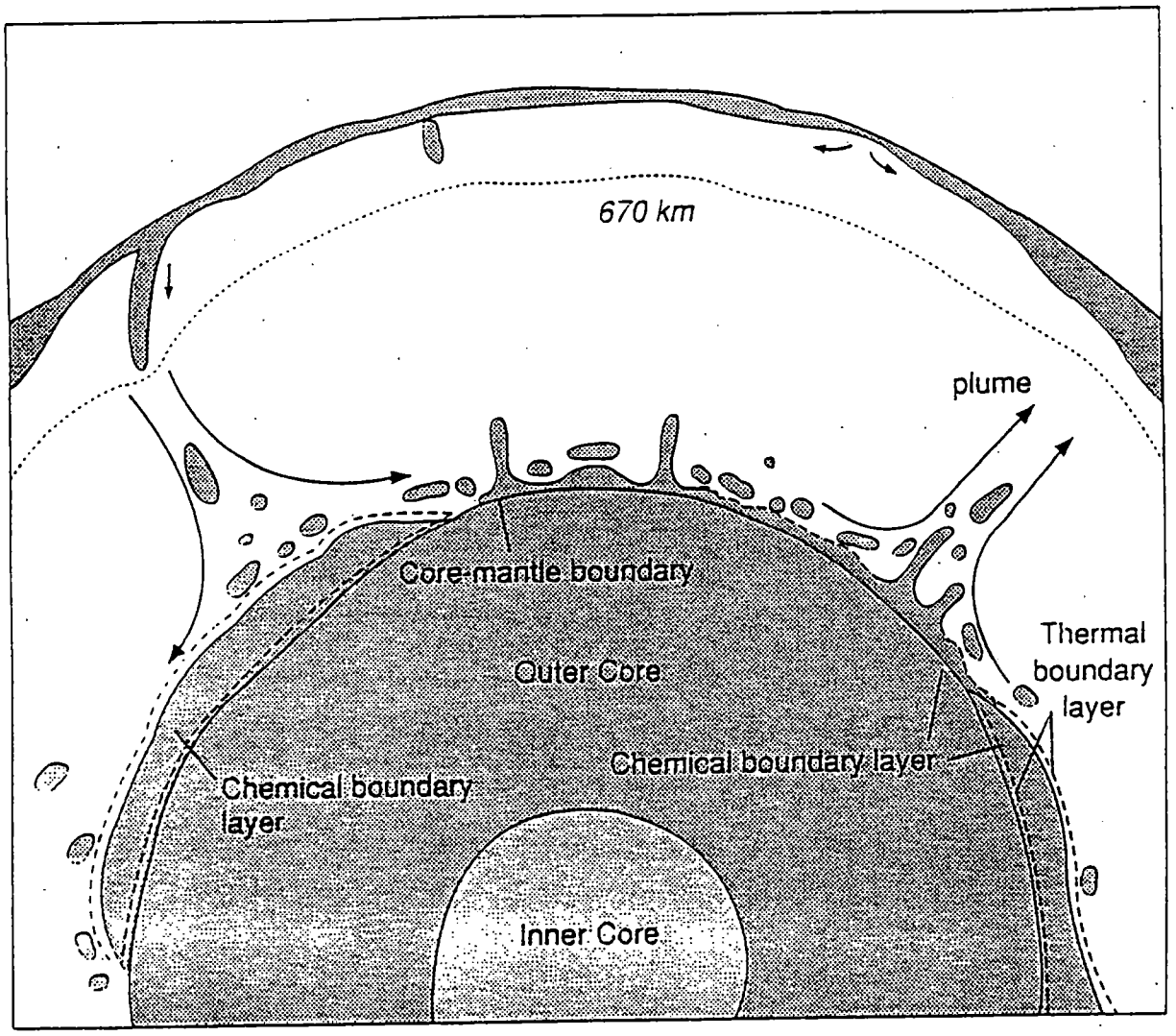
ed 8/2/93; KRS

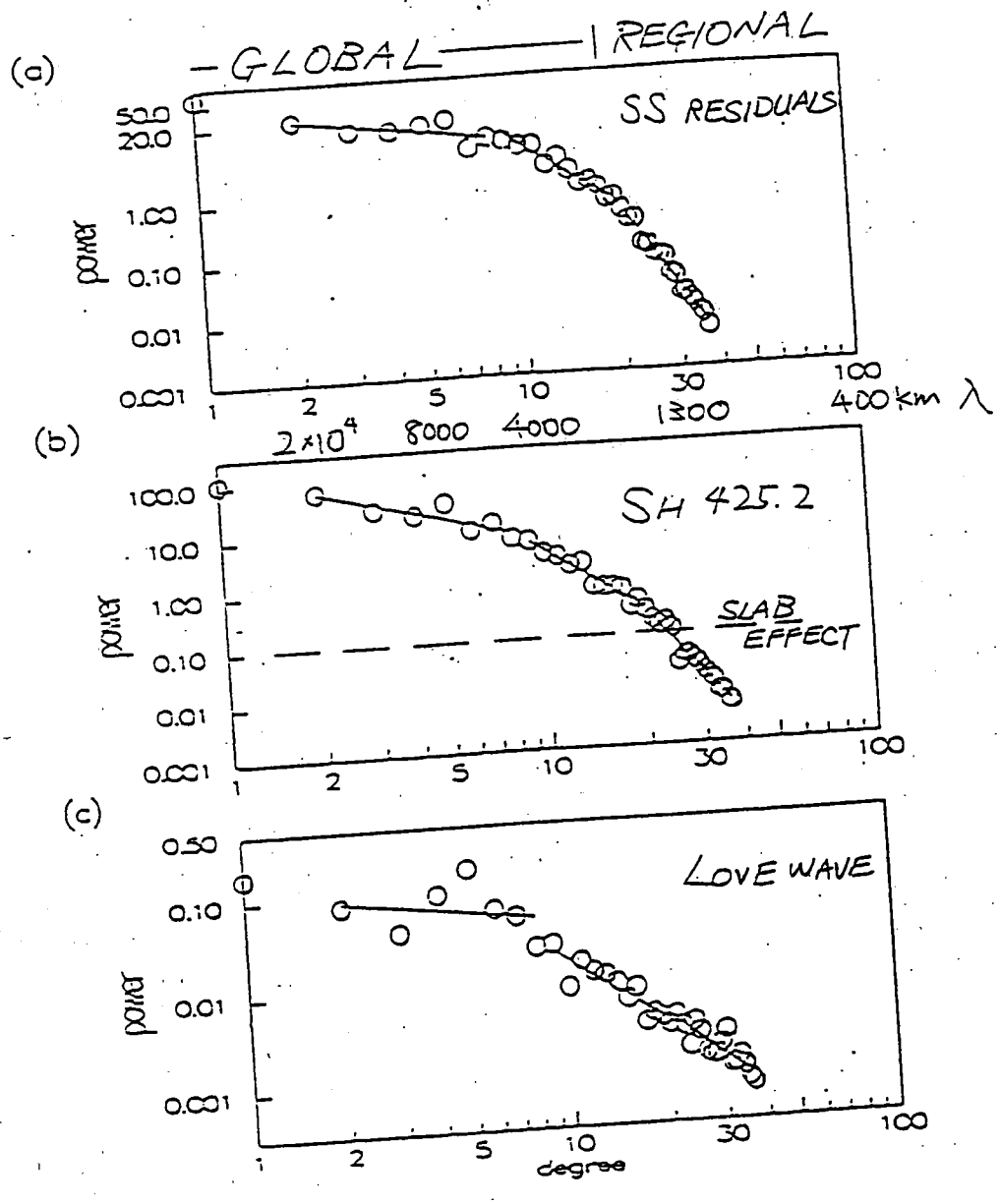


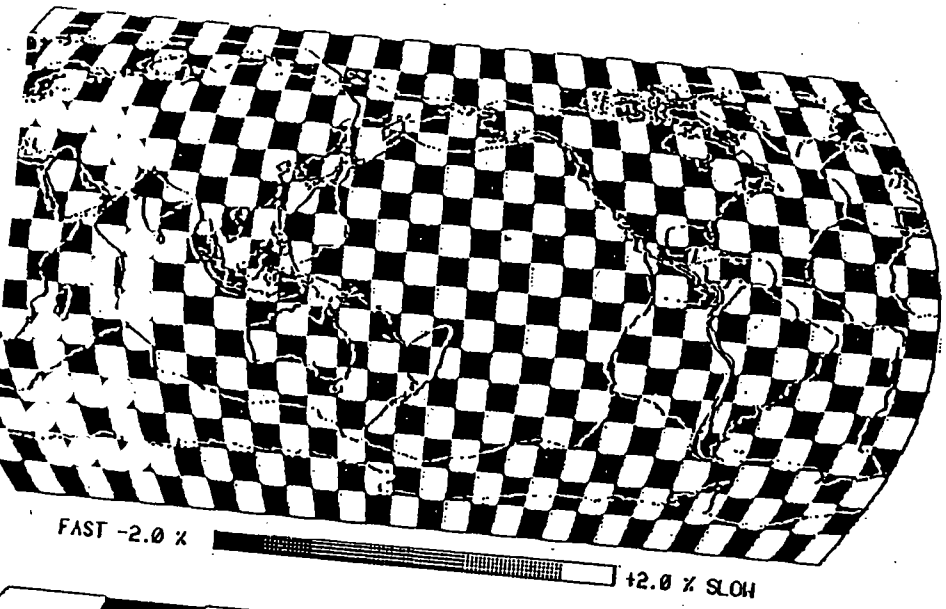
ION Goals

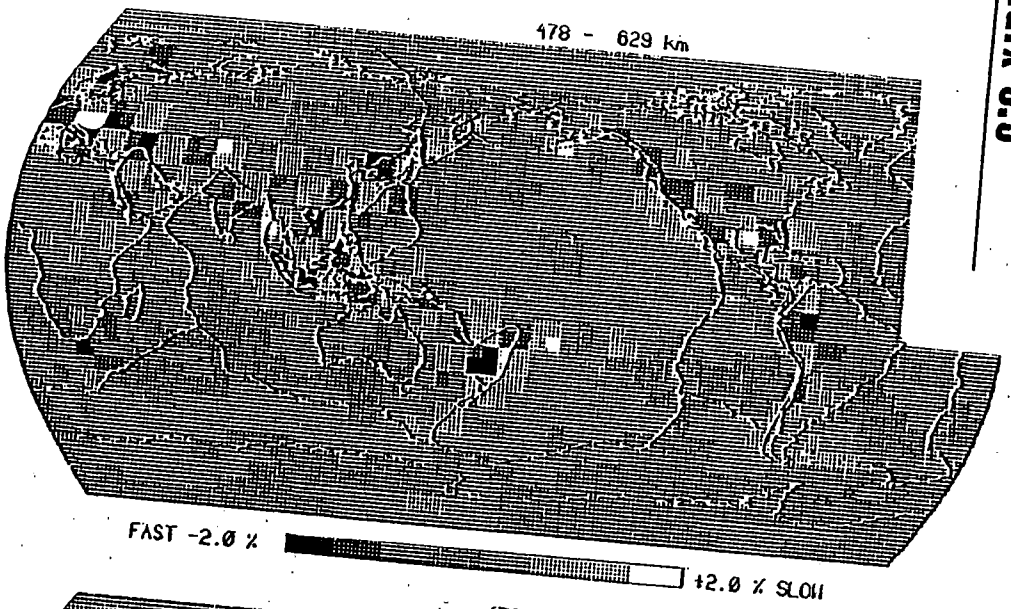
- cooperation in the development of critical elements of the observing systems
- standardization of system specifications
- standardization of those elements of the system that would allow shared maintenance of the observatories
- development of common plans for the use of resources such as provided by the Ocean Drilling Program
- timely exchange of data
- coordination of siting plans

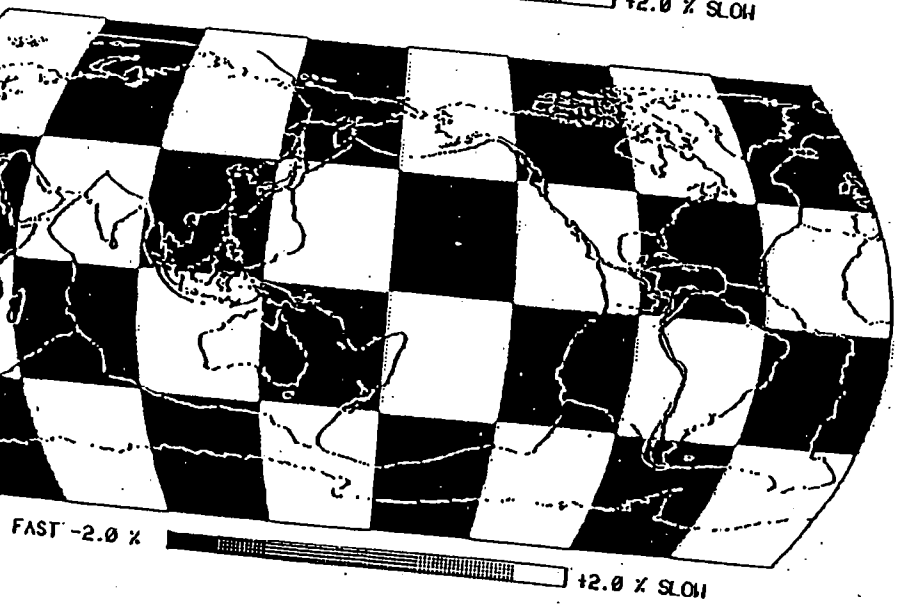
Appendix 8.1

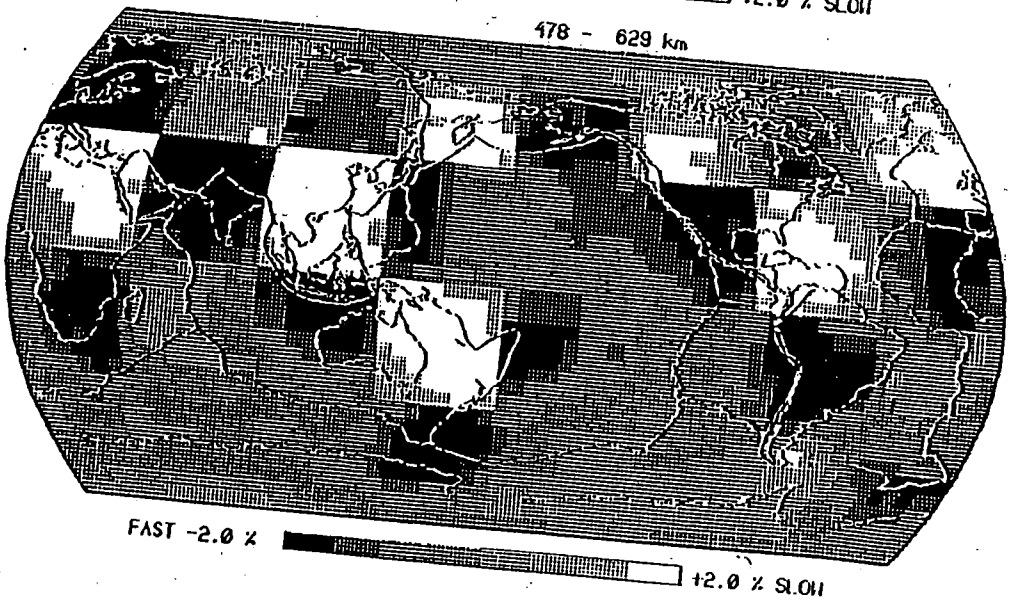

670 km
plume
Core-mantle boundary
Outer Core
Thermal boundary layer
Chemical boundary layer
Chemical boundary layer
Inner Core

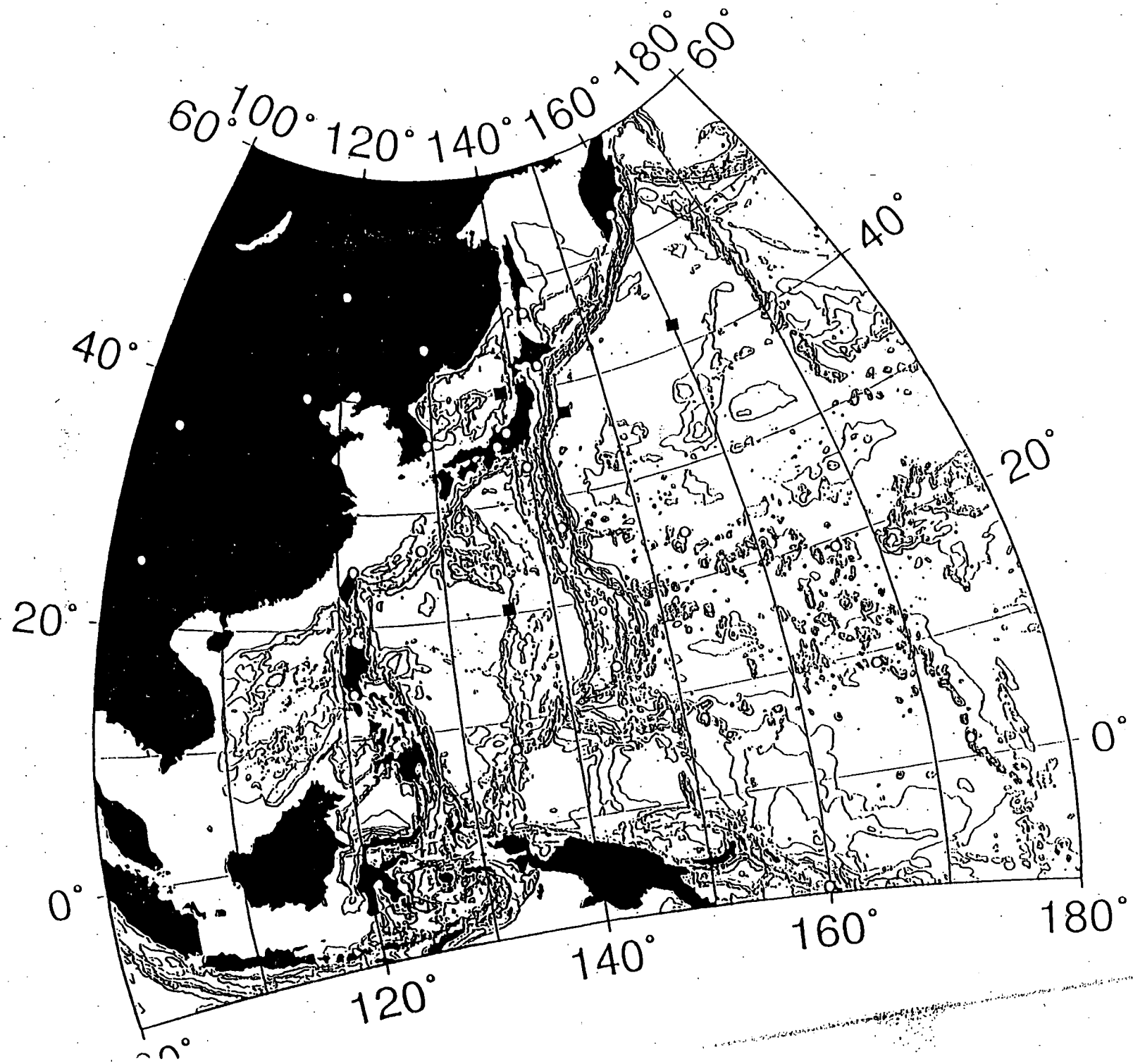

(a)
GLOBAL
REGIONAL
SS RESIDUALS
power
50.0
20.0
1.00
0.10
0.01
0.001
1
2
5
10
30
100
2×10^4
8000
4000
1300
400 km
λ
(b)
SH 425.2
SLAB EFFECT
power
100.0
10.0
1.00
0.10
0.01
0.001
1
2
5
10
30
100
(c)
LOVE WAVE
power
0.50
0.10
0.01
0.001
1
2
5
10
30
100
degree


FAST -2.0 %
+2.0 % SLOW


478 - 629 km
FAST -2.0 %
+2.0 % SLOW

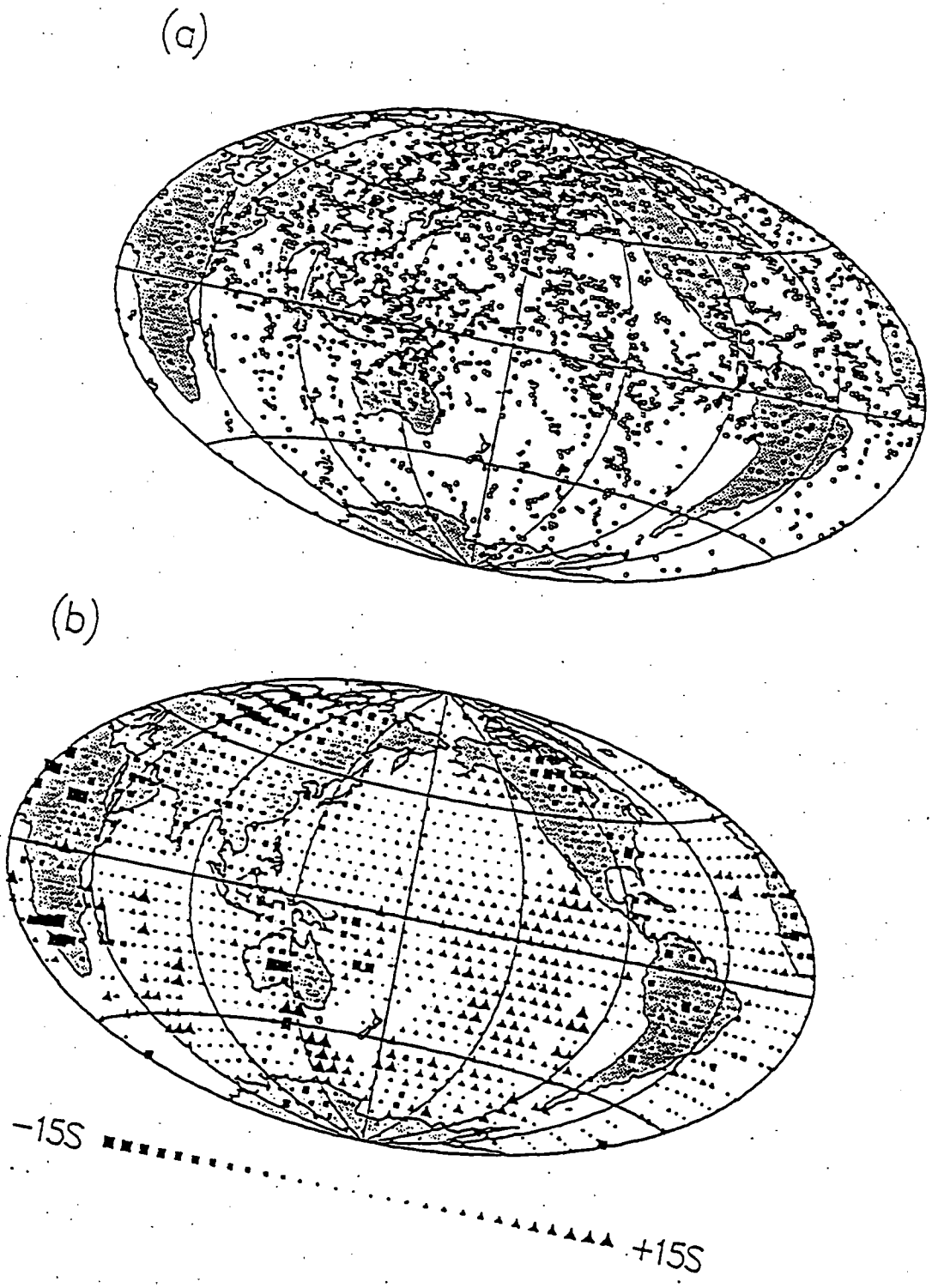

FAST -2.0 %
+2.0 % SLOW


478 - 629 km
FAST -2.0 %
+2.0 % SLOW



Appendix 8.4

Appendix 8.5



Recent progress

- Pilot experiments
  794D (JPN), 396B (FRA), 843B (USA)
- FDSN quality sensor
  396B Broadband (0.001 - 2 Hz) High resolution
  843B ULF
- Downhole installation options
  drillship/wireline re-entry/submersible
- More ambient noise characteristics
  Buried (HIG), Semi-buried (FRA),...
- 1-yr continuous record feasible
  4W x 1 year = 35 kWh
  20 Hz x 3 ch x 24 bitx 1 year = 5.7 GB
- International coordination
  Instrument test
  Modular design
  Shared maintenance
  Data compatibility for exchange

Appendix 8.7

Wed, Aug 4, 1993

Priority Sites (Coordinates are approximate)

Northeast Pacific Ocean: G B — 32.5°N, 142.5°W
East Pacific mantle and east Pacific rim earthquakes

Eastern Equatorial Pacific: G S A — 0°S, 120°W
East Pacific mantle and east Pacific rim earthquakes

Center of Nazca Plate: G S A — 20°S, 90°W
East Pacific mantle and east Pacific rim earthquakes
Large-scale azimuthal anisotropy

Northwest Pacific Site: G R C — 42°N, 160°E
West Pacific mantle and west Pacific rim earthquakes

Philippine Sea: R B — 20.4°N, 135.8°E
West Pacific mantle and west Pacific rim earthquakes
Fate of subducted plate

Japan Trench: R C — 37.5°N, 145°E
Dynamics and deformation of oceanic plate at trench

Mid Atlantic Ridge: G A (Hole 396B) — 23°N, 43.3°W
Proven high-quality Atlantic site

Ninetyeast Ridge: G S B — 28°S, 90°E
Indian Ocean mantle and west Pacific/ridge earthquakes

Japan Sea: R A (Hole 794D) Seismometer in place — 40°N, 138°E
Back arc mantle

off Oahu: B (Hole 843B) OSN pilot hole — 19°N, 159°W
Hawaiian swell

G: OSN criterion
S: Southern Hemisphere
R: High degree heterogeneity
A: Young Ocean B: Intermediate-age Ocean C: Old Ocean

Plan

Phase 1. Pilot Experiments ~ 1996

- in land boreholes such as at Piñon Flat
- in DSDP/ODP holes, such as 396B, 794D, and 843B
- at seafloor and buried environments for comparison

Phase 2. Prototype Stations 1997 ~ 1999

- at priority sites recognized by OSN/ION

Phase 3. International Ocean Network 2000 ~

- establish 15~20 permanent seafloor stations in optimum environments based on Phase 2 results

Appendix 9.0

25

MARGINS: toward a novel science plan

Draft article for EOS

by John C Mutter, Chairman, MARGINS Steering Committee*

* James A. Austin (University of Texas Institute for Geophysics), Dan Davis (SUNY, Stonybrook), Gregor Eberli (U. Miami, Rosensteil School of Marine and Atmospheric Sciences), James Gill (UC Santa Cruz), Stan Hart (Woods Hole Oceanographic Institution), Garry Karner (Lamont-Doherty Earth Observatory), Robert Kay (Cornell), Marcia McNutt (Massachusetts Institute of Technology), Ken Miller (Rutgers), Dale Sawyer (Rice), Brian Taylor (U. Hawaii), Alan Zindler (Lamont-Doherty Earth Observatory), Mark Zoback (Stanford).

More than 150 earth scientists from a wide variety of disciplines have gathered at meetings and workshops over the past three years to develop a science plan to study continental margins. Most of us live on margins and most geological hazards are faced there. Continents evolve at margins and most resources are found there. Yet our understanding of the processes that shape continental margins is meager. In formulating this MARGINS research initiative, fundamental issues concerning our understanding of basic earth-forming processes have arisen. It is clear that business as usual will not achieve progress toward solving the class of problem defined by the MARGINS program. The solutions demand approaches different from those used in the past. In many cases, they require a different class of experiment well beyond the capability of individual PI's to undertake on their own. In most cases, broadly based interdisciplinary studies are needed.

The purpose of the MARGINS planning process is to establish the critical goals in margins research. Development of a MARGINS science plan progressed toward its final stage during a recent planning workshop in Austin, Texas from May 9th to 11th. The meeting, sponsored by Joint Oceanographic Institutions, Inc. was convened by Bill Leeman (Rice University) and focused on *Magmatism and Mass Fluxes* at continental margins. It followed an earlier workshop on the *Mechanics of Lithospheric Deformation* held in Irvine, California that was convened by John mutter (Lamont-Doherty Earth Observatory) and sponsored by the National Academy of Sciences. A third workshop to analyze topics associated with *Sedimentation and the Stratigraphic Record* will be convened by Roger Flood (SUNY, Stonybrook) and held at the Lamont-Doherty Earth Observatory in the fall. It will also be sponsored by JOI. These three thematic workshops are the outgrowth of a meeting that defined the broad goals of a MARGINS Initiative (National Academy Press, 1989) that was convened by Barry Raleigh (SOEST, Hawaii) and John Sclater (U Texas at Austin).

The motivation for initiating a margins research planning process came from a growing sense that, although a great deal of work using a broad spectrum of approaches was being conducted on continental margins in many locations, progress toward solving many critical problems had slowed considerably. The effort and expense of much of the research being carried out did not appear to be yielding adequate rewards in advancing understanding of the initiation, evolution and destruction of continental margins. Progress appeared to be incremental, not fundamental. The essential outcome of the first meeting was a rationale for constructing a science plan that held promise for tackling some of the most basic issues involved in understanding continental margins (EOS Transactions, vol 71, p 679, 688, 1990). That plan is now being developed through focused, thematic workshops.

Margins research can be considered in two complementary but conceptually different ways. In one approach we divide margins into two or three basic types or categories based on tectonic setting. This margin taxonomy yields convergent, divergent and translational species. Research planning treats these as more or less separate species and involves studying the many processes that operate in the development of each. Under this rationale much research has been conducted to date and much progress has been achieved.

A different approach recognizes that there are a range of fundamental physical and chemical processes that form and deform the surface of the Earth and operate at all margins. Tectonic setting naturally governs the specific expression of a particular process that may appear very different in different environments. Nevertheless, relatively few processes fundamentally govern the evolution of margins, and the study of these processes, wherever they are best expressed, provides an alternate rationale for constructing a science plan for margins research.

This conceptual approach emerged from the first margins workshop and established a leitmotiv for the topically focused meetings that have followed. The approach is in many ways similar to that along which the Ocean Drilling Program has reorganized its science advisory structure. ODP employs thematic panels (Lithosphere, Ocean History, Sediment Geochemistry and Physical Properties, and Tectonics) as the primary instrument of science planning and then calls on regional expertise only when needed to bring about detailed planning of specific drilling legs.

The fundamental processes that operate in the formation of margins are lithospheric deformation, magmatism and mass fluxes, and sedimentation. The first two sets of processes have now been addresses in focused workshops at which specific problems have been identified and solutions suggested. Some of the problems raised in the *Lithospheric Deformation* workshop have thwarted investigators for many years. For instance, it is well-recognized that very large fault structures accommodate a large proportion of the strain at continental margins along subduction zone thrusts, major transforms and (perhaps) normal detachment faults. It is also recognized that these structures move at resolved shear stresses far less than those required to cause failure based on simple Coulomb theory. We currently lack a verified theory to account for the processes that give rise to these fundamental margin structures.

This low-strength paradox of large faults may be corollary to an even more fundamental issue. The strength of the lithosphere can be estimated by integration of the "yield stress envelope" commonly used to describe rheology. The magnitude of tectonic forces can also be estimated by consideration of "slab pull" and "ridge push" phenomena. When lithospheric

strength and tectonic forces are compared, we are obliged to conclude that the forces available are insufficient to rupture the lithosphere. Yet we know that the lithosphere does rupture in compression at convergent margins, in tension at divergent margins and in shear at translational margins. Perhaps a mechanism exists that allows a strong lithosphere to be deformed by weak forces through concentration of stresses into narrow regions.

Another issue of lithospheric strength involves the vertical partitioning of strain during deformation. Mounting evidence suggests that strain measured at the surface by geological techniques may be much larger than that implied to have taken place in the lower crust and upper mantle from geophysical observations. One way out of this problem is to postulate that the rheology of the lower crust is nearly fluid and lies between mechanically strong layers above and beneath -- the jelly sandwich model of lithospheric rheology. Such a model allows appealing explanations for some problems. Low-angle normal faulting, for instance, can be explained by the rollover of a fault initially dipping at a much greater angle. The jelly sandwich rheology, however, remains little more than plausible conjecture.

The workshop on *Magmatism and Mass Fluxes* addressed a similarly fundamental suite of problems, many of which interfaced with those raised by participants at the Lithospheric Deformation workshop. One critical issue was the construction of continental crust. Growth of continents was long thought to be largely associated with magmatism at convergent margins. It is becoming clear that very large volumes of magma are brought to the earth's surface in other settings. Simple volume estimates of flood basalt provinces on land and beneath the oceans (so-called Large Igneous Provinces, or LIPs), and the information available on the timing of outpouring for many of them, imply magmatic fluxes of extraordinary proportions in intra-plate and divergent margin settings. Creation of the Ontong-Java Plateau may have involved production of magma over a few million years equivalent in output to the entire mid-ocean ridge system at that time. If the volume estimates are incorrect we will need to re-evaluate basic concepts on the nature of seismic velocities in deep crust and uppermost mantle. If the estimates *are* correct, we have no theory of melting that would allow such large volumes to be produced in such short periods. Decompression melting of an unusually hot mantle during extension can deliver considerable volumes of melt to the surface, which may give rise to high-velocity "underplated" layers recognized beneath the continental slope of many so-called "volcanic" margins. Mounting evidence, however, suggests that margins with volcanic characteristics have also formed without an apparent heat source such as a hot spot. We therefore lack a theory that can adequately explain the spatial and temporal aspects of melt generation and migration needed to account for even our most basic observations.

This inadequacy is equally expressed in convergent settings where the boundary structures are very different. Models of mantle flow, melt generation and migration for mid-ocean ridge settings have advanced considerably over the past several years and are reaching a stage at which they are capable of predicting some basic petrological characteristics of ridge basalt. Similar models for convergent settings have not moved far beyond kinematics and provide only crude predictions of magma distribution. Despite many years of study, a number of essentially zeroth order questions remain. These include: How does heat and mass transfer associated with subduction of oceanic lithosphere lead to production of magmas? In particular, what is the role of fluids in triggering melting in the overlying mantle? What is the nature of the mantle wedge and its role in arc magmatism? How does the downgoing slab evolve as it penetrates into the asthenosphere? Tantalizing observations frequently cited at the workshop were tomographic images of the arc/backarc system in Northern Honshu, Japan. These exhibit a rich pattern of variations in derived seismic velocity perturbations. If the velocity perturbations can be read as proxies for temperature variations then the tomographic images are a tremendously valuable and direct source of information on critical unknowns such as the temperature evolution of the subducting slab and the distribution of melt in the mantle wedge. But is it reasonable to equate velocity variation with temperature variation? Certainly changes in mantle temperature will lead to the generation of slow and fast regions of the mantle, but the inverse statement cannot be made uniquely. Beginning with a tomographic map of mantle velocity anomalies it is not possible to assign those variations to mantle temperature alone.

After the third thematic workshop at Lamont-Doherty on *Sedimentation and the Stratigraphic Record*, the MARGINS Steering Committee members will assemble the results of the three workshops into a Draft Science Plan for Margins Research. We hope to have it available by the Fall AGU, when we will host an informal discussion of the objectives of the MARGINS Initiative.

The topically focused planning workshops held as part of the MARGINS planning process have clearly identified the value of bringing together researchers of many different backgrounds to contribute to discussion of research plans. Participants at the *Mass Fluxes* workshop expressed enthusiasm for continued interaction of this type. In the new year we hope to hold the first MARGINS Summer Institute, styled after the very successful RIDGE institutes, in which a critical topic in margins research will be addressed by a group of investigators who can bring very different perspectives to the problem. The topic for the institute and the venue will be decided following the final MARGINS thematic workshop at Lamont this fall.

LITHP White paper

Part 1 - Introduction

1 Scientific objectives as defined by COSOD

2 Status of Scientific objective at the end of phase I (1993)

3 Summary of Recommendations for lithospheric drilling phase II (1998) and beyond (1998-2003

Part 2 - Scientific problems and objectives

"Shopping list"

- scientific objectives
- contributions from drilling
- drilling strategies and priorities

Appendix 10.1

LITHP White Paper, 1993

A Oceanic Lithosphere

A.1 Formation and Modification

- Processes at Mid-Ocean Ridges
  - magmatic processes
  - hydrothermal processes
  - fracture zone / transform fault
- Physical state and evolution
  - physical state
  - physical and chemical evolution

A.2 Structure and scale of variability

- spatial heterogeneity
- long term evolution and dynamics of the mantle
  → OSN / ION

B Large igneous provinces

- Oceanic plateaus
- rifted margins
- seamounts

C Convergent margins

- Lithosphere composition and structure
- Fluid processes
- ... variabilities in space and time

Oceanic lithosphere

- Crustal evolution : drilling along a flow-line
- hydrothermal processes coordinated with monitoring
- Lithosphere structure and composition - offset drilling
- Deep drilling
- Initiation of rifting (Red Sea)

Large igneous provinces

- mantle plume and Continental breakup
- timing of the formation of Oceanic plateaus

Convergent margins

- arc initiation and supra-subduction zone ophiolites
- back-arc initiation, propagation and source distribution
- Subduction zone mass balances and geochemical fluxes

Appendix 10.3

Problems

- no plan

  prioritization ?

  1993 - 1998

  1998 - 2003

- no evaluation of the number of legs

- technological development requirements

  not clearly stated

  DCS → upper crustal drilling

  CORK

  Hipluse tools ? core orientation

  logging ? BHTV

- the problem of multiple platforms is not addressed

  to meet the scientific objectives, what type of platform is required

  → Joides Resolution type → transects

  shallow holes

  → requirements for deep drilling ?

SGPP Themes

1. Sea Level: Record of eustatic change

2. Sediments: Material cycling & sediment distribution processes

3. Fluids: Circulation through the crust & geochemical balances

4. Metallogenesis: Control by tectonics & host material

5. Paleocean: Fluctuations in chemistry and geochemical balances.

SGPP Future Emphasis

1.) Sea Level : Forcing Eustatic Control

2.) Paleocean Chemistry :

fluid ↔ ocean → atmosphere

SHALLOW WATER DRILLING WORKING GROUP

- MAHLON BALL (CHAIR, PPSP) HAS PREPARED DRAFT REPORT ON SITE SURVEY REQUIREMENTS.

- DAVE HUEY (ODP-TAMU), AFTER CONSULTATION WITH SEDCO-FOREX AND DUKE ZINKGRAF (TEDCOM) HAS WRITTEN A TECHNOLOGY ASSESSMENT SECTION FOR THE ABOVE REPORT.

- COMPLETE REPORT WILL BE REVIEWED AT OCTOBER 1993 MEETING OF PPSP.

- $100K-250K NEEDS TO BE SPENT ON DEVELOPING THE CAPABILITY FOR:
  A) SONAR MONITORING OF THE BOREHOLE AT THE SEA FLOOR.
  B) EMERGENCY PIPE RELEASE.

Appendix 14.1

SHALLOW WATER DRILLING WORKING GROUP

- DRILLING IN WATER DEPTHS GREATER THAN 200M.
  EXISTING PROCEDURES SUFFICIENT.

- DRILLING SEDIMENTED CONTINENTAL MARGINS IN WATER DEPTHS LESS THAN 200M, SEAFLOOR PENETRATION LESS THAN 1000M.
  1. SPECIAL SITE SURVEY REQUIREMENTS.
  2. TECHNOLOGY REQUIREMENTS FOR DRILLSHIP.

- DRILLING SEDIMENTED CONTINENTAL MARGINS IN WATER DEPTHS LESS THAN 200M, SEAFLOOR PENETRATION GREATER THAN 1000M.
  FULL WELL CONTROL CAPABILITY IS ESSENTIAL.

Summary of meeting at ODP-TAMU on Tuesday July 27, 1993.

Attendees; J.Coyne, D.Goldberg, T.Francis, E.Kappel, I.Gibson and A.Sherin and B.Lewis (chair)

The purpose of the meeting was to discuss:
- Interim data capture/handling
- Distribution of data on CDROM
- TAMU/LDEO efforts relating to core-log integration

1. Interim data capture.

The TAMU information services group allocates effort to;
- Specification and review of the data base RFP
- Shipboard computer operations and data collection
- Shorebased data archiving
- Shorebased servicing of user requests for data
- Software development
- Hardware and network development

The staffing levels and on-going program committments permit only maintenance and operation of the present system with modest devlopment. The plan is to make on-going and future developments compatible with the future system.

It is clear that the present data base system is oudated and lacks the capability to capture much of the data output by shipboard labs. A new data base system is urgently required together with compatible and user friendly data inputs. The new shore based system must also be accessible by remote users.

In the time frame from now until a new system becomes operational (about 1995) it is clear that the main focus must be to capture data being collected on the ship and to archive these data in a form that will allow later retrieval and input to the new data base. Some of these data will be stored in the S1032 data base, some on the 4D system, some on WORM drives and some as spread sheet outputs. The limited development resources at TAMU will be used to upgrade capture operations in the following approximate (IHP, SMP) priority.

a. SAM/Corelog
b. Micropaleo data 4D
c. VCD
d. Discrete physical properties 4D
e. Paleomag
f. HRVI and HRTHIN 4D
g. Natural Gammma
h. Chemistry
i. Underway geophysics
j. XRF

2. CDROM

The interim plan for use of CDROM's is that processed logging data and specific core data will be put on CDROMs and included with each Initial Report volume. This will be done by LDEO using their log data, core data suplied by TAMU and CDROM facilities at NGDC. Core data includes primary data about the cores that are specified by SMP.

In the future it is anticipated that the processed log data and core data will be made availble to users on the new data base system using INTERNET (or other media when a specific large data set is requested). It should be noted that with the new data base system the log data must still be processed before being put on the data base. This will probably require that the data be added to the data base after a leg, and not on shipboard.

3. CORE-LOG INTEGRATION (CLI).

In order to better define:
- the product desired from CLI
- the data rquired for CLI
- the status of CLI
- the personnel responsible for implementation of software tools
- the timig of implementaion
- the funding levels required for impementing CLI
- a user advisory group,

it is recommended that JOI inc request BRG to prepare a short "white paper" addressing these issues.

UNIVERSITY OF Miami

29 July, 1993

TO: Brian Lewis

FROM: Keir Becker

RE: PCOM agenda item L.1 (Kastner letter about Alvin dives to Leg 146 CORKs)

I really believe that Miriam's letter (p. 362 of agenda book) raises a big fuss where such a fuss is not particularly warranted; and she as a geochemist is almost biting the hands of the geophysicists who are trying to feed her fluid samples. As a co-P.I. of the CORK program and one of the co-chief scientists of the Alvin dive program which Miriam accuses of exclusionary practices, I take great exception to a number of statements in her letter, some of which contain misrepresentations, others of which are not carefully thought out.

Throughout the letter there are numerous references to "excluding" drilling leg participants from the first follow-up visit to the Leg 146 CORKed holes. To my knowledge there has been no deliberate attempt to exclude anyone from the upcoming Alvin dives to the NE Pacific CORKs. However, revisiting the Leg 146 CORKs is being done as part of a three-segment Atlantis II/Alvin cruise that will accomodate three major funded programs: an ONR-funded program to Monterey Fan, an NSF-funded post-drilling Oregon Margin program that is independent of the CORKs, and 5 NSF-funded dive days related to the CORKs from both Leg 139 and Leg 146. Given that the limited berths available on the AII must first be allocated to scientists involved in the three programs which justified the ship- and dive-time, it is possible that there are interested Leg 146 scientists who cannot be accomodated in the dive program. Nevertheless, the dive participants include one of the co-chief scientists from Leg 146, two of the logging scientists from Leg 146, a representative of the French geothermal scientist from Leg 146, and one, possibly two, of the engineers who installed the CORKs during Leg 146. When we revisited the Middle Valley CORKs after Leg 139, our dive party (who are all participating in this year's cruise as well) included one of the co-chief scientists from Leg 139, one of the logging/geothermal scientists from Leg 139, and two of the engineers who had installed the CORKs during Leg 139. The similarities in dive parties quite clearly contradict the implications of the final sentence of Miriam's second paragraph.

The Leg 146 scientists included in the CORK dive party admittedly do not include the shipboard geochemists, of whose interests Miriam is naturally very protective. However, I would note that neither Leg 146 CORK included the fluid sampling capability, largely due to operational decisions during deployments made very difficult by poor hole conditions. Thus, the dive operations at the Leg 146 CORKs will not include fluid sampling and there are no geochemical sampling interests to protect. Instead, the operations will include downloading temperature and pressure data as well as hydrological testing. In support of these operations, we have included the appropriate Leg 146 personnel, and our science parties do indeed include the hydrological expertise that Miriam requests.

Miriam emphasizes the generic initial follow-up cruise to a CORK installation, with the statement that it should "ideally" occur within a few months of the drilling leg, i.e., within the

Rosenstiel School of Marine and Atmospheric Science
Division of Marine Geology and Geophysics
4600 Rickenbacker Causeway
Miami, Florida 33149-1098
(Office) (305) 361-4663 (Fax) (305) 361-4632

year during which participants of the drilling leg have exclusive rights to the drilling data. By definition then, the scenario to which Miriam objects in her third paragraph should not occur; during the first year, the non-drilling CORK dive participants would not have access to the drilling data and could not "run-away and immediately publish" it. This possibility is no more a problem with the CORKs than with any other aspect of ODP science.

There are any number of factors that enter into the timing of follow-up cruises to CORKs, most of which are logistical; even from scientific grounds, it is not necessarily the case that the "ideal" time for the first revisit is only a few months after deployment. When we first envisioned the CORKs, we hoped for revisits at intervals on the order of a year after emplacement, to allow full re-equilibration in the sealed holes; such an interval would be on the edge of the period of data exclusivity for the drilling leg. The initial revisits to the Leg 139 CORKs occurred 2-3 weeks post-leg, driven largely by logistics and a desire to verify as early as possible whether the first CORK deployments worked as intended. A follow-up revisit a year later with an ROV demonstrated that conditions had not yet reached full equilibrium, and differential pressures in the hole even then would have precluded fluid sampling. The revisits to the Leg 146 CORKs are occurring about nine months post-drilling, which is the most reasonable approach to the one year interval that weather windows and ship schedules will allow.

In general, Miriam casts her letter in terms of a "new ethical problem" specific to CORKed holes, but I would argue that returning to CORKed holes is just a special example of the wider matter of revisiting any hole using any number of techniques available without the drillship, e.g., by wireline reentry. Therefore, at issue are the same old "ethical problems" (or non-problems?), as have been touched on by PCOM in encouraging non-ODP use of DSDP/ODP holes. This PCOM encouragement has emphasized communication with ODP, but has made no provision for any special rights of the drilling party for post-drilling science data. Perhaps a counter-example would help illustrate how unworkable it would be to grant any sort of data rights to the drilling party for post-drilling data: If a hole is revisited shortly after drilling for logging with special tools by wireline reentry, then the wireline loggers would by ODP policy have no rights to the logging data collected during the drilling leg, unless they included participants in the drilling leg; would we propose that the logging scientists from the drilling leg would nevertheless have an "ethical" right to the wireline reentry logging results, even if they do not participate in the wireline reentry program?

The last point leads to what I see as the solution to Miriam's dilemma, which is that those drilling leg scientists who wish to participate in the post-drilling revisits to the holes drilled during their legs must be involved in the post-drilling science programs from their inception; they cannot expect post-drilling science results to be delivered to them as some sort of due process for having spent two months on the drillship. In fact, Miriam herself is doing just what I suggest; as of a meeting that occurred in late May, she has been closely involved in the design of the geochemical aspects of the CORK experiments for the Barbados drilling leg, and she will be involved in the imminent preparation of a proposal to support a post-drilling dive program using Nautile. Given her involvement, it's unclear to me what Miriam hopes to gain with her letter.

cc: M. Kastner, B. Carson, PCOM