D R A F T M I N U T E S

JOIDES OFFICE
Scripps Institution of Oceanography
La Jolla, California 92093
(714) 452-2360

TABLE OF CONTENTS

PCOM Meeting, 23-26 February 1982

PCOM Meeting, 23-26 February 1982

ACTION AND NOTA BENE ITEMS
JOIDES PLANNING COMMITTEE MEETING
23-26 February 1982

Page	Responsibility	Subject
10	Lancelot (N.B.)	Speed dissemination of DSDP results to general public
14	PCOM members (N.B.)	Keep close liaison with EXCOM counterparts
17	Lancelot (N.B.)	Negotiate with Loughridge (NGSDC) re publication of Sedimentary Petrology technical manual.
30	Winterer (ACTION)	Include languag in science narrative re separate geophysical survey proposal
36	Worstell (N.B.)	Update Industrial Liaison Panel
36	Panel Chairmen (N.B.)	Submit site proposal sheets to JOIDES office
57 58	Winterer (N.B.) (ACTION)	Make suggested changes to the 8-year science narrative

JOIDES OFFICE
Scripps Institution of Oceanography
La Jolla, California 92093
(714) 452-2360

D R A F T M I N U T E S

JOIDES Planning Committee Meeting
23-26 February 1982
Rosenstiel School of Marine and Atmospheric Science
Miami, Florida

PCOM Members Present

E. Winterer (Chairman, Scripps Institution of Oceanography)
H. Beiersdorf (Federal Republic of Germany)
W. Bryant (Texas A&M University)
J. Cann (United Kingdom)
J. Corliss (Oregon State University)
J. Creager (University of Washington)
J. Ewing (Woods Hole Oceanographic Institution)
D. Hayes (Lamont-Doherty Geological Observatory)
J. Honnorez (University of Miami)
J. Kennett (University of Rhode Island)
K. Kobayashi (Japan)
R. Moberly (Hawaii Inst. of Geophysics)
L. Montadert (France)

Y. Lancelot (DSDP - non-voting member)

PCOM Member Not Present: L. Nikitin (USSR)

NSF Liaison: S. Gartner

JOIDES Office Liaison: P. Worstell

JOIDES Panel and Working Group Chairmen

R. Anderson (Hydrogeology Working Group)
D. Appleman (Information Handling Panel)
R. Douglas (Ocean Paleoenvironment Panel)
J. Fox (Ocean Crust Panel)
L. Garrison (Pollution Prevention and Safety Panel)
D. Hussong (Active Margin Panel)
J. Jones (Site Survey Panel)
M. Kastner (Inorganic Geochemistry Panel)
G. Klein (Sedimentary Petrology and Physical Properties Panel)
D. Roberts (Passive Margin Panel)
B. Simoneit (Organic Geochemistry Panel)
R. von Herzen (Downhole Measurements Panel)

Panel Chairman Not Present

R. Poore (Stratigraphic Correlations Panel)

Guests and Observers

R. Alewine (Defense Advanced Research Project Agency)
A. Ballard (Naval Ocean Research and Develop Activity)
T. Davies (Joint Oceanographic Institutions, Inc.)
L. Dorman (JOI Site-Survey Planning Committee)
W. Hay (Joint Oceanographic Institutions, Inc.)
J. Keene (Australia)
R. Kidd (Rosenstiel School of Marine and Atmospheric Science)
I. MacGregor (National Science Foundation)
J. Nowicki (Lockheed)
R. Perkins (Lockheed)
M. Salisbury (Deep Sea Drilling Project)
A. Shinn (National Science Foundation)
R. Steinbach (Lockheed)

Support Staff

M. Hitchcox (JOIDES Office)
J. Johnson (Rosenstiel School of Marine and Atmospheric Science)

357 OPENING REMARKS AND BUSINESS

I. OPENING REMARKS

E. Winterer opened the meeting thanking J. Honnorez for the convenient meeting and transportation facilities and thanked NOAA for making its conference room available.

J. Honnorez welcomed the Planning Committee, Panel chairmen, and guests and invited the PCOM to a joint reception (Thursday evening) with members of a British/American research team arriving aboard the British ship Farnella.

The Chairman announced that two evening sessions would be held for discussion of items bearing on future planning:

1. Discussion of (American) funding in support of the drilling program; convened by JOI, and chaired by Dennis Hayes. Both American and non-U.S. scientists were urged to attend. (Tuesday, 23 February 1982)

2. Discussion among interested panel chairmen, DSDP, and Lockheed personnel concerning Explorer laboratory space and facilities. (Wednesday, 24 February 1982)

II. AGENDA AND MINUTES

The Planning Committee accepted an agenda and the minutes of the 11-13 November 1981 meeting, with minor typographical corrections.

358 NATIONAL SCIENCE FOUNDATION REPORT

A. Shinn and I. MacGregor reported for the National Science Foundation.

I. REVIEW

A. Shinn reviewed the changes in planning for future drilling. With the demise of the Ocean Margin Drilling Program, NSF has considered three options for future drilling: (1) Scrap scientific ocean drilling at the end of the current program (end of FY 1983), (2) extend Glomar Challenger drilling for as long as possible, (3) replace Challenger with a converted Explorer capable of operating for up to 20 years. (A fourth option to fit Explorer with a riser and blow-out preventor for ocean margin drilling is impossible at this time without industry support.)

The National Science Foundation favors converting Explorer to replace Challenger. This would ensure many years of future drilling and hold open the possibility of converting the vessel for riser drilling at same future date. Moreover, the Explorer is available now, but might not be available five years hence, thus NSF favors early conversion of Explorer rather than continued, but limited, Challenger drilling. Although most of the scientific community strongly supports an ongoing program of scientific ocean drilling, the National Science Board must be convinced. Members are not

necessarily predisposed to "big science" programs and must be shown the value of the science obtainable from the drilling.

II. DECISION CRITERIA

In making any decision about a future program and/or platform NSF must consider:

- the scientific benefits to be gained,
- the comparative costs of converting Explorer versus those of refitting Challenger,
- relative operating costs of the two ships, and
- degree of international support and commitment.

NSF has contracted with Lockheed to evaluate the costs of converting Explorer and the relative operating costs of the two vessels. Lockheed will submit a preliminary cost analysis to NSF early March (1982), but early budget comparisons show that Explorer can be operated for less than 20% more than Challenger. (See also Item 363-III, below.)

Conversions costs depend heavily upon shipyard selection and other economical factors. If shipyards are "hungry" for work, bidding would be more competitive and conversion costs less.

Shinn emphasized that international participation is critical and involvement of additional partners would provide needed additional funds. The larger vessel, of course, would accommodate more scientists from more countries. NSF is now talking to twelve potential participants; some are extremely interested. IPOD countries and potential new members will meet 19 May 1982 in Washington to lay out plans for 1984 and beyond.

III. PROGRAM REVIEW/TIME TABLE

The NSF Office of Scientific Ocean Drilling (OSOD) will present an ocean drilling plan (Advanced Ocean Drilling Program) U.S. National Science Board (NSB) on 17-18 March 1982, (moved up from the previously scheduled April 1982 dates). If the NSB reviews the plan favorably, it then passes to the U.S. Office of Management and Budget and Office of Science Technology Policy for consideration.

OSOD will stress the importance of long-term scientific ocean drilling -- i.e., the ship as an observatory -- to the Board. It will organize the presentation to

- stress the excitement generated from the results of the Challenger drilling,
- relay the ambitious future plans developed by JOIDES and COSOD and presented in the JOIDES scientific narrative, and
- discuss operational capabilities of Explorer and Challenger.

IV. 1982-83 PROGRAM

Germany, France and the United Kingdom have agreed to support the 1982-83 Challenger program; Japan is expected to sign a memorandum of agreement soon. No agreement, however, has been made with the Soviets owing to a complex political situation. The Soviets had been prepared to commit $2 million for 1982, $2 million for 1983 and $900 thousand for 1984. Their participation now is very unlikely.

The 1982-83 budget is very tight. Loss of the Soviet contribution, logging costs, and a $1.4 million loss in drill string and logging tools (discussed under Item 359-II, below) have created additional problems.

V. DISCUSSION

The Planning Committee discussion and questions to NSF concerned (a) problems surrounding loss of the drill string, (b) nature of the OSOD presentation, and issues to be addressed by the National Science Board in their review of the program, (c) basis for comparative cost figures, (d) FY 1982-83 budget constraints and (e) action required by JOIDES or NSF.

In response to a query, Shinn said the issue before the National Science Board is support for a long-term drilling program and whether to program funds for continued Challenger drilling or for Explorer conversion.

He also said that JOIDES and/or DSDP need not submit a formal proposal soon. The science narrative suffices for the time, and the Science Board decision will not be influenced by a management plan. The decision regarding a long-term program comes first, then specific proposals to carry out the plan can be submitted.

With regard to publication of Initial Reports, Shinn assured the PCOM and DSDP that NSF will arrange to print in a timely fashion all volumes that DSDP can produce.

359 DEEP SEA DRILLING PROJECT REPORT

Y. Lancelot reported for the Deep Sea Drilling Project.

I. CHALLENGER RESULTS

A. Legs 82 and 83

Extremely successful Legs 82 and 83 have demonstrated that the two approaches to crustal drilling -- drilling clusters of shallow-penetration sites and drilling deep-penetration holes -- can be accomplished from Glomar Challenger.

The Leg 82 team drilled a cluster of shallow sites near the Azores Triple Junction which provided the opportunity to study the variability of chemical composition on a regional basis.

Leg 83 drilling penetrated, for the first time, more than a kilometer

into oceanic crust and sampled the lower part of crustal layer 2. Successful downhole experiments and the breaking of new ground excited the community. The hole remains clear and many people would like to see it remain clear and deepened further.

B. Leg 84

Leg 84, underway at the time of the meeting, has sampled acoustic basement in the Middle America Trench. The basement is an opiolite complex at all sites sampled. The results do not support the theory of Cenozoic imbricate thrusting for the mode of tectonic development for this convergent margin; drilling has not recovered Cretaceous rocks tectonically overlying Miocene sediments. Some Jurassic and Cretaceous accretion may have occurred, but the Leg 84 party has not detected evidence of post-Cretaceous accretion. The base of the continental slope appears to be an extension of the terrain underlying Central America.

The program to sample clathrates was successful. Abundant clathrates were recovered from Site 570. At Site 568, a well defined bottom-simulating reflector produced less gas than expected. All were apparently in clathrate form and no free gas was detected. (The pressure core barrel was not used at this site.)

Leg 84 Problems. DSDP came very close to diverting Challenger to an alternative site outside Guatemalan-claimed waters. Lancelot had difficulties in securing permission from the Guatemalan government to drill within Guatemalan territorial waters. Although the current Guatemalan government was apparently not opposed to the drilling, insufficient time was available to process the request easily through proper channels. Lancelot made two trips to Guatemala to secure the necessary permission, which was ultimately granted at the "eleventh hour." (A team was standing by to return to Hole 504B, should the Guatemalan drilling be aborted.)

Lancelot reiterated that permission to drill in non-U.S. waters cannot be obtained until the cruise prospectus is completed. DSDP must rigorously enforce deadlines for receipt of cruise prospectuses to alleviate similar problems in the future. A length of 5.4 km of drill pipe was lost during Leg 84. Although remaining Leg 84 objectives will be addressed by reasonably shallow drilling the drill-pipe loss creates serious problems for future drilling (discussed below.) At the end of Leg 84 Challenger was diverted to port in Long Beach, California to pick up additional pipe.

II. DRILL-PIPE LOSS AND IMPACT ON FUTURE PROGRAM

A. Lost Drill Pipe

The drill pipe parted 150 meters beneath the hull of Challenger. This resulted in the loss of 5.4 km of drill pipe, and logging tools at a total estimated replacement cost of more than $1.4 million. The drill string was free within the hole and the crew was retrieving logging tools when the pipe parted.

Preliminary investigation shows that the failure occurred in new pipe which apparently contained a manufacturing flaw -- an inclusion of slag in

the wall of the pipe. DSDP is awaiting a full report on the pipe failure from Battelle Institute, and although the manufacturer's liability is being examined, the full burden of replcing the pipe falls upon DSDP/NSF at this time.

B. Pipe Inspection

The presence of the flawed pipe raises the question of the adequacy of pipe inspection. Although the drill pipe is at present inspected up to American Petroleum Institute specifications, inclusions are very difficult to detect and can be noticed only by x-ray inspection. DSDP will contract for a thorough inspection of the entire string during the Long Beach port stop. Because no inspection is 100 per cent reliable, DSDP fears that flawed pipe may continue to pose problems.

C. Previous Failures

Drill pipe previously failed during Legs 36 and 48. In the Leg 36 accident strong currents bent the pipe at the lower end of the horn, and the Leg 48 accident was caused by failure of the "pop-joint" connecting the drill string to the hydraulic motor. The Project now uses "knobby joints" to absorb some of the stress in the upper portion of the string. The pipe failed (twice) during Leg 83 owing to cracks near the joints in the lower part of the drill string in a low-stress-area. All these previous failures are of a totally different nature from the Leg 84 failure.

D. Acquisition of Additional Pipe

DSDP has arranged to bring Challenger to port in Los Angeles to load 28,000′ of additional pipe, 23,000′ of which is new. (The Long Beach port stop will delay the beginning of Leg 85 for seven days, but part of this time will be regained as some work planned for the Honolulu port call can be completed in Long Beach.) The 28,000 feet constitutes all the pipe DSDP owns; it now has no "back-up" pipe. Lead times to acquire new pipe are about nine months and replacement cost are close to $1.4 million.

E. Impact on Future Program

The length of pipe which can be suspended from Challenger varies with weather conditions and proportion of new to old pipe. DSDP estimates that, assuming the Long Beach inspection reveals no more flawed new pipe, it can on average safely suspend 6100 meters of pipe, but that lack of a backup string requires a very conservative approach. The drill-string loss may influence drilling of future legs as follows.

Leg 85 - No problems; most objectives are to be reached with the HPC at relatively shallow holes.

Leg 86 - Several sites near 6100-meter safe limit, but can be managed.

Leg 87 - No problems except one deep site in the Nankai Trough.

Leg 88 - Drilling the Leg 88 DARPA site in relatively deep water poses some risks -- especially because of potentially rough weather in the area.

Leg 89 - Drilling the Old Pacific site would require 7.4 km of drill string -- greater than the conservative limits placed by DSDP and is thus a high risk (to the drill string) site. Additional drill pipe probably could be delivered to Yokohama next summer (1982) in time for the Leg 89 drilling, provided it can be ordered in time.

DSDP is investigating inclusion of aluminum drill pipe in the string, but at least 10 per cent of the string would have to be aluminum. steel pipe. Preliminary results of the simulation tests using aluminum pipe are favorable. The exfoliation problems appear to be resolved. This would reduce weights and could relieve tension at the top of the string.

F. Budgetary Problems

DSDP is not now budgeted to acquire additional drill pipe. NSF (P. Wilkniss) earlier advised DSDP not to budget such funds as it was easier for NSF to acquire special funds in the case of an emergency. DSDP has now written NSF, citing, in addition to the present danger to the program, the contractual agreements with Global Marine to leave Challenger with a full pipe complement (38,000′) at the end of the program, and requesting its purchase now.

G. Discussion

Planning Committee members and guests discussed ramifications of the drill-string loss at length expressing support for purchase of additional pipe and frustration over such deeply damaging losses.

The NSF representatives, while recognizing the gravity of the problem, could not assure the availability of additional NSF funds to purchase more pipe, but they are making every effort to locate them.

III. FISCAL 1983 BUDGET

NSF has indicated to DSDP that funding for FY 1983 will in all probability be very close to the FY 1982 level (i.e., $21 million). In view of anticipated higher costs, this represents an actual ±10 per cent reduction from the already bare-bone 1982 budget. Lancelot noted that under the circumstances, the Project would be operating only marginally and that termination of drilling before Leg 95 might be judged preferable to doing a poor job over the full period. (The SIO administration has also voiced concern over its capacity to perform a job for amounts significantly less than what was originally proposed.)

Lancelot also noted that among the many consequences of budget reductions shipboard staffing could be affected in that salary coverage of U.S. scientists may have to be reduced. The extremely high overhead costs of some institutions (e.g., MIT at 72%) is a factor that could prohibit such coverage for certain scientists.

IV. PUBLICATIONS

A. Initial Report Volumes

At the last Planning Committee meeting, Lancelot reported that DSDP had reduced is production staff in response to NSF's (Government Printing Office) ability to budget printing of only four volumes (plus two volumes delayed from FY 1981 to pay for logging) during FY 1982. NSF has more recently indicated it can print five new volumes during FY 1982. DSDP will accordingly redirect its efforts and plans to produce Volumes 64, 65, 68, 69 and 70 and/or 71 during FY 82. The G.P.O. currently has in hand volumes 60 and 66 which it expects to print and distribute within the next month or so.

DSDP will now encourage authors to submit finished art for the volumes. In the past, DSDP has devoted a great deal of time to special art projects (e.g., large color fold-outs, other back-pocket materials, complex sections requiring interpretation and/or excessive amounts of illustrators' time to resolve problem). DSDP will continue to ensure a consistent format and standards for art produced in the volumes, but will screen all art submitted to ensure that it is well prepared and will not require unreasonable time on the part of the DSDP staff.

The Planning Committee agreed with Lancelot's suggestion that the production staff be increased as necessary, perhaps at some modest expense to the information handling staff.

B. Initial Core Descriptions

DSDP now produces the Initial Core Descriptions on microfiche rather than in the soft-covered, green-back publication. The staff will continue to compile the visual core descriptions which form the basis of the I.C.D.'s soon after the cruise. Earlir on (last PCOM meeting), DSDP had decided simply to reproduce and distribute core descriptions taken directly from the shipboard Hole Summaries on microfiche in lieu of the Initial Core Descriptions. Further review, however, has shown the Hole Summaries to be too preliminary for such widespread distribution. They will continue to be prepared and distributed in limited numbers on microfiche for those with a "need to know."

Recent efforts to speed completion of the site reports are paying off and DSDP expects to be able soon to produce volumes 26 months after cruises. A 24-month turn-around time is considered an optimum.

Quality of the volumes is recognized to be very good and the Project has received several highly complimentary letters from co-chief scientists of recently published volumes. It is confident it can maintain high quality while decreasing production times.

A. Shinn commented that NSF is prepared to print all volumes DSDP produces. Means can be found to "bridge" the funding gap should volumes be submitted to the Government Printing Office toward the end of the fiscal year.

C. Sedimentary Petrology Technical Manual

DSDP now has in hand all contributions (17 papers) for the Sedimentary Petrology Manual, but has no means to pay for its publication. M.

Loughridge of the National Geophysical and Solar-Terrestrial Data Center has offered to publish the manual (in a NGSTDC format) provided he can market it to cover costs.

(See further discussion under Information Handling Panel Report, Item 360-VI, below.)

D. Atlantic Site-Survey Volume

The DSDP staff continues to prepare camera-ready-copy for a publication comprising North Atlantic site-survey data on a time-available basis. As with the technical manual, the Project does not have funds to publish it and must seek an outside source. JOI has been contacted as a possible "publisher," but has made no commitment. (JOI has also recently received a large budget cut.)

E. Nature, Geotimes, Press-Release

Nature has published its first DSDP news bulletin (Leg 83). (Copies were distributed at the PCOM meeting.)

The cruise participants continue to submit a general summary to Geotimes. G.S.A., however, will no longer accept contributions to its Bulletin on a routine basis. Articles would compete in a normal way with other potential contributions. The Project encourages the shipboard party to publish results (authored by the entire shipboard party), but leaves the choice of periodical to the authors.

F. Discussion

PCOM and guests reiterated the importance of timely dissemination of drilling results. NSF apparently has not received any press releases for several months. Shinn comments that NSF is prepared to review and approve press relases very quickly. In addition, some JOIDES institutions are apparently not on the list to receive press releases (e.g., Miami).

N.B. Lancelot

Members are very pleased with the Nature article, but urge DSDP to also speed information to the general public through timely press releases and other means.

In response to a query Y. Lancelot stated that the DSDP policy is still to produce volumes in the order that they are completed, but ideally he would like to see a return to publication in numerical (leg number) sequence.

V. TOOL DEVELOPMENT

A. In Progress

1. Wireline Re-Entry - DSDP will test a wireline re-entry system during Leg 88 (DARPA experiment); it will take about 22 hours.

2. The Von Herzen HPC-Nose Cone Heat Probe is not ready for testing during Leg 85 (as earlier planned), but will probably be tested during Leg 86.

3. The Extended Core Barrel was tested during Leg 84. Nine cores were taken with about 23 per cent recovery. Some problems with collapsed liners and plugged circulation jets will be corrected on later tests.

B. Problem: Development Slowdown

Because of budget constraints and highest priorities being given to fund logging, DSDP has had to "put the brakes" on developing tools and systems.

DSDP has no sheltered funds for tool development and the Project is very concerned that slowing this aspect will adversely impact the ability to reach future scientific objectives.

Two key systems need to be developed immediately are high-temperature and bare-rock drilling. Drilling in areas of young oceanic crust and to test hydrothermal systems -- targeted as a major focus of the post-1983 program -- require a capability to spud into a thin cover of sediments and to drill into sequences hotter than 350°C. Neither Challenger nor Explorer has capability at present.

Project engineers are poised to develop advanced models of the piston corer and pressure core barrel (including an aseptic core barrel to collect live organisms for biological research), but key members of the engineering staff may be lost if funds cannot be budgeted to support the tool and system development.

Lancelot urges that the decisions regarding the future of scientific drilling be made very soon.

In response to a question of adequate funding from NSF for tool development, A. Shinn reiterated that the NSF "decision day" regarding a long-term scientific program and platform has been moved up to 19 March 1982. Nonetheless, budgetary problems remain and are exacerbated by the inability to acquire the Soviet membership. NSF is pushing ahead with discussions so that firm planning and budgeting can proceed. (Other discussions concerning an independent funding to support tool development appear under Item 360-VIII, Hydrogeology Working Group.)

VI. SHIPBOARD PROCEDURES AND EQUIPMENT

Shipboard Computer - The minicomputer will be installed at the Yokohama port call (summer 1982). Lancelot distributed a report on its capabilities, which appears as Appendix 1. All hands are enthusiastic about the improved shipboard data handling capabilities, but the Project must balance its staff to ensure that routine jobs are also accomplished in addition to programming for the new system. It cannot hire additional sea-going computer technicians, nor can it purchase a sister system for use on shore.

Paleomagnetic Vans - The paleomagnetic gear needs to be repaired and upgraded, but DSDP has no funds to do this at present.

New shipboard acquisition is reduced to zero. DSDP has funds only

barely to maintain existing equipment.

VII. STAFFING

The Project has beefed up its scientific staff, which has been seriously understaffed for the past several months. DSDP has hired three new staff scientists: Kier Becker (geophysicist), Ellen Thomas (micropaleontologist), Miriam Baltuck (sedimentologist-stratigrapher). William Coulbourn has also returned from a year's leave of absence in Germany. One additional staff scientist may also be hired. Budget constraints have complicated and slowed the procedure of hiring an Associate Chief Scientist for Science Services but an appropriate person should be on board by some time in March.

VIII. CO-CHIEF SCIENTISTS STAFFING

At its 11-13 November 1981 meeting, the Planning Committee asked DSDP to speed invitations to potential co-chief scientists and made several recommendations for co-chief scientist nominations.

DSDP has now issued invitations to at least one potential co-chief scientist through Leg 92 and has received either written or verbal acceptance from the following.

Leg	Co-Chief Scientist
85	Larry Mayer and Fritz Theyer (Leg 85 is completely staffed; it begins 8 March 1982)
86	Lloyd Burckle and Ross Heath
87	Hideo Kagami and Dan Karig
88	Fred Duennebier
89	Seymour Schlanger
90	James Kennett
91	Margaret Leinen
92	Arnold Bouma

Lancelot is making every attempt to staff the remainder of the scientific party at high competency levels, but shipboard staffing continues to be plagued by last-minute withdrawals from potential participants. Lancelot urges the Planning Committee to resolve drilling plans well in advance, so that potential participants can resolve their schedules. Slippage in the drilling schedule and/or re-ordering priorities causes potential participants to drop out and imposes many problems. (See also new co-chief scientist nominations under specific legs discussed, below.)

360 JOIDES COMMITTEE, PANEL AND WORKING GROUP REPORTS

(Membership items for all panels appear under Item XVI near the end of Section 360.)

I. EXECUTIVE COMMITTEE

During his report on the Executive Committee meeting held 2-3 December in San Francisco, E. Winterer noted that the Executive Committee had

- accepted all membership changes recommended by the Planning Committee at its 11-13 November 1981 meeting.

- reviewed and discussed figures presented by NSF on the relative operational costs of Challenger and Explorer. The NSF figures for Explorer showed an approximate 20 per cent increase over the operating costs (day-rates) of Glomar Challenger.

- reviewed the results of the Conference on Scientific Ocean Drilling (COSOD).

- asked the PCOM to reorient the 5-year drilling proposal in to a platform-free science narrative with ships' tracks for both Challenger and Explorer. (Some EXCOM members favor developing a ten-year program.) The five-year program was not deemed adequate to address all the science proposed by JOIDES and COSOD and resulted in pulling the ship around too much; the 8-year narrative better allows comparison of the programs between the two platforms. (See also Item 363 Post-1983 Planning, below.)

- reviewed ways to encourage additional membership in IPOD. The Executive Committee created an ad hoc committee comprising A. Shinn, A. Maxwell, J. Debyser and H. Durbaum. The commitee presented its ideas to the Executive Committee, but the EXCOM made no specific recommendation at that time. A. Shinn has since written an additional discussion paper outlining ways to admit additional non-U.S. members at less than full cost and privilege. The concepts will be discussed further at the May IPOD meetings in Washington and at the next Executive Committee meeting (21-22 May 1982).

- considered the membership of the University of Texas to JOIDES. The University of Texas is a member of JOI and has reiterated its request to join JOIDES. The Executive Committee will decide on this at its next meeting after non-U.S. members have on opportunity to review Appendix A of their Memoranda of Understanding with NSF and to consider the cost impact.

  (J. Cann commented that the voting power of non-U.S. members is already disproportionately low relative to their dollar contribution and would caution against "taxation without representation.")

- considered cooperation with the Seabed Working Group. Not all member countries strongly support joint programs with the Seabed Working Group, but the Executive Committee agreed to work closely with

interested parties to address scientifically interesting objectives. (NW-9 to be drilled in the red clays of the Northern Pacific (Leg 86) is an area of interest to the Seabed Working Group.) The Executive Committee would resist any attempts to "buy a hole" and, in fact, view the DARPA arrangement -- although one promising great scientific returns -- with some reservation.

- J. Knauss distributed (by mail) an excellent discussion paper dealing with "ownership of holes," but the EXCOM postponed discussion on it until such time as he could be present.

The Executive Committee will not meet again until 21-22 May 1982 — 3 months instead of the usual ± 3 weeks after the Planning Committee meeting. In view of the accelerated NSF schedule to review the long-term planning and select a platform the Executive Committee may choose to meet earlier. E. Winterer will check with the Executive Committee chairman. Winterer urges the Planning Committee members to confer and report Planning Committee results immediately to their Executive Committee counterparts and otherwise ensure close liaison during this "hiatus" between the Planning and Executive committee meetings.

N.B. PCOM members

II. OCEAN CRUST PANEL

Jeff Fox repoted for the Ocean Crust Panel which held its meeting 18-20 January 1982 at the University of Rhode Island. (Minutes of the meeting are not available at the time of the PCOM meeting.)

A. Drilling Results

The series of relatively shallow holes drilled during Leg 82 to test chemical variations in the mid-oceanic ridge basalts showed the crustal heterogeneity to be more complex than originally suspected. The bit recovered normal (depleted) mid-oceanic ridge basalt at three sites (Sites 562, 563, and 564) and enriched basalt at Site 557. Drilling at Sites 558 and 561 sampled both depleted and enriched material. Shipboard work showed that the basalts were emplaced at shallow levels from discrete sources and through discrete plumbing systems. At Site 556, depleted basalts were recovered instead of of depleted, as expected. At Sites 556, 558, and 560 serpentinites and serpentinized gabbro overly basalt at very shallow levels, perhaps because of normal faulting.

Although Leg 82 was hurriedly staffed (the Leg had been moved up from later in the program), the team worked well: the shipboard spirit and productivity were very good.

Leg 83 drilling deepened Hole 504B penetrating 514 m below the level (836 m B.S.F.) previously drilled. The basement section (composite of Legs 69, 70 and 83) is: (a) 100 meters of fractured porous pillow lavas (layer 2A), (b) 475 meters of pillow basalts with brecciated zones (Layer 2B, velocity 5.2 - 5.8 km/s), (c) 200 meters of pillow basalts intruded by dikes with dikes dominant toward the bottom (Layer 2B-2C transition, velocity 5.9 - 6.2 km/s), (d) 281 meters of dikes (Layer 2C, velocity 6.2 - 6.5 km/s).

For the first time the bit is sampling the "foundations" of the ocean crust. (Earlier information has come from sampling uplifted crust in transform areas of the Atlantic.)

Hole 504B is still open and could be deepened further. Proponents urge this be done, but Fox notes that recovery rates (only 10% on Leg 83) would have to be improved to ensure reasonable levels of success.

The oblique seismic experiment was not undertaken during the Leg, but R. Stevens (L-DGO) is ready and willing to do it provided the logistics can be arranged.

B. Panel Recommendations

1. The OCP recommends that a better and more coherent engineering program be developed to (a) better conduct regional field experiments, (b) develop new tools -- especially those for bare-rock drilling and to conduct experiments in hot (above 300°C) environments, and for other downhole experiments. The Panel recommended that a a separate research and development organization be established and funded to identify, develop and test tools and systems required to address oean rust objectives. (See also discussion, Item 360-IX, Downhole Measurements Panel).

2. The OCP recommends that Margaret Leinen and R. von Herzen be invited to serve as co-chief scientists on the hydrogeology leg (91). (M. Leinen has been invited and has accepted. See also discussion Item 362-G, Leg 91).

3. The OCP white paper is complete. It may be submitted as it is.

III. OCEAN PALEOENVIRONMENT PANEL

R. Douglas reported for the Ocean Paleoenvironment Panel which last met 30 November-1 December 1981 in Los Angeles. An ad hoc group also met 18-19 February 1982 at Scripps Institution of Oceanography to refine the Pacific drilling plans. (Most items from these meetings are discussed under Pacific Drilling, Item 362, below.)

The OPP also

- concurred with the Stratigraphic Correlations Panel and recommended that the paleontologic reports in the DSDP volumes include range charts showing species abundance and preservation data.

- supports and encourages all efforts on the part of DSDP to publish the Initial Reports at a reasonable rate.

- is concerned that cutbacks in the engineering budget may adversely affect or delay work being done on certain tools, especially the hydraulic piston corer.

The OPP white paper has been extensively rewritten and the new version combines the original white paper with recommendations from the Conference on Scientific Ocean Drilling. Douglas will submit the final white paper to

Winterer shortly after the PCOM meeting.

(Membership items are discussed under Item XVI, below.)

IV. ACTIVE MARGIN PANEL

Don Hussong reported for the Active Margin Panel. Items relating to the Japanese margin drilling is discussed below (Item 362-C). The Panel has not met since the last Planning Committee meeting; it will meet 4-5 March 1982 at SIO to finalize Japanese margin planning.

Items of other business include

- Volume 67 (East Pacific) is nearing completion. 15 March is the cut-off day for completed manuscripts.

- Volume 78A (active margins of the Caribbean) is moving ahead. Site chapters were completed at the post-cruise meeting last July, and interpretive chapters will be submitted late spring or early summer (1982). Biostratigraphic data now shows that four thrusts occur at the top of the decollement separating subducted and scraped-off sediments. This excellent fossil control has allowed the shipboard party to identify the very thin "finger-size" thrust slices. Other data obtained after the cruise has further documented that dewatering of sediments has led to overpressured pore fluids. Members of the Active Margin Panel urge additional drilling in the Barbados region.

Hussong also urged that downhole packer tests be run across the Nankai Trough and that all sites be logged. R. Anderson is willing to do the packer work but does not have funds.

- The Active Margin Panel is now focusing more on looking at physical properties and alteration products of rocks and sediments along the active margins, than on attempting only to resolving problems of structure development and control problems. It recommended that the hydropacker should routinely be used in sampling accretionary-prism environments.

- The Panel will update its white paper at its upcoming meeting.

V. PASSIVE MARGIN PANEL

The Passive Margin Panel has not met since the last Planning Committee meeting. D. Roberts, however, reported that

- changes will be made shortly (and forwarded to E. Winterer) in the Passive Margin Panel White Paper.

- the Panel assigns highest priority to drilling ENA-3 and the Mississippi Fan. (See also Item 362, Atlantic Program, below.)

Roberts also reviewed the results of Legs 79, 80, and 81 drilling.

L. Montadert indicated that the French will conduct a "post-drilling"

survey this summer (1982) in the area drilled during Leg 80.

VI. SEDIMENTARY PETROLOGY AND PHYSICAL PROPERTIES PANEL

G. Klein, Acting Chairman of the Sedimentary Petrology and Physical Properties Panel, reported for that panel, which last met 2-3 December 1981, at Scripps Institution of Oceanography. (The complete text of the SP^4 recommendations appear as Appendix 2.)

The Panel created a working group which made recommendations on (1) themes requiring synthesis of core and other marine data, (2) specific drilling targets and priorities, and (3) recommended tools and research needed to address the problems.

The SP^4 also

- is extremely concerned about budget reductions at DSDP. It recommends and provides justification for logging specific legs.

- recommends that the Sedimentary Petrology and Technical Manual be published as soon as possible, in a format similar to the Initial Reports (blue-book format). If DSDP cannot acquire funds to publish it the SP^4 recommends that outside support be solicited.

Discussion

D. Appleman noted that M. Loughridge of the NGSDC is willing to print the technical manual, but would have to sell copies to cover printing expenses.

The Planning Committee generally agreed that

(a) DSDP should complete preparation of the manual in camera-ready-copy, and

N.B. Lancelot

(b) negotiate with M. Loughridge to have it printed by the NGSDC.

DSDP and Loughridge would need to work out guidelines for style of publication it would be advertised in the normal way and its cost would be within reach of interested scientists. The format would, of course, be different from that of the Initial Reports.

The SP^4

- endorses the OPP recommendations to hydraulic piston core the red clay sequence at NW-9 (northewest Pacific), but rates the site proposed by the Seabed Working Group in the Nares Abyssal Plain, a somewhat lower priority.

- has asked L. Kraft to chair an ad hoc committee to
  (a) evaluate available HPC data on physical properties,
  (b) recommend a program to test the HPC cores to gain the best possible geotechnical data from each core, and
  (c) recommend changes in the sampling geometry to improve quality of

the data within the operational constraints.

- has appointed a committee to propose a revised sediment classification. The panel plans to prepare the scheme by 1 June 1982, submit it for open discussion at international meetings and submit a final classification by September 1982.

- recommended that an ad hoc committee be formed to evaluate existing techniques and equipment on board Glomar Challenger and obtain information from Project engineers and sea-going personnel. The SP^4 requests funds to support the committee's travel to Challenger during a port stop to inspect existing equipment.

  The Planning Committee encouraged the SP^4 to discuss facilities with appropriate DSDP people and recent cruise participants, but declined to approve travel funds to Challenger for a site visit.

- urges DSDP to continue to produce color microfilm of all cores.

Y. Lancelot commented that high quality color photographs of all cores are produced routinely on board Challenger but only selected sections are reproduced with the U.S.G.S. color-strip system.

In response to another question Y. Lancelot said that DSDP had not discontinued special close-up color core photography, but had restricted it to a "real need" and "time-available" basis. Large amounts of time and money cannot be spent on special projects for purposes other than those associated directly with Initial Report preparation.

- The SP^4 is pleased that the shipboard computer will soon be in place to expedite smear slide, and core descriptions, etc. and makes its members available to help DSDP activate the system.

- concurs with DSDP's decision to replace the Initial Core Descriptions with microfiche copies of the hole summaries.

VII. INORGANIC GEOCHEMISTRY PANEL

Miriam Kastner (Acting Chairman) reported for the Inorganic Geochemistry Panel which last met 23-24 November 1981 at SIO.

A. Focus

The emphasis of the Inorganic Geochemistry Panel has previously been the geochemistry of interstitial water, in the future it will be on solid-phase geochemistry of the sediments. The Panel will develop programs to find answers to questions of chemical exchange (a) between seawater and basalt (high and low temperatures) between seawater and sediment by deep-sea drilling. It will address the geochemistry of hydrothermal systems, water to rock ratios, temperatures within the systems, helium fluxes, water/rock and temperature of formation.

The Panel will also address

- paleohydrothermal and geothermal systems

- seamounts -- where hot water is actively depositing materials and which may be .... end members

- diagenesis - Kastner noted that to the surprise and dismay of the Inorganic Geochemistry Panel, COSOD gave little or no attention to diagenesis in marine sediments. Many problems of carbonate and silicate diagenesis and diagenesis in red clay sequences have not been solved. H. Beiersdorf responded that COSOD did indeed address the problems of diagenesis, but gave them somewhat lower priority than others.

B. Tools

Tools required to study the solid geochemistry phases include

a) the Barnes-Uyeda in-situ temperature probe and sampler.

b) a sealed-off packer system -- a system in which an area can be sealed off to conduct experiments without contamination. Researchers need to know the residence time of fluids, concentrations of trace elements, and permeability of the rocks.

c) temperature probe on hydraulic piston corer. (Von Herzen is currently developing the instrument.)

d) televiewer -- resistivity log.

e) high-temperature log. f. and particularly the capability to drill into bare rock and into hot (above 350°C) zones.

Discussion

VIII. HYDROGEOLOGY WORKING GROUP

Roger Anderson reported that the Hydrogeology Working Group has been very effective in developing a white paper and defining a strategy to study a major hydrologic system at work within the sea floor. Discussions involving 15 to 25 people -- including many in addition to the working group -- resulted in a cohesive program.

A. Strategy

Transects across (a) active ridge crests, (b) flank and (c) basin sites will test the model and provide a 3-dimensional view of the system.

a) Ridge crests - are areas of most active hydrothermal convection; nearly all heat may, in fact, be carried away thusly in these areas unprotected by a sediment blanket and extensively fractured.

b) Flank Area - The lower crust probably remains fairly hot in this regiion where sediment cover is broken by basement outcrops.

c) Basins - Convection is probably halted or slowed in basins under blankets of thick unbroken sediment resulting in hot, reheated basement.

The HWG has an overall strategy to test models on the location and geometry and circulation rates of convection cells and has proposed a particular drilling strategy for the 1982-83 program comprising operations to re-occupy Hole 504B (Leg 83), conduct heat probe and basalt logging in the equatorial Pacific (Leg 85), and temperature, geochemistry and permeability tests in a basin site where convection is assumed to have ceased (Leg 89), and a special geochemistry transect (Leg 93).

B. Tools and Systems

Tools and systems which must be developed to drill into the various environments and to correlate the geochemistry, temperature and permeability data include

a) capability to drill into bare rock,

b) capability to drill where the temperature is above 350°C -- to drill in on an active ridge crest in a discharging area of the hydrothermal system.

c) Wireline-packer with hydraulic pump -- to develop multiple pore-pressure and permeability profiles and sample in situ fluids for geochemical analyses. (The hydraulic pump would pump drilling solution out of the packed off interval so uncontaminated formation fluids could be sampled.)

d) down-hole chemical analysis techniques -- to yield "real time" determinations so experimenters can know when to sample uncontaminated solutions and record in situ pore pressures.

e) temperature probe for the hydraulic piston corer -- (the Von Herzen probe should be ready to test on Leg 86).

C. Separate Funding Structure

The HWG strongly recommends that a new organization, separate from the DSDP Developmental Engineering Group, be funded to develop the tools and systems required (i.e., packers, water samples, pumps, etc.) Anderson cited the need for a dramatic new technology, but decried the present long lead times required -- about one year to process proposals, and develop and deliver the instruments -- at a time when adhering to the ship's schedule demands immediate solutions. The research and development is at present being done at a frustratingly slow rate.

The HWG recommends that an independent research and development section be created, comprising scientists and engineers developing the tools, plus management of tool construction and appropriate sea-going engineers and technicians.

D. Discussion

The PCOM discussed with interest the HWG recommendation but made no

specific recommendation.

Member comments included:

- As planning becomes more complex, JOIDES develops working groups to address specific problems and take on specific tasks. But whether or not "working groups" should have access to sheltered funds remains questionable. Good science must be competitive. At what point does good competitive science become patent right?

- certain aspects of research and development should not be separated from other Project operations. DSDP should continue to develop basic hardware to best coordinate operations; special tools could be developed elsewhere.

- The tools are an essential part of the experiment. We definitely need to find a mechanism to get tool development moving.

- A protected pot of funds is not necessarily bad -- in fact, it is only a different order of protection in that proposals are still reviewed. Having funds converted for tool development would ensure continuity in development.

- NSF is well aware of the problems surrounding acquisition of funds for science in support of drilling and hopes to build in a capability to fund some science as part of the Advanced Ocean Drilling budget.

- If NSF approves an 8-year proposal, then many things are subsumed (i.e., development of tools, adequate site survey.) The proposers should not have to "fight for every paragraph of the proposal again and again". NSF recognizes that tool development goes together with the experiments.

- NSF -- Yes, we are trying to justify allocation of support funds on a philosophical basis -- from a long-term view -- but we still have to go back to Congress every year to get the funds. The PCOM discussions, however, are useful as they help us decide how to break out categories and ensure adequate coverage. The Office of Scientific Ocean Drilling cannot influence allocation of funds from Geology and Geophysics, but we are optimistic that we can find ways to support all or parts of the program.

Funding (U.S.) science in support of the drilling program (mostly related to geophysical surveys was addressed in a "rump session" under the auspices of JOI and chaired by D. Hayes. T. Davies will summarize those discussions in a separate document.

IX. DOWNHOLE MEASUREMENTS PANEL

Richard von Herzen has recently assumed chairmanship of the Downhole Measurements Panel which will meet 25-26 May 1982 at L-DGO. Although it has not met since the last Planning Committee meeting, von Herzen and other members have been active and relay the following.

Within its overall charge of characterizing the physical and chemical properties of the ocean crust, the DMP operates in two modes: (1) as a service panel providing advice concerning downhole experiments and (2) as an advocate for specific legs. The Panel, in close cooperation with DSDP, develops meaningful and complementary downhole experiments. Good logging has detected very subtle, but significant variations in acoustic impedance with depth. Proponents are working to relate porosity and permeability to resistivity. (As porosity and permeability go down, resistivity goes up.)

In the future, experimenters should have the capability to:

- leave instrument packages in the holes to monitor properties and conditions over long periods.
- re-enter the holes from non-drilling vessels through a wireline reentry system. As restrictions on instrument size are less when lowered directly into the hole (not strung through pipe), many additional tools and instruments could be deployed via a wire-line system.
- drill and conduct experiments in high-temperature environments.

The DMP also recommends that a tool be developed to continuously monitor the spectral distribution of gamma rays be used. (Y. Lancelot noted that DSDP did monitor gamma rays routinely on board ship at one time, but the gear was removed some time ago.)

The Panel urges DSDP to "staff up" to support at least a minimal logging program. M. Salisbury noted that DSDP is extremely sympathetic to the DMP's concern, but cannot at present engage in any extensive in-house program. This is in part because of budget constraints, and in part because the Schlumberger arrangement is working very well. The Schlumberger tools are good and for the reasonable cost of renting them, DSDP can tap into Schlumberger's vast underlying support structure. DSDP has, at present, an adequate, highly trained staff to develop the tools; only insufficient funds is delaying development. costs of hiring specialists for each leg could be prohibitive.

R. Von Herzen questioned if perhaps the Schlumberger arrangement could be enhanced by liaison with a specialized logging engineer on the DSDP staff.

R. Anderson reiterated that people were just "beginning to see the glories" of logging. Deep sea logging can produce fantastic and unique results, but new specialized tools are needed right away. Tools designed for an oil patch operations are not easily adapted to Challenger conditions and tend to produce poor results.

X. STRATIGRAPHIC CORRELATIONS PANEL

The Stratigraphic Correlations Panel last met 6-8 May 1981 at Scripps Institution of Oceanography. J. Creager reviewed the results for R. Poore, who was unable to attend the Planning Committee meeting.

The Stratigraphic Correlations Panel

- has strongly recommended that paleontologic data appearing in the Initial Reports include preservation and abundance data for species and assemblages (see also PCOM Item 336-V-B). The Panel has forwarded to DSDP a set of instructions for authors and has assigned a panel member as liaison to each leg to encourage adherence to the scheme.

- supplied DSDP with a list of potential paleontologists for shipboard duty. (Y. Lancelot noted that in the past many people contacted on the SCP list had been unable or unwilling to participate on Challenger. If SCP could screen potential participants to include only those who were interested, the list would be more usable.)

- submitted a white paper "Marine Biochronology and Biologic Discontinuities", which was subsequently integrated into the 8-year science narrative.

- identified gaps in the Eocene-Oligocene magnetobiostratigraphic record which need to be filled to better calibrate the stratigraphies.

- suggested improvements to the Challenger and on-shore DSDP laboratory facilities.

- gave E. Winterer suggestions and comments concerning Explorer laboratory space and facilities. (E. Winterer, interested Panel chairmen, and representatives of Lockheed met during the present PCOM meeting to discuss Explorer laboratories.

- planned its next meeting for 17-18 May 1982 at Lamont-Doherty Geological Observatory. D. Poore will invite D. Kent to the meeting to assess the possibilities of adding a magnetostratigrapher to the panel.

J. Kennett agreed to serve as PCOM liaison to the SCP (replacing J. Creager who will continue to provide liaison with the Information Handling Panel).

During discussion, the PCOM noted some overlap of function between SCP and the Ocean Paleoenvironment and Information Handling panels. At the next SCP meeting, Kennett will ask the panel to consider the other organizational possibilities: acting as a working group of the Ocean Paleoenvironment Panel, splitting its function among other panels, or remaining a discrete panel. (See also Item 360-XVI-M, below.)

XI. INFORMATION HANDLING PANEL

D. Appleman reported for the Information Handling Panel which last met 4-5 February 1982 at Scripps Institution of Oceanography.

A. Panel Report

The Information Handling Panel

- emphasized the importance of completing and maintaining the DSDP data base. The Panel considers the information gained from the drilling as

basic science and urges that information gathering continue beyond production of the Initial Reports, and across any drilling hiatus. Any future program must include plans for data and sample management whether or not drilling is continuous. The best insurance against loss of data systems is to have all bases completely up to date by the end of September 1983; they should be in such a form that they could be transferred to other groups for continued development should this be necessary. To this end the Information Handling Panel recommended

a. that sufficient funds, personnel, and space be provided to the DSDP Information Handling Group to complete all data bases by 30 September 1983,

b. that the DSDP group be given additional resources to develop some of the software which the scientific community is requesting to aid in data syntheses, and

c. urged that Information and Curatorial efforts be maintained at full strength during any proposed hiatus in drilling, both to complete any backlog and prepare for future phases.

- recommended that zonal data--Cenozoic and Mesozoic-- (as reported in the Initial Reports) be encoded for future legs and that these data be added for past legs when possible. The IHP supports this recommendation by the Stratigraphic Correlations Panel, while recognizing that zonal definitions are highly interpretive and that including the information will pose some problems.

- recommended that the encoding of the GUIDE be continued, noting that although its original function has been superceded by directly searchable primary data files it contains some important information not found elsewhere. Requests for the GUIDE continue, and it can be maintained with a minimum of student help.

- urges DSDP to work with M. Loughridge and others to find a means to produce and distribute microfiche of the Keyword Index--the index to published papers and subsequent investigations. The Panel notes that it is extremely useful to first-time users of DSDP data. (Owing to budget constraints, DSDP plans to halt their microfiche distribution of the index to libraries.) The IHP further recommends that chapters from the Initial Reports be included in the Keyword Index as soon as possible.

- recommends that JOIDES continue to support the development and operation of the Paleo Reference Centers and continue to support W. Riedel and J. Saunder's travel to coordinate these efforts as necessary. Riedel and Saunders have prepared a statement of the status of the reference centers (memo of 10 February 1982). See Appendix 3.

- reported that with regard to transfer of data to other organizations that
(a) DSDP has transferred the site summary file to NGSDC (Boulder) which in turn has sold 13 copies at $100 each. (Oil companies have been the biggest buyers.)

(b) the French data center headed by Marthe Melguen is extremely successful. The French have produced an excellent publication describing the Data Bank and how to use it. Requests for data began shortly after the center began operations last summer and have increased since that time. The IHP strongly supports the work being done at the CNEXO Data Bank and urges DSDP to transfer all files to the Bank as soon as possible.

(c) The Germans do not intend to support a full-fledged data bank, but encourage individual scientists (example: the Cepek Mesozoic data base) to develop data repositories. The IHP hopes the German government will encourage more data handling in Germany — perhaps by establishing at least a system to access the Site Summary and Keyword Index Files for basic information.

- recommended that the NGSDC be considered to publish the Sedimentary Petrology and Physical Properties mannual and the Pacific Lithologic logs, if DSDP cannot find funds to publish them within FY 1982.

- noted that although France and the U.S.S.R. have produced and distributed excellent documents about availability and use of DSDP data through their respective data banks, but DSDP had produced none. The IHP recommends that DSDP produce a descriptive brochure and comprehensive bibliography as soon as funding resources are available.

- is pleased that a shipboard computer will at last be installed (September 1982), but strongly recommends that a sister system be installed on shore so that the system could be debugged and software developed without loss of time on board ship.

  (Y. Lancelot commented that whereas DSDP had originally planned to do this, it now has insufficient funds to purchase a sister system for shore-based operations.)

  The IHP also noted that whereas it recognized the great utility of the shipboard computer and the need for the DSDP group to spend time developing software, it urged DSDP to minimize disruption to the data base development.

- recommended that DSDP investigate archiving formats of some of the geophyysical underway data. (A complete report from the Information Handling Panel to the Planning Committee was distributed during the meeting and appears as Appendix 4.)

The Panel also recognized the excellent job the DSDP Information Handling Group is doing in the area of data management.

The Paleontologic data base is now encoded through Leg 44. The Cenozoic data are handled at DSDP whereas the Mesozoic data are handled by Pavel Cepek at the B.G.R. in Hannover. This split creates some logistical problems and the Panel recommended that DSDP answer all requests for paleontologic data, but give full credit to Cepek for the Mesozoic base and also keep him fully informed of users. Pavel Cepek has made a significant contribution in developing the Mesozoic paleontologic data base and the

Panel expresses its gratitude.

B. Discussion

E. Winterer thanked D. Appleman for his well organized presentation. Although the PCOM did not take up each IHP recommendation, it generally supported them.

The Planning Committee also recognized the great value of the work being done by the CNEXO Data Bank and hoped that CNEXO would continue to support that group to ensure sufficient staff to process the data and data requests.

XII. ORGANIC GEOCHEMISTRY PANEL

Although Organic Geochemistry Panel has not met since August 1980, Berndt Simoneit (Chairman) and other members moved ahead on several items of business. Simoneit reported that

- the OGP continues to maintain and update a list of organic geochemists or petroleum geologists for participation on board Glomar Challenger.

- the Shipboard Organic Geochemistry Guide and Handbook is printed and available. Copies have been distributed to interested persons; additional copies are available from Simoneit or from Matt Salisbury at DSDP.

- the Panel has prepared a white paper for post-1983 drilling and incorporation into the appendix of the 8-year Science Narrative. B. Simoneit will submit revisions to E. Winterer shortly after the Planning Committee meeting.

- samples continue to be frozen on board Challenger and distributed to contributors to the Initial Reports. Contributors supply analyses on lipids, gases, pigments, carbohydrates, amino acids, humic substances and kerogens, using a variety of instrumental techniques (gas chromatography, GC- and stable-isotope mass spectrometry, and pyrolysis techniques) to assess maturation, source-rock potential, hydrothermal effects and sources of organic materials. The OGP emphasizes that co-chief scientists must ensure that frozen samples are taken routinely on board ship. At present, 30-cm samples (the size that will fit into the upper-deck freezer) are frozen and split into four 1/4-core segments. (One segment is described and archived, one segment is held for future sampling, and 2 segments (= one half core) are available for sampling results in contributions to the Initial Reports). Geochemical analytical techniques now require less sample than during the earlier phases of the program, but a fair amount of material is still required to satisfy the various investigators.

  Over the years, several researchers (mostly from industry) have routinely analyzed samples and provided some data for the Initial Reports. Although this results in some duplication of study, the OGP does not want to discourage new techniques and opposing ideas and so does not discourage the practice within reasonable limits.

The Panel will review requests for samples for future legs from the community at large.

- the availability of frozen samples from the Site 532 "dedicated piston core" was advertised in the JOIDES Journal, Geochim. Cosmochim. Acta, EOS and Organic Geochemitry; an announcement has also been submitted to Science and should appear shortly. The response, however, has been limited, the Panel having received only five requests thus far. Members of the OGP will fill requests at a "sampling party" at the S.I.O. core facility at some time close to its next meeting so that both tasks can be combined into one trip.

- C. Summerhays suggested to the OGP that dedicated frozen cores be taken at certain Pacific Sites -- especially the red clay sequence at NW-9.

- the OGP seconds the SP[4]'s plea for better sand recovery with the hydraulic piston corer.

- it strongly endorses the purchase and use of the shipboard computer.

- B. Simoneit submitted plans and ideas for equipment and facilities for Explorer laboratory space.

- the Panel is exploring ways to increase the capability to analyze organic components--especially to determine the genesis of the components. Although initially much of the organic geochemistry work concerned monitoring hydrocarbons related to safety problems, workers now want to learn more about hydrocarbon genesis, potential source rocks and their history of maturation.

  To determine the genesis of components, analyses must be conducted on board ship soon after the core is recovered. Otherwise methane and ethane is lost through "pinholes" in the containers. The subtle differences between the two types of thermogenic hydrocarbons (hydrothermal and catagenic) can be detected on board with the proper equipment. The Organic Geochemistry Panel is thus evaluating a gas stripping apparatus for use on board Challenger at a cost of about $5 thousand to aid in the analyses of the C_2-C_{12} hydrocarbons. Even better would be the purchase of a gas chromatograph at a cost of $20-25 thousand.

Organic residues (kerogens) are studied in the bulk rock with the rock evaluator. This, however, requires a full-time shipboard operator.

Discussion

Members and Simoneit noted that microbiologists are becoming increasingly more interested in studying the bottom sediments. They want to determine how deep into the sediments biological processes are active. In response, DSDP has developed preliminary plans to design an aseptic core barrel to sample biota intact. The PCOM did not act on a suggestion to develop a microbiology working group, but noted that this might fall within Hydrogeology Working Group purview.

M. Kastner stated that the inorganic geochemists also need dedicated samples from the HP cores for routine water analyses. Different groups are obviously interested in the same samples and some better mechanism needs to be worked out (two "dedicated cores?") to accommodate the interest of all panels "in a friendly way."

XIII. SITE SURVEY PANEL

The Site Survey Panel met 14-15 May 1981 at Lamont-Doherty Geological Observatory, and 3-4 December 1981 at Scripps Institution of Oceanography . E. John W. Jones reported that, with the exception of the Gulf of Mexico work, the site surveys for the 1982-83 program were completed or had been planned. The site-survey work is at last keeping pace with the drilling program.

A. Funded Surveys

Three surveys funded by JOI for FY 1982 have been completed or are underway.

1. Western Pacific

Tom Shipley (S.I.O.) has reported to the SSP on surveys completed by the Kana Keoki in the Western Pacific. The survey was conducted to locate areas where Cretaceous sills are thin or absent so that drilling could penetrate to the oldest Pacific Sediments (Leg 89). The team used a water gun in conjunction with a digital acquisition system which gave excellent high-resolution data. On the basis of the lateral amplitude variations and depth changes of the reflectors the team identified a few small windows in the sills -- one close to DSDP Site 199 might be an appropriate Leg 89 site.

2. Equatorial Pacific

An S.I.O. team used the same seismic system together with Seabeam on the Washington during early January (1982) to survey sites for the equatorial Pacific (EQ-1, -3, -4, -5, -6) for Leg 85. The data were processed on board ship so that the OPP could select sites before Leg 85 began (early March). In a coordinated effort the German vessel Sonne surveyed around EQ-1B with Seabeam and data were transferred immediately to Winterer at Scripps for processing and then to OPP for information.

3. Hydrogeology Leg

At the time of the PCOM meeting, Washington was conducting a watergun-seismic, and seabeam survey in the region of the hydrology leg (91).

B. Middle America Trench Data

JOI funded the re-processing of some University of Texas multichannel data. The reprocessed data allowed considerably improved delineation of the bottom-simulating reflectors so that the Leg 84 proponents are able to

select , and the Safety Panel to approve, safe drilling targets in the Middle America Trench.

C. DARPA Site

Members of the Site Survey Panel had been unable to gain access to survey data for the proposed DARPA site. Jones did, however, see a Silas Bent reflection profile at the Ocean Paleoenvironment Panel meeting. The SSP recommends that R. Douglas and DARPA personnel meet to examine the data together and select a site of interest to both the OPP and DARPA. (See also discussion on Leg 88, below.)

D. Non-U.S Surveys

1. France

Although the French did not conduct any IPOD-specific surveys, in conjuction with general geophysical studies, they have surveyed the (a) Clarion-Clipperton Fracture zones, (b) East Pacific rise between 21°N and 30°N, (c) the Blake-Bahama escarpment, (d) the Barbados ridge around CAR-1 and (e) a transect between the Barbados Ridge and Lisbon, which included a traverse across the Hayes Fracture zone.

2. West Germany

a. The R.V. Sonne conducted a Seabeam and 3.5 KHz survey near EQ-1B; Data have been transmitted to R. von Herzen and E. Winterer.

b. The Sonne conducted multichannel reflection seismic, gravity and magnetic surveys in the region of the Leg 90 sites (Southwest Pacific). The BGR can provide details upon request.

c. Sparker, airgun and/or multichannel seismic data are also available for Leg 94 (North Atlantic Paleoenvironments) sites 5, 8, and 9.

d. The Germans have adequate surveys off northwestern Africa for Leg 95 drilling (should that objective be chosen).

3. United Kingdom

The U.K. has conducted surveys in two areas:

a. Hayes Fracture zone- Roger Searle (I.O.S.) conducted a GLORIA survey aboard the Farnella during December 1981.

b. The Ocean Paleoenvironment Panel had proposed shifting its site 3 (NE Atlantic, Leg 94) about 100 km to the east (42° 49.6'N, 23° 03.8'W). The site lies at the intersection of two Discovery profiles and Robert Kidd (I.O.S) has compiled a considerable amount of data on the region. The U.K. plans further profiles across the site in 1982.

4. Japan

The Ocean Research Institute and Japan Petroleum Exploration Co.

(JAPEX) have conducted extensive surveys in the Japan Trench and Nankai Trough.

D. Additional Surveys Required

1. Gulf of Mexico

The Site Survey Panel recommends an additional survey in the Gulf of Mexico (Leg 92). It recommended that (a) a GLORIA or Seabeam survey to provide detailed bathymetry for the hydraulic piston core work and (b) high- resolution seismic survey be conducted. J. Jones and L. Garrison arranged to acquire time on the British vessel, Farnella, to conduct a GLORIA survey of fan. (The Farnella, and L. Garrison, in fact, arrived in Miami during the Planning Committee meeting following completion of this GLORIA survey.)

JOI is expected to distribute a Request For Proposal shortly for the high-resolution seismic profiling work in the Gulf of Mexico.

2. New Jersey Transect

If the New Jersey transect is drilled during Leg 95, additional survey may be required, but this will be addressed at a later SSP meeting.

E. Atlantic Site Survey Volume

The Site Survey Panel strongly recommends that the volume of Site Survey data from the central Atlantic be published.

F. Discussion

Most discusion centered around site-survey plans relative to the post-1983 proposal. Members noted that no specific section dealing with the site survey is contained in the science narrative. E. Winterer pointed out that because site survey is handled as a separate proposal to NSF, it need not be included as a section within the science narrative, but he will include some phrases in the narrative to clarify this.

ACTION Winterer

Funding science in support of drilling -- especially that of geophysical surveys -- was also discussed in a separate meeting under the auspices of JOI. Tom Davies (J.O.I) will prepare and distribute a report on those discussions.)

XIV. POLLUTION PREVENTION AND SAFETY PANEL

The Safety Panel last met 5-6 November at Scripps Institution of Oceanography. The results of that review of Leg 84 sites in the Middle America Trench are reported in the 11-13 November PCOM minutes.

L. Garrison, PPSP Chairman, although late to the PCOM meeting, arrived in appropriate style aboard the British research ship Farnella, having just completed the GLORIA survey of the Mississippi Fan. In lieu of a formal presentation, Garrison distributed a written summary of Safety Panel action and operation over the past year. This appears as Appendix 5 to these

minutes.

The Safety Panel next plans to meet 11-12 March at Scripps Institution of Oceanography to review (primarily) the Japan margin (Leg 87) and northwest Pacific (Leg 86) sites.

XV. JOI SITE SURVEY PLANNING COMMITTEE

LeRoy Dorman commented briefly on activities of the JOI Site Survey Planning (see also the JOIDES site survey report above).

JOI will issue a Request For Proposal for the Mississippi Fan work in March 1982. A GLORIA survey was just completed in cooperation with the U.S. Geological Survey aboard the British vessel Farnella.

Dorman will resign from the committee in July 1982. He has submitted suggestions for his replacement to JOI.

The PCOM deemed a question raised by R. Anderson regarding appropriation of time on the survey currently underway in the Pacific (for the hydrogeology leg) to be a matter between JOI and its contractors -- not an issue to be addressed by the Planning Committee.

XVI. MEMBERSHIP - ALL PANELS

A. Ocean Crust Panel

Three members (Jeff Fox, Jose Honnorez, and Paul Johnson) have recently resigned from the Ocean Crust Panel. At its last meeting, the OCP suggested three replacements for the retiring members and recommended that Paul Robinson replace J. Fox as Panel chairman.

At an earlier (February 1981) meeting, the Planning Committee had recommended that Hans Schouten be asked to serve as Panel chairman following J. Fox's tenure. At the recent OCP meeting, however, Schouten withdrew his name from consideration.

Acting upon the recommendations of the Ocean Crust Panel, J. Cann moved (seconded by W. Bryant) that Don Elthon (L-DGO), John Delaney (University of Washington), and Ken MacDonald (U. C. Santa Barbara), be invited to join the Ocean Crust Panel, replacing J. Fox, J. Honnorez, and P. Johnson, and that P. Robinson (Dalhousie University) be asked to chair the Panel.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

The Planning Committee agreed that the choices will provide excellent depth to the panel giving a broad petrological expertise, especially in the geochemistry of gabbros, ridge crest systems, and rock magnetics.

B. Ocean Paleoenvironment Panel

J. Kennett and W. Ruddiman have recently resigned from the Ocean Paleoenvironment Panel, and R. Douglas expressed a wish to step down as

chairman following the next OPP meeting.

At its 11-13 November 1981 meeting, the Planning Committee had recommended that Ted Moore be asked to replace J. Kennett. (T. Moore has since accepted.)

At the current meeting, R. Douglas[1] moved (seconded by J. Kennett) that Michael Arthur (University of South Carolina) be added to the Ocean Paleoenvironment Panel (replacing W. Ruddiman) and that he be asked to serve as its chairman following the next OPP meeting.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously. (M. Arthur has recently resigned from the Sedimentary Petrology and Physical Properties Panel.)

C. Active Margin Panel

The Active Margin Panel has recently added Darrel Cowan and John Ladd. If R. von Huene resigns, the Panel will need an additional U.S. person. The AMP would possibly like to increase its total membership by one and will discuss membership at its forthcoming meeting (4-5 March 1982) and will make specific recommendations at the next (July) PCOM meeting. D. Hussong said that a petrologist with interests in back-arc regions would be particularly useful.

D. Passive Margin Panel

The Passive Margin Panel has not met since June of 1981 and has no membership recommendations at this time.

E. Sedimentary Petrology and Physical Properties Panel

A. Richards, M. Arthur, J. Handin, and O. Pilkey have left or will leave the SP[4] shortly.

Acting upon the recommendations of the SP[4], G. Klein moved (seconded by R. Moberly) that Richard Carlson (Texas A&M), Walter E. Dean (U.S. Geological Survey), Gregory Mountain (L-DGO), and Mike T. Ledbetter (University of Georgia) be invited to join the Sedimentary Petrology and Physical Properties Panel to replace Adrian Richards, Michael Arthur, Orrin Pilkey, and John Handin, respectively.

Vote: 11 for, 0 against, 0 abstain. The motion passed unanimously.

Adrian Richards stepped down as SP[4] chairman at the last panel meeting; the SP[4] recommended that George deV. Klein be asked to serve as chairman. (G. Klein has been the Acting Chairman since the December 1981 meeting.)

---

[1] Committee rule applies. The motion is made by virtue of a panel or committee chairman placing a name in nomination.

Acting upon the SP[4] recommendation, R. Moberly moved (seconded by W. Bryant) that the PCOM ask George deV. Klein to chair the Sedimentary Petrology and Petrology Panel.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

F. Inorganic Geochemitry Panel

The Inorganic Geochemistry Panel is at present "light" by one member. The Panel had earlier (see PCOM Item 327-VII, February 1981) chosen to invite appropriate specialists to its meetings in place of a permanent member. The Panel now, because of its increased responsibility with the greater interest in hydrothermal and geochemical objectives, and fewer members relative to other panels requests the addition of two new members.

M. Kastner moved[1] (seconded by J. Honnorez) that Hubert Staudigal (L-DGO) be added to the Inorganic Geochemitry Panel to fill the currently vacant slot.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

M. Kastner[1] moved (seconded by R. Moberly) that the total membership to the Inorganic Geochemistry Panel be increased by one and that Steve Calvert (Uniersity of British Columbia) be invited to join.

Vote: 11 for, 0 against, 1 abstain. The motion passed.

J. Gieskes resigned from the Inorganic Geochemistry Panel and the chairmanship following its November 1981 meeting. Miriam Kastner has been Acting Chairman since that time.

Acting upon an IGP recommendation, J. Cann moved (seconded by J. Honnorez) that Miriam Kastner (SIO) be asked to serve as chairman of the Inorganic Geochemistry Panel.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

G. Downhole Measurements Panel

The Downhole Measurements Panel currently has one additional member (added when the Planning Committee invited R. von Herzen join and chair the panel, but did not ask the current chairman (R. Hyndman) to resign). R. Von Herzen noted that members had also expressed a desire to add Fred Duennebier to the Downhole Measurements Panel.

The PCOM tabled the discussion of increased membership until after the next Downhole Measurements Panel meeting (25-26 May 1982). (See also discussion, Item M below.)

In response to recommendations made by the German IPOD, H. Beiersdorf

---

[1]Committee rule applies.

moved (seconded by J. Corliss) that Reinhard Jung (B.G.R.) replace Heinz Beckmann.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

H. Stratigraphic Correlations Panel

The Stratigraphic Correlations Panel made no recommendations for membership changes, but J. Kennett agreed to act as PCOM liaison to the SCP, at least for the immediate future.

The PCOM also viewed favorably John Saunders' move from the Stratigraphic Correlations Panel to the Information Handling Panel, (see below).

I. Information Handling Panel

The Information Handling Panel requested that John Saunders (Naturhistorisches Museum at Basel) be added to the Panel--increasing membership by one person. The request is made with the understanding that Saunders would provide his own travel support to meetings.

Following discussion, D. Appleman moved (seconded by J. Creager) that John Saunders (Basel) be asked to join the Information Handling Panel with the understanding that his institution would support his travel to meetings.

Vote: 11 for, 0 against, 0 abstain. The motion passed unanimously.

J. Organic Geochemistry Panel

Earl Baker and Gordon Erdman will rotate off the Organic Geochemistry Panel following its 29-30 April 1982 meeting in Oregon. The Panel will recommend replacements at that meeting, but B. Simoneit noted that it would probably want an oil industry person to replace Erdman.

In response to recommendations made by the German IPOD, H. Beiersdorf moved (seconded by J. Corliss that Egon T. Degens (University of Hamburg) replace Dietrich Welte on the Organic Geochemitry Panel.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

E. Degens was formerly the German alternate. The new German alternate is Jürgen H. Rullkötter of the Kernforschungranlage at Julich.

K. Pollution Prevention and Safety Panel

Brian Davis has not attended the last several Safety Panel meetings. The PCOM in response to panel's wishes recommended that he be dropped from membership. The Safety Panel will make recommendations for his replacement at its next (11-12 March 1982) meeting, if it deems this desirable.

L. Site Survey Panel

LeRoy Dorman will resign from the JOIDES Site Survey Panel

concurrently with his resignation from the JOI Site Survey Planning Committee.

M. Discussion - General Panel Membership

Members of the PCOM noted that for the first time in recent history panels are attempting to expand their membership. The PCOM does not, in general, endorse this trend but chose not to make binding recommendations at the current meeting owing to the uncertainties surrounding the post-1983 program (and possible drilling hiatus beginning in FY 1984). At present, the PCOM has few guidelines on Panel size and membership other than its charge (from the EXCOM) to maintain numbers of panel members at pre-established levels. NSF decisions regarding the Advanced Ocean Drilling Program and drilling platform later this spring (1982) will have a strong bearing on the JOIDES planning structure.

The PCOM thus postponed making specific recommendations on panel structure and membership until its July 1982 meeting. Matters to be taken up at that time include

- development of more specific guidelines for Panel organization and membership.

- consider disposition of the Hydrogeology Working Group. Unlike panels which provide ongoing recommendations and advice, working groups are created to address a specific goal. The Hydrogeology Working Group was created to plan the hydrogeology leg now well underway, but because the need still exists for stimulating new ideas in this highly interesting field, it might be useful to maintain it. Alternatives are to raise the HWG to Panel level, or reorganize the Inorganic Geochemistry, Ocean Crust, and Downhole Measurements panels to ensure adequate coverage of the topic.

- consider changes to the Stratigraphic Correlations Panel. The SCP has strong areas of overlap with the Ocean Paleoenvironment and Information Handling panels. It could perhaps be a working group of the Ocean Paleoenvironment Panel. J. Kennett will ask the SCP for its suggestions.

- request for increased membership in the Downhole Measurements Panel and review increased membership in Inorganic Geochemistry Panel.

361 JOIDES OFFICE AND PANEL BUSINESS NOT DISCUSSED ABOVE

I. INDUSTRIAL LIAISON PANEL

Although the Industrial Liaison Panel has not met for several years (if ever), the Planning Committee agreed that it should be maintained as a discrete panel to keep open channels of communication. The Panel potentially serves as a means by which JOIDES/DSDP can seek industry advice and also allows contact with industry through distribution of the Initial Reports and other information.

The JOIDES Office will continue to list members of the Industrial Liaison Panel in the JOIDES Journal. Though addresses of some existing members are probably out of date and some members may no longer be with oil companies. P. Worstell agreed to check on members currently listed and solicit suggestions for new members if this seems appropriate.

N.B. Worstell

II. MEETING BUDGETS/SCHEDULE

NSF has significantly reduced JOI Inc.'s operating budge; some of the cuts have been passed through to the JOIDES. The line item for the FY 1982 travel in conjunction with JOIDES Planning stands at $154,000, down from an expected $210,000. (Of the $154,000 budgeted, $89,300, or about 60 per cent had already been spent as of 8 January 1982.) Winterer has protested the budget cuts imposed by JOI and suggested that inasmuch as JOIDES is now involved with Explorer Planning, Explorer-related budget items might be found to supplement JOIDES travel -- i.e, that in conjunction with planning Explorer laboratory space and facilities. Nonetheless, Winterer emphasized that the budget constraints are real and the JOIDES office will continue to approve meetings at the most cost-effective sites and restrict guests lists. Winterer urges panel chairmen to be responsible in proposing meeting sites and date (and guests) to cut costs (and certainly to avoid unnecessary costs) wherever possible.

P. Worstell asked panel chairmen to submit plans for any panel related travel for FY 1982 by the end of the present PCOM meeting.

III. SUPPLEMENT TO JOIDES JOURNAL

About every two to three years the JOIDES Office publishes a supplement to the JOIDES Journal containing information on all new sites identified by the JOIDES Planning groups. The supplement is a compilation of the "DSDP/IPOD Site Proposal Sheets" prepared by the JOIDES panels. It serves as a ready reference to site coordinates, water depths, objectives, and special staffing requirements.

N.B. Panel Chairmen

P. Worstell asked panel chairmen to send site proposal sheets for all sites identified since publication of the last supplement to the JOIDES office by mid-March (not later than the end of March). The S.I.O. JOIDES office has only three months to complete and distribute two issues of the JOIDES Journal plus any sort of supplement and material must be in hand within the next few weeks if it is to be included.

IV. PLANNING COMMITTEE CHAIRMAN/JOIDES OFFICE TRANSITION

The University of Miami, Rosenstial School for Atmospheric and Marine Sciences will assume operation of the JOIDES office on 1 July 1982. J. Honnorez will replace E. Winterer as chairman, and a Miami staff will replace the S.I.O. staff at that time. The JOIDES office provides the secretariat to the Planning and Executive committees and publishes the JOIDES Journal.

The S.I.O. JOIDES staff is working closely with J. Honnorez to effect a smooth transition. Funds are budgeted to bring the Miami Science

Coordinator to Scripps for ± two weeks so that he can familiarize himself with the JOIDES Office and DSDP operations.

362 FISCAL 1982-83 PLANNING

I. PACIFIC PROGRAM (Legs 85-91)

A. Equatorial Pacific Paleoenvironments (Leg 85)

R. Douglas reported the objectives in the Pacific Ocean Paleoenvironment program. It comprises a 4-leg transect (Legs 85, 86, 89, 90) to develop a vast regional picture of the Cenozoic environments and climates that developed at different latitudes and within different water masses. The program calls for using (primarily) the hydraulic piston corer to obtain undisturbed samples to develop a highly resolved biostratigraphy.

The Leg 85 team will attempt to

- establish high-resolution bio- magneto-, seismic- and stable-isotope stratigraphy,
- resolve oceanographic and biological (evolutionary) changes associated with the Eocene/Oligocene boundary,
- establish the termination of Atlantic-Pacific circulation across the Central American isthmus and the evolution of modern Pacific circulation,
- study the low-latitude response to Miocene Antarctic glaciation and to Pliocene glaciation of the Northern Hemisphere,
- determine the origin of the fine-scale cyclicity seen in Pacific Oligocene to Quaternary sediments, and
- study the carbonate and silica diagenesis in thick biogenic sections.

R. Douglas summarized the objectives of the proposed sites (Table PCOM-1 and Figure PCOM-1).

Co-chief scientists for Leg 85 are Larry Mayer (URI), and Fritz Theyer (HIG).

PCOM Discussion (Leg 85)

Most discussion centered around a recommendation that EQ-1B be drilled during the leg. The recommendation initiated by R. von Herzen and strongly supported by the Hydrogeology Working Group and Inorganic and Ocean Crust panels targets this site (originally identified by the OPP to sample the Neogene record) to test models of fluids convection through the sediments. Although sediments at the site are reasonably thick (300 m) the region is characterized by unusually low heat flow and non-linear temperature (exponential decreases) gradients.

Table PCOM-1. Proposed Leg 85 Sites

Site	Coordinates	Water Depth (m)	Estimated Penetration	Coring Operations	Days on Station	Objectives
EQ-1A (=DSDP 81)	1°26.5'N 113°49'W	3800	450	(a) HPC twice + rotary drill to basement	6.2	Latest Miocene-Quaternary sediments and climatic history; repeat of DSDP Site 81 using HPC
				(b) Heat flow expt. in 3rd hole--Burns-Uyeda probe	0.33	
EQ-3	0°28.9'N 133°13.7'W	4300	550	(a) HPC twice + rotary drill to basement	7.6	Upper Eocene-Quaternary sediments and climatic history; recover Eocene/Oligocene boundary; repeat of DSDP Site 77 using HPC.
				(b) Heat flow expt.	0.33	
EQ-4	4°15'N 133°36'W	4250	550	(a) HPC twice + rotary	7.6	Same as EQ-3; determine basement age.
				(b) Heat-flow expt.	0.33	
				(c) Drill basement 100 m or to bit destruction	0.75	
EQ-5	6°N 135°05'W	4300	550	(a) HPC twice + rotary drill to basement	29	Same as EQ-3.
				(b) Heat-flow expt.	1	
				(c) Drill into basement	0.75	
				TOTAL DAYS ON STATION	30.75	
				STEAMING TIME	24.00	
				TOTAL	54.75	
EQ-6 (Alternative Site)	7°12'W 137°36'W	4600	300	(a) HPC twice + rotary	6.7	Same as EQ-3; recover basement.
				TOTAL DAYS WITH EQ-6	61.5	

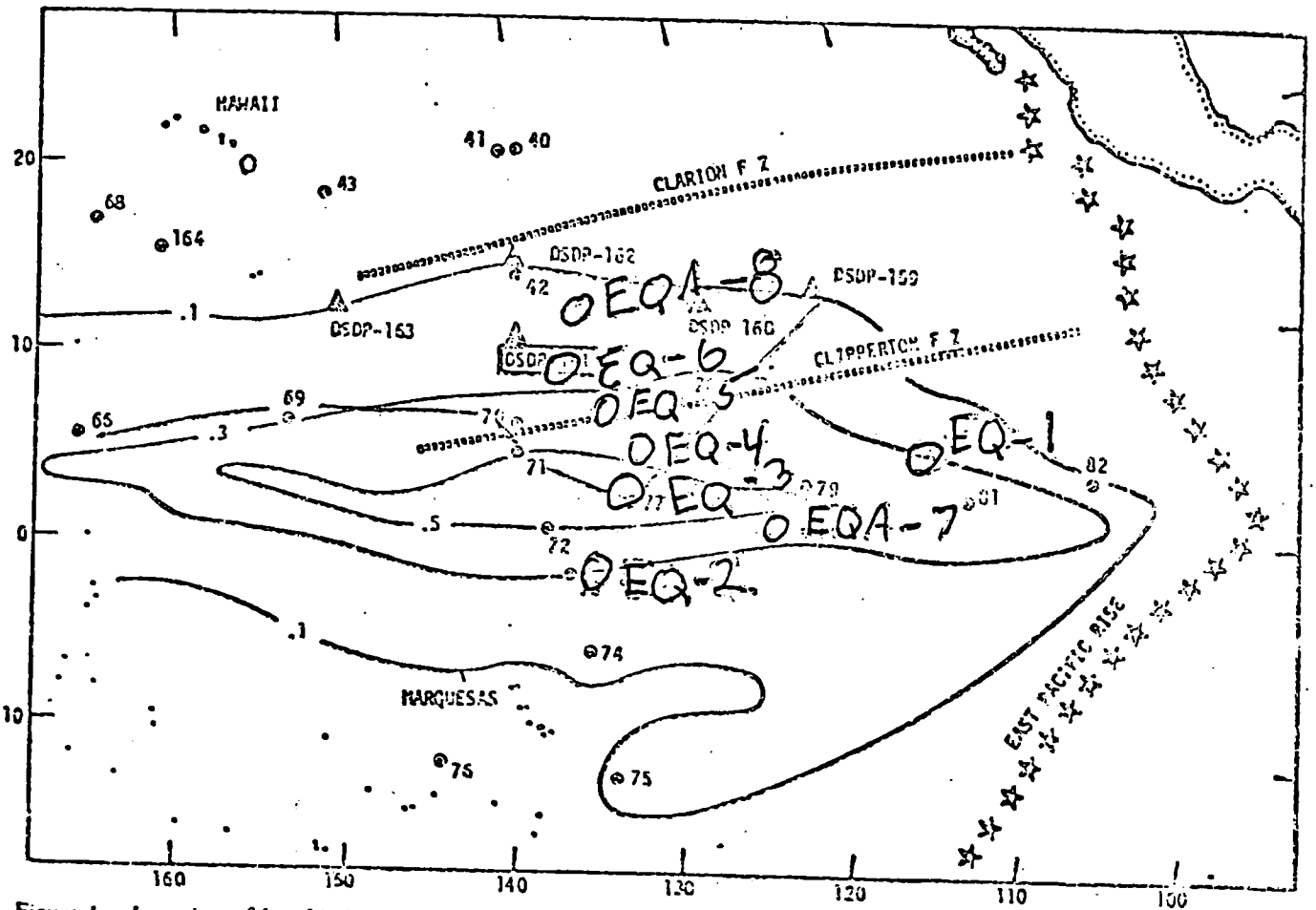


Figure 1. *Location of Leg 16 sites (large triangles) in the eastern equatorial Pacific on the west flank of the East Pacific Rise. Small dots are sites from Legs 5, 8, 9 and 17. Contours indicate sediment thickness above acoustic basement in seconds (approximately equivalent to 800 meters).*

Figure PCOM-1

To the east heat flow is normal; to the west it is lower. The Sonne seismic data shows a marked differences in basement between the two regions with basement rougher in the regions of low heat flow. The "missing heat" is somehow related to the basement rock outcrops. Drilling EQ-1B would provide a unique opportunity to test one part of the convection system -- at little loss in ship time. (See the HWG report for additional background.)

R. Douglas and R. Moberly explained that the OPP has rejected Site EQ-1B for ocean paleoenvironmental objectives because the thinner sequence would not provide a complete Neogene record -- the prime objective of the leg. Proponents have spent many hours selecting the best site for the OPP work; the thinner section could possibly contain hiatuses. A possible alternative is to do the heat flow work at EQ-1B, but not at the other sites thereby making up some of the time. The PCOM chose to review the entire 1982-83 program before making recommendations for this and other legs. See discussion, 362-IV, below.

During the discussion Douglas also explained that each site will be cored with the hydraulic piston corer to ensure recovery of a complete section and adequate material for comparative studies.

Douglas said plans were to collect samples of basement at EQ-4. J. Fox said his panel would like to see basement cored to 100 meters or bit destruction, but even 10-20 meters would be most useful.

B. Northwest Pacific Paleoenvironments (Leg 86)

Earlier dropped as slightly lower priority owing to the lesser maturity of the science planning, a northwest Pacific leg was reinstated by the Executive Committee to satisfy Soviet interests in the area. Douglas reported that the Ocean Paleoenvironment Panel has since developed the science program and now considers drilling in the northwest Pacific of paramount importance in providing data across critical productivity and current regimes. Drilling will test the history of Neogene siliceous productivity, Cenozoic volcanic activity, and aeolian and red-clay sedimentation.

At their recent meeting at SIO an OPP ad hoc group defined the following major objectives and proposed Leg 86 sites to

- obtain a detailed Neogene record of water-mass fluctuations between the warm Kuroshio and the cooler transitional zones.
- unravel the late Cenozoic history of volcanic activity in the Japanese arc in the NW Pacific.
- study the Neogene climatic changes between the subarctic and transition zone boundary.
- establish the late Miocene to Pliocene history of siliceous productivity in NW Pacific.
- establish the Cenozoic history of aeolian and chemical red clay

sedimentation.

- obtain a high-resolution stratigraphy of the early Cenozoic and Cretaceous/Tertiary boundary on the Shatsky Rise.

Table PCOM-2 summarizes the proposed sites for Leg 86.

The OPP rates its priorities as (1) completing a coherent transect across the Neogene subantarctic front at Sites NW-5A, -6, -7A, -8A; (2) Neogene and the (3) history of aeolian deposits.

PCOM Discussion - Leg 86

Site NW-6, the most northerly site is within 200 miles of the Kurile Islands, and could require special permission to drill. It also would require a considerable amount of steaming time. Members discussed the possibility of DARPA moving its site to the southwest where it could sample a comparable section. Again, the problem is that the section must be sufficiently thick to provide the best stratigraphic record, (for OPP), but not so thck as to compromise the chances of the DARPA hole reaching competent sediments. (This is discussed further under Leg 88, below.)

* * *

Only the drill pipe loaded in Long Beach will be available bringing drilling capability to 6100 m. Weather will be a limiting factor in some of the Leg 86 drilling, since drill string length could exceed that value only in excellent weather.

* * *

The SP[4] has requested a "dedicated core" for geotechnical work from Site NW-9. The panel in the efforts to sample all the sediments sees this as a good opportunity to test a red-clay sequence.

W. Bryant noted that the Sandia Laboratories is willing to pay for special analyses of the NW-9 cores.

* * *

The von Herzen HPC-nosecone-temperature sensor will probably be tested on Leg 86. The test should require very little time but needs to be left in the bottom for 5 minutes to record. Some panel members suggested that NW-9 might be a good place to triple HPC (a) with nosecone heat probe, (b) for stratigraphy and (c) geotechnical studies.

* * *

Some PCOM members suggested that because (1) the NW Pacific leg had earlier been eliminated by PCOM on the advice of the OPP as addressing somewhat lower priority science, (2) the Soviets (major proponents for NW Pacific drilling) are not now directly contributing to the effort and (3) the NW Pacific review group placed other objectives (e.g., Bering Sea) above it, the leg should be eliminated.

Table PCOM-2. Proposed Leg 86 Sites

Site	Coordinates	Water Depth (m)	Estimated Penetration	Coring Operations	Days on Station	Objectives
NW-3B	35°38'N 142°12'E	2510	400+	(a) HPC and rotary drill to reflector V (base of Pliocene)	5	Neogene history of water-mass fluctuation between Kuroshio and transition zone waters.
(OPP ad hoc group recommends that this site be moved southward)						
NW-5A	41°45'N 154°00'E	5575	300	(a) HPC twice + rotary[1] drill to (chert) basement	7	Neogene climatic changes to monitor subarctic front--fluctuation between subarctic and transition water boundary; productivity.
NW-6	44°02'N 152°56'E	5365	380	Same as NW-5A	7.6	Same as NW-5A, in area of high accumulation (10 cm/my), tephrochronology
(Site NW-6 is within 200-mile of Korea. PCOM noted that if site could be moved south, could possibly be drilled during Leg 88 (DARPA). See discussion.)						
NW-7A	38°40'N 153°50'E	5675	225	Same as NW-5A. Rotary drill to chert.	5.2	Same as NW-5A and -6, to sample southern margin of subarctic front.
NW-8A	33°50'N 157°00'E	6150	190	Same as NW-5A, -6, -7 (No rotary drilling)	4	Same as NW-5, -6, -7, to gain tropical part of record.
NW-8B (=DSDP 47)	32°27'N 157°43'E	2800	150	HPC twice to chert horizon (Sediments are very soft here)	3	HPC record of Cretaceous/ Tertiary boundary and early Cenozoic carbonates
NW-9	32°20'N 164°00'E	6100[2]	60	HPC twice to base of Cenozoic (∿60 m)	4[2,3]	Cenozoic history of aeolian and chemical red clay sedimentation
				TOTAL DAYS OPERATIONS	35.8	
				STEAMING TIME	19.4	
				TOTAL	55.2	

[1] OPP members noted that not drilling to basement here would save considerable time. At NW-5A co-chief would simply like to penetrate the section to the chert, but not attempt to drill through the chert.

[2] Site at present operational limit of drill string (6100 m).

[3] OPP originally estimated 1.8 days; E. Winterer noted 4 days probably needed.

The PCOM as a whole, however, took no such action, accepting that the science program has now matured and fits well into the overall program.

Co-chief scientists for Leg 86 are Lloyd Burckle (L-DGO) and Ross Heath (OSU).

C. Japan Margin (Leg 87)

The Active Margin Panel will meet 2-3 March at SIO, shortly after the PCOM meeting, to finalize site selection and drilling strategy for Leg 87. D. Hussong, however, reported on the preliminary planning for the Japan margin drilling.

Drilling has two major objectives: (a) to explore the tectonic subsidence and subduction mechanisms and evolution of the Japanese margins and (b) to determine the extent and history of the ancient Oyashio landmass. Studying paleoceanography of the Kuroshio current is another important objective -- one of special interests to the Japanese.

Site data are summarized in Table PCOM-3.

The Leg is divided into two parts: Japan Trench and Nankai Trough, to which the Active Margin Panel gives equal priority. In the Nankai Trough, it assigns highest priority to drilling NK-1 and -2 to compare porosity, pore pressure, structural and geophysical characteristics in increasingly deformed sediments of the trench and lower slope. In the Japan Trench area, it gives high priority to sites to study the seaward extent and history of the Oyashio landmass. The Neogene ocean-environment and the upslope Nankai sites are of somewhat lower priority. The Nankai sites are ranked

NK-2	highest priority
-1	↓
-4	↓
-3	lowest priority

PCOM Discussion - Leg 87

- Some PCOM members questioned certain Nankai sites located over bottom-simulating reflectors in what looked like structural traps, or where drilling would penetrate overpressured zones which could pose safety problems. K. Kobayashi reported that in the opinion of the Japanese Safety Panel these sites do not pose safety problems. The Japanese have extensive seismic coverage of the area so that finding a safe site should be relatively easy.

  Winterer suggested that for safety review the site proponents have available time sections, structure contour maps, and an analysis of the thermal history of the area.

- Hussong emphasized the need to conduct a complete suite of logging experiments, plus heat probe, pore-water, and pore pressure (packer) experiments. Measuring and comparing physical properties is a requisite to understanding the dynamics of subduction.

Table PCOM-3. Proposed Leg 87 Sites

Site	Coordinates	Water Depth (m)	Estimated Penetration	Coring Operations	Days on Station	Objectives
J-13A Inner wall of Japan Trench	42°25'N 143°55'E (approx)	4000	1500	HPC plus rotary core to bit destruction. Barnes-Uyeda probe. Log.	16[a]	Penetrate unconformity and igneous arc material and establish seaward extent of the Oyashio landmass
J-13B Inner wall of Japan Trench		3650	600	HPC plus rotary core to 600 meters. Log.	5	Penetrate entire Neogene section, tephrochronology. High priority to Japanese and OPP.
NK-1A	32°09'50"N 134°59'30"E	4695	1000	HPC plus rotary core 250 m into basement or to bit destruction. Log, in situ pore pressure and heat probe.	13(?)	Establish a reference section in undisturbed Pleistocene turbidites and Neogene silts and clays
NK-1B	31°45'11"N 133°54'45"E	4800	1100	HPC plus rotary core to 100 m into basement or to bit destruction. Log, heat probe, in situ pore pressure.		Same as NK-1A
NK-1C	31°46.5'N 133°53.5'E	4870	1300	HPC plus rotary core to bit destruction. Sample basement. Log, heat probe, in situ pore pressure.	17(?)	Same as NK-1A
NK-2A Lower toe of accretionary wedge, inner wall of the Nankai Trough--DSDP 298	32°19'58"N 134°55'28"E	4650	1500	HPC plus rotary core to bit destruction. Log, in situ pore pressure, hydropacker.	13(?)	Highest priority site. Penetrate well developed thrusts to determine mechanics of subduction and relationship between physical properties--porosity, pore pressure, dewatering
NK-2B	31°49'20"N 133°51'32"E	4600	1400	Same as NK-2A		Same as NK-2A
NK-2C	31°48.9'N 133°51.2'E	4650	1550	Same as NK-2A		Same as NK-2A
NK-3 Upper slope of inner wall of Nankai Trough	32°40.5'N 133°47.5'E	1400	500	HPC plus rotary core 500 meters. Log.	6	Sample sediment cycles. Date transition from trench to slope deposits (with NK1 and -4). Determine rate of change in dip of strata.
NK-4A Inner wall of Nankai Trough	31°52'34"N 133°48'56"E	4100	380	HPC plus rotary core to safe level above BSR. Log, heat probe, in situ pore pressure.	12	To penetrate mid-lower-slope basin formation. Sample a fully deformed site
NK-4B	32°32.1'N 134°50.6'E	4100	330	Same as NK-4A, monitor clathrates		Same as NK-4A. 4B, however, has a strongly developed bottom reflector.
NK-4C	31°56.0'N 133°46.1'E	4125	600	HPC plus rotary drill to 600 meters or safe level above BSR. Core two holes offset 750 m to define possible thrust boundary. Log.		Same as NK-4A. Sediments at -4C are thrust over basement and seem to extend under the trench development of fore-arc basin in imbricated area--a classic model.
NK-4D						Same as NK-4A. Penetrate landward dipping reflectors BSR strongly developed.

[a] Days on station are very preliminary estimates.

- M. Kastner urged DSDP to place a pore-water geochemist on both parts of Leg 87.

- R. Anderson also suggested that a USGS packer specialist be included in the shipboard party; problems in packing off the overpressured parts of the section are likely.

Consensus: More Leg 87 work still is planned than can be accomplished within the time available. The PCOM, recognizing that Leg 87 originally comprised two full legs, appreciates the difficulties in compressing the work into a single leg, suggests that the AMP review steaming and operations time required and formulate a program that fits within the time budgeted.

The Leg 87 co-chief scientists are Hideo Kagami and Dan Karig.

D. DARPA Experiment (Leg 88)

Ralph Alewine and Al Ballard outlined the DARPA (Defense Advanced Research Project Agency) experiment planned for Leg 88.

1. Background (Alewine)

Planning began in earnest in 1980 to implant a marine seismic system in the floor of the Northwest Pacific when NSF and PCOM agreed to a cooperative program. The system will provide geophysical data on tectonic processes at a subduction zone, and on the degree of plate coupling with depth along the leading edge of a downgoing plate. It will measure broadband seismic signals and compare noise levels as function of depth, the nature of seismic propagation along the sea floor, and gather data on crustal tilt, hydroacoustic signals and temperature changes.

During Leg 78B in the North Atlantic, the DARPA team, Global Marine and DSDP experimented with the techniques of placing the seismometer into Hole 395A. The successful test leads to the next step — the experiment in the Northwest Pacific scheduled for August/September 1982.

Al Ballard presented steps in the operation (See Appendix 6 for details.)

2. Site Survey (Ballard)

The USNS Desteiguer will conduct set out an array of ocean bottom seismometers and conduct a detailed sparker survey for about 70 km around the site. The work will take about 8 days. at least once.

Following implantation of the marine seismic system and in cooperation with the Hawaii Institute of Geophysics, the Desteiguer will assist in conducting a detailed refraction survey, shooting about 400 shots along 510 km tracks (long axis) parallel to the regional axis of spreading. Time and (forecasted) weather permitting, refraction data will be recorded on the bore-hole seismometer recorders on board Challenger. Otherwise recording modules will be deployed before the refraction shooting and recovered later by another ship.

3. On-Site Operations

a. Locate (with Challenger) a site on a flat spot with thin sediment cover and no evidence of current scour.

b. Drill a pilot hole to basement.

c. Deploy the Duennebier borehole seismometer. (Shoot sensor orientation circle with Desteiguer and deploy recording package upcurrent.

d. Offset Challenger and set the re-entry cone. Drill the second hole to basement. (Seismometer maybe set in any competent rock; it does not necessarily have to be basalt.)

e. Implant DARPA marine seismic system (shoot orientation circle).

f. Begin refraction shooting program.

g. (Deploy recording packge if time and weather conditions permit.)

h. Record on Challenger for two days. The instrument will continue to record for up to 45 days; another ship will return to recover the recorder.

DARPA estimates 14 to 18 days to complete the on-site operations. This includes a 4-day "contingency time," but not additional time for the Duennebier experiment. Bad weather could easily pose problems.

4. Staffing

DARPA would need:

3 people to install the instrument
3 people working on the seismometers
3 OBS personnel

1 supervisor (Ballard)
10 total DARPA
2 Duennebier technicians
2 co-chief scientists

14 Total

(This leaves only two positions open for other scientists-- sedimentologists and paleontologists.)

5. Data

The data collected by Desteiguer will be worked up by NORDA which will produce bathymetric and isopach maps and structural and isochron charts of the area. Data will be published in the Initial Reports and/or NORDA reports, and placed on file at the IPOD Data Bank at L-DGO. The National Geophysical and Solar-Terrestrial Data Center also receives routinely all NORDA's unclassified data.

The shooting data will be handled by the Office of Naval Research in cooperation with Oregon State. The earthquake data will be available from a data bank in Washington.

6. Co-chief Scientists

Fred Duennebier has agreed to serve as a Leg 88 co-chief scientist. (DARPA has indicated it does not need a DARPA/NORDA person in a co-chief scientist's slot.)

At the present meeting, the Planning Committee recommended that James Hays (L-DGO) be invited to serve as a co-chief scientist.[1]

7. Discussion

The PCOM discussed mostly the possibility of drilling the DARPA sites at a location which would satisfy the objectives of the Ocean Paleoenvironment Panel's site NW-6 (Neogene climatic patterns). This would save perhaps 8-9 days time during the NW Pacific program (mostly in the steaming time to NW-6) and could also result in beginning the DARPA drilling earlier, improving the weather outlook.

The DARPA site needs to be (a) about 10° east of the Kuril Islands to be out of a seismic "shadow zone," (b) north of the effects of the Kuroshio currents, (c) in a region of relatively thin sediment cover with no impenetrable chert, (d) north of the E-W fracture zone at about 45°N latitude. The OPP site needs a sufficiently thick sedimentary sequence to ensure a complete record of small-scale Neogene environmental changes. A small area of overlap may exist.

Consensus. The Planning Committee instructed the Legs 86 and 88 proponents to "look very hard" at locating the DARPA site somewhat to the south of the present DARPA site (at ≈45°41'N, 162°08'E) so as also to fulfill the main OPP objectives for NW-6.

E. Old Pacific Environment (Leg 89)

R. Douglas relayed the OPP's planning for Leg 89. The major objective here is to drill MZP-6 to basement, sampling the presumed oldest sediments of the Pacific. A recent site survey conducted by the Hawaii Institute of Geophysics has located a site at which oceanic basement can be reached with no intervening younger volcanics. Deep water here would require perhaps 7200 meters of drill pipe -- more than currently is available, but within limits of what could be available by September 1982. (DSDP hopes to acquire additional drill pipe and load it in Yokohama just before Leg 89.)

1. Major Objectives:

- establish the early Mesozoic (pre-mid Cretaceous to Jurassic) history of the Pacific Ocean,

---

[1] J. Hays subsequently declined.

- establish the early evolutionary history of oceanic plankton and their influence on the composition of pelagic sediment,
- determine the effect of the opening of the North Atlantic Ocean on the chemistry and circulation of the world ocean,
- obtain improved early Mesozoic pelagic bio- and magnetochronology,
- determine the effect of Cretaceous mid-plate volcanism on the paleobathymtry, sea level changes, and tectonic history of the Pacific basins.

2. Proposed Sites.

Table PCOM-4 summarizes the proposed sites for Leg 89.

4. Co-chief scientists. Seymour Schlanger (Northwestern University) has agreed to serve as a co-chief scientist on Leg 89.

J. Cann moved (seconded by J. Creager) that R. Moberly be invited to serve as the other Leg 89 co-chief scientist.

Vote: 11 for, 0 against, 1 abstain (Moberly). The motion passed.

F. Southwest Pacific (Leg 90)

R. Douglas reported for the Ocean Paleoenvironment Panel's objectives in the southwest Pacific. Sites SW-4, -5, and -6 provide a transect to sample responses to (a) subarctic, (b) temperate and (c) subtropical water masses.

1. Major Objectives:

- establish the Neogene climatic history of the southwest Pacific,
- unravel the history of fluctuations in tropical, subtropical, transitional, and cool temperate water-mass during the Late Cenozoic,
- test evolutionary models of mechanisms of speciation (gradualism vs punctuated equilibrium).

2. Proposed Sites

Table PCOM-5 summarizes the proposed sites for Leg 90.

3. Co-chief scientist. J. Kennett has accepted the invitation to serve as one co-chief scientist on Leg 90.

R. Douglas moved (seconded by J. Creager) that Chris von der Borch (Flinders University, Australia) be asked to serve as Leg 90 (southwest Pacific) co-chief scientist.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

Table PCOM-4. Proposed Leg 89 Sites

Site	Coordinates	Water Depth (m)	Estimated Penetration	Coring Operations	Days on Station	Objectives
MZP-6	13°30.5'N 156°48.8'E	6075	1200	(a) Drill exploratory hole, set re-entry cone, rotary drill into basement	22	Early Cretaceous and Jurassic of the Mesozoic "superocean"
				(b) Log hole	4	
MZP-2 (=DSDP 462)	7°14.25'N 165°1.83'E	5200	560 (below 1068 m already penetrated)	Deepen Hole 462	4	Determine thickness of sill/ flow complex; sample lower Cretaceous and Jurassic; Jurassic crust at M-26.
(Contingency site)						
SW-9 (=DSDP 289)	00°29.2'S 158°30.7'E	2224	300+	HPC twice to maximum depth	4	High-resolution stratigraphy of the Neogene
				TOTAL DAYS OPERATIONS	34	
				STEAMING TIME	14	
				TOTAL	48	

Table PCOM-5. Proposed Leg 90 Sites

Site	Coordinates	Water Depth (m)	Estimated Penetration	Coring Operations	Days on Station	Objectives
SW-1	45°S 176°20'E	1300	300	HPC twice + rotary drill to prominent reflector near base of Neogene	3	Neogene high latitude climatic history and evolutionary studies.
SW-2	40°30'S	2050	500	HPC twice + rotary drill to major reflector	5	Sample the Miocene
SW-4	32°40'S 162°30'E	900	500	HPC twice + rotary drill to basement unconformity (Oligocene)	5	Late Neogene climatic and water-mass history; evolutionary studies; depth transect
SW-5			500	HPC twice + rotary drill to unconformity		Same as SW-4; intermediate depth site.
(Somewhat lower priority)						
SW-6	32°25'S 163°45'E	2250	500	HPC twice + rotary drill into basement	6	Same as SW-5 and -5, deepest site.
SW-7			500	HPC twice + rotary drill to major unconformity at about 500 m (Oligocene)	4.5	Late Neogene climatic and water-mass history; evolutionary studies; depth transect.
SW-8	21°40'S	2200	300+	HPC twice + rotary drill to about 300 m	4.0	Same as SW-7.
				TOTAL DAYS OPERATIONS	28	
				STEAMING TIME	15	
					43	
				TRANSIT	16	
				TOTAL	59	

G. Hydrogeology (Leg 91)

Roger Anderson reported on the preliminary planning for the hydrogeology leg.

Drilling on the East Pacific Rise (15°-20°S) is planned to study hydrothermal circulation and heat flow as a function of age of crust, and thickness of sediment cover in fast-spreading crust. Three sites would be drilled in 5, 10, and 20 million-year old crust (i.e., at greater distances from the ridge crest). Drilling here would extend the results of the Costa Rica drilling (Hole 504B) into an area of fast-spreading crust.

Plans call for 36 days on site.

14 days - drill re-entry site into 20 million-year old crust (200 m into basement)

6 days - to conduct a suite of experiments including packer, logging, borehole televiewer, electrical resistivity and seismic experiments.

16 days - to drill, sample, and log sites on 5- and 10-m.y. old crust (collect a piece of basement)

Plus 22 days steaming time.

Each site would be hydraulic-piston cored to sample upwelling and downwelling cells.

SIO and URI are currently conducting a site survey of the area of Leg 91 in the western Pacific. The sites can be no farther north than 13°S as biogenic sediments would constitute too much of the section. (The skeletal remains dilute the hydrothermal signal.) Sites are tentatively planned for west of the East Pacific Rise because surveys have shown strong helium anomalies there. The current survey could demonstrate that hydrothermal convection is strongest west of the rise, but proponents are not "closing the door" to drilling on the eastern side.

Discussion

M. Kastner emphasized that Leg 91 is a geochemical transect; geochemical experiments must have priority.

R. Anderson noted that hydrothermal drilling proponents are also interested in sampling a red-clay site.

PCOM Consensus

The PCOM views the Leg 91 program with great interest but agreed that it must fit into 33 operational days. The scope of the leg cannot be expanded in such a way that more drilling time would be required.

Co-chief scientists: Margaret Leinen (URI) has agreed to serve as a co-chief scientist on Leg 91 (hydrogeology).

J. Corliss moved (seconed by W. Bryant) that (1) R. von Herzen (WHOI), or (2) David Wray (xx) or (3) an unspecified geochemist (in that order of preference) be asked to co-chief Leg 91.

Vote: 12 for, 0 against, 0 abstain. The motion passed unanimously.

II. ATLANTIC PROGRAM

A. Mississippi Fan (Leg 92)

Dave Roberts outlined the goals and proposed strategy for the Mississippi Fan and Orca and Pigmy Basin drilling.

The Passive Margin Panel wants to drill the fan to look at the 3-dimensional anatomy of a major fan to

- study facies distributions and characterize their sedimentary properties and relate them to bottom morphologies.
- study slumps and debris flows
- analyze erosional and constructional phases to see to what extent these correlate with sea-level variations.
- establish time horizons and relate them to reflctors and the geometry of the fan.
- establish accumulation rates of the constructional phases
- study the physical and chemical properties of the various components and determine origins of source material.

Drilling in Orca Basin provides an opportunity to characterize the developing environments in an anoxic environment This isolated basin is surrounded by salt diapirs and is filled with water much more saline than normal seawater--possibly a result of dissolution of flanking salt diapirs. The behavior of organic matter under such conditions may shed some light on the development of Cretaceous black shale sequences.

Drilling in the Pigmy Basin would give good stratigraphic control to record changes in sea level and modes of sediment transport.

Drilling strategy for the Mississippi Fan calls for HPC holes in the upper (3 or 4 holes), middle (5 holes) and lower parts (4 holes) of the fan to sample the channels, levees, interchannel areas, and overbank and lobe deposits, as well as the distal fan.

Discussion

Some members questioned whether the Mississippi Fan is really the best from which to extrapolate ancient fan environments. Because it is so large, our scanty pattern of coring may not resolve problems of changing environments--the filter is too coarse.

Roberts replied that the study of other fans--especially those which can be at studied on land--may be too fine a scale.

Jim Kennett added some comments about drilling the Orca Basin. Although the anaerobic bottom conditions preclude benthic organisms, planktonic forms abound and the chemical environment has allowed exquisite preservations of both siliceous and calcareous forms. Developing highly resolved Pleistocene models would be possible here -- possibly resolving climates to 100-year intervals.

B. ENA-3 (Western North Atlantic)

J. Ewing reported that ENA-3 (35°08'N, 69°10'W) remains highest priority to the Passive Margin Panel. Located on USGS Line 25, ENA-3 would provide a complete stratigraphic section for comparison with the COST wells, and a complete paleoenvironmental history for a large region of western North Atlantic. Here reflector J-1 could be sampled; its age has been somewhat uncertainly extrapolated from other drilling in the area as late Jurassic.

ENA-3 would be drilled near to Site 105 which did not penetrate J-1, because the site is on a basement high against which the reflector pinches out.

Site 391 and 534 in the Blake-Bahama Basin cannot be satisfactorily tied seismically to ENA-3; areas north and south of Cape Hatteras were different depositional regimes. ENA-3 provides a more complete record than ENA-1 as it has been less well protected by carbonate ridges.

The SP^4 people are also interested in the sediment properties at this site.

Drilling ENA-3 will take 6800 meters of drill pipe--more than DSDP can now string (6100 meters), but within reasonable limits if DSDP can purchase more pipe.

Y. Lancelot noted that weather will be a critical factor at the site if we still have a limited drill string.

C. Northeast Atlantic Paleoenvironments (Leg 94)

R. Douglas reviewed briefly the planned Leg 94 drilling.

Leg 94 is planned to complement the N-S transect leg in the Pacific to study Neogene climates and oceanic conditions. Proponents have suggested moving NA-1 to a site in the King's Trough (= K-1). Sites K-1(?), NA-2, -3, -4, -6, and -7 would then form the transect. Plans are to HPC each site twice. Although the major objective is the Neogene, some drilling would presumably touch basement. The program is planned for 55 days.

Discussion

J. Jones noted that it would be necessary to drill deeply at the King's Trough site to determine when the drifts started to build. D.

Roberts suggested moving NA-6 to a location where it could satisfy SP[4] and Passive Margin Panel interests.

The OPP is still actively discussing the Leg 94 program, and will be the subject of later PCOM meetings.

D. Leg 95 Alternatives

The Planning Committee previously recognized three alternative objectives for Leg 95: (a) return to the Caribbean as recommended by the Active Margin Panel, (b) drill northwest Africa to test models of eolian deposition, (c) the New Jersey transect to test the Vail sea-level curve.

At the present meeting, the Planning Committee discussed these alternatives further, but noting that uncertainties about the direction of the drilling program beyond October 1983 precluded selecting an objective at this time. Whether or not this is the last Challenger leg would influence choice of sites for at least the last leg. The PCOM will resolve this and related questions after NSF has indicated the type of program and platform to be employed after FY 1983.

III. REVISIT PREVIOUSLY DRILLED SITES (NEW ALTERNATIVES)

A. Deepen Hole 504B

The Ocean Crust Panel and Hydrogeology Working Group strongly support deepening the hole to Layer 3.

B. Return to Hole 547B (Leg 79)

This re-entry site was abandoned for lack of time in Rhactic redbeds and Passive Margin Panel supports completion to basement and logging. Logging was scheduled but then cancelled because a shipping strike delayed delivery of the logging equipment to the ship. 547B penetrated a thick Cretaceous and Jurassic sections deep on the Morocco margin.

IV. DISCUSSION/CONSENSUS - 1982-83 PROGRAM

A. Pacific

The Planning Committee agreed, in a general sense, to the schedule the Pacific drilling as shown in Table PCOM-6. It generally agreed that no single leg or entire objective be eliminated, but to shave days, as necessary throughout the entire Pacific program. The Planning Committee thus agreed to

- keep the northwest Pacific paleoenvironment leg (86) in the program, but, if possible, to locate the DARPA test hole where it could also accomplish the OPP objectives (now site NW-6). This would save considerable steaming and drilling time during Leg 86 and to move the DARPA drilling into a time of more favorable weather.

- conduct the Duennebier experiment (requiring two days) during the DARPA leg (Leg 88), but not extract the two days from the remaining

Table PCOM-6. Proposed Drilling Schedule-Pacific Program
(Developed 26 February 1982)

Leg	Begin	End	Days: On Site	Steaming	Total Ops	In Port	Total	Objectives
85	Los Angeles 8 Mar 82	Honolulu 2 May 82	31	24	55	3	58	Equatorial Pacific Paleoenvironments
86	Honolulu 5 May 82	Yokohama 21 Jun 82[B]	32(28)[A]	19	51(47)[A]	4	55 (51)	Northwest Pacific Paleoenvironments
87	Yokohama 25 Jun 82	Hakodate 19 Aug 82[C]	47(50)[B]	5	51(55)[B]	5	(60)[B]	Japanese margins
88	Hakodate 24 Aug 82	Yokohama 23 Sep 82	19	11	30		30	DARPA Experiment
Dry-dock	Yokohama 23 Sep 82	Yokohama 7 Oct 82	-	-	-	14	14	
89	Yokohama 7 Oct 82	Rabaul 24 Nov 82	34	14	48	5	53	Old Pacific Paleoenvironments
90	Rabaul 29 Nov 82	Wellington 11 Jan 83	28	15	43	0	43	Southwest Pacific Paleoenvironments
Transit	Wellington 11 Jan 83	Papeete 22 Jan 83	-	11	-	5	16	
91	Papeete 27 Jan 83	Balboa 23 Mar 83	33	22	55	5	60	Hydrogeology

[A] Numbers in parentheses presume shortened Leg 86 (objectives of one hole drilled during Leg 88).

[B] Dates beyond this point presume shortened Leg 86 (i.e., numbers in parentheses).

[C] Dates beyond this point presume lengthened Leg 87 (i.e., numbers in parentheses).

program, after Leg 88 the experiment could be conducted within the time planned for Leg 88, which includes four contingency days.

- give the Japanese margin leg, 87, which began as two legs and has been compressed, additional days as possible.

- attempt to complete the Von Herzen heat-flow experiments during Leg 85; the Leg 85 shipboard team would make a reasonable try to devote up to two days to Von Herzen heat-flow work at EQ-1B.

- keep the Old Pacific drilling (Leg 89) in the program, recognizing that availability of drill pipe and decisions concerning technical capabilities of Challenger may impact the drilling program here.

- constrain additional slippage in the Pacific drilling program to the Pacific schedule. Leg 91 ends 23 March 1983. No later than

B. Atlantic Program

The PCOM agreed to postpone decisions regarding the Atlantic program until after NSF has made a decision concerning choice of platform for the post-1983 period. If drilling were to be halted for 2 years (beginning in October 1983) this would clearly influence planning for the later 1983 drilling. The PCOM agreed to hold with the program developed at its last meeting (Leg 92: Mississippi Fan; Leg 93: ENA-3; Leg 94: Northeast Atlantic Paleoenvironments; Leg 95: Caribbean or New Jersey slope or North Africa). At its next meeting the Planning Committee will address the questions of

- returning to Hole 504B
- returning to Hole 547B
- selecting the Leg 95 objective
- otherwise firm the remainder of the 1982-83 program.

In response to a query about a possible short extension to Challenger drilling, beyond October 27, 1983, I. MacGregor suggested that the PCOM focus on long-term planning at this critical time. Funds would be limited during the conversion period and introduction of a short-term plan might diminish stability of the long-term project. Any attempt to extend the Challenger drilling should tie into the overall plan, e.g., make a case for additional Challenger drilling in preparation for the ongoing program, but would advise caution on requesting additional funds from the NSB at this time.

363 POST-1983 PLANNING

I. RESULTS OF THE CONFERENCE ON SCIENTIFIC OCEAN DRILLING

Owing to the late hour, Helmut Beiersdorf reported briefly on COSOD. (A complete report had been distributed to PCOM members and report on the conference is also contained in the 2-3 December 1981 Executive Committee minutes, Item 202-III.)

The conference and its resulting scientific report was organized

around four major topics:

- origin, evolution and tectonic processes of the ocean crust,
- origin and evolution of marine sedimentary sequences,
- tectonic evolution of continental margins,
- causes of long-term changes in the atmosphere, oceans, biosphere, cryosphere and magnetic field.

(The only change from the original format is that tectonic processes in the ocean crust are now included under "origin and evolution of ocean crust."

The COSOD report will comprise three parts: an introduction, the working group reports with scientific priorities indicated and a general summary and recommendations by the steering committee. The report will be camera-ready by the end of February and should be printed soon thereafter.

The general recommendations of the steering committee are that addressing the science will require a long-term (10 or more years) program and that Explorer (converted to a drilling vessel) is the most suitable platform.

Roger Larson (Chairman, Steering Committee) reported immediately after the Conference to the National Academy's Committee on Ocean Drilling which seemed favorably impressed with the results.

E. Winterer thanked Beiersdorf both for his report and for his efforts in serving on the COSOD Steering Committee.

II. JOIDES SCIENCE NARRATIVE (EIGHT-YEAR PROPOSAL)

Winterer had distributed a revised version of the science narrative (comprising the scientific goals of a long-term drilling program) prior to the meeting. He included suggestions made at the November PCOM meeting and expanded on program from five to eight years as instructed by the Executive Committee.

PCOM thanked the Panel chairmen for their hard work in preparing the narrative in a timely fashion. NSF will use the document in its presentation to the National Science Board. It also has been very useful to the planners of Explorer conversion.

Members of the committee made some additional suggestions or comments as follows:

- Some members are concerned that the ship's tracks presented will be (or will be viewed as too constrictive. The PCOM recommended that Winterer (a) reinforce the statement that the included ship's tracks are illustrative material to demonstrate that objectives can be accomplished, that is make explicit that the tracks given are but one possibility and are in no way "final", (b) note in the proposal that a "first step" the planners will take will be to devise alternative

N.B. Winterer

tracks.

- List additional targets and/or otherwise reinforce that other objectives have been defined which are not in the model tracks.

- Reinforce high-latitude, especially Antarctic drilling, by adding more legs in the Southern Ocean and Weddell Sea or make the track moe "fuzzy" in the Southern Ocean to accommodate in expanded program.

- Organizationally, the downhole experiments part sticks out. This, like Site Surveys, is a special type of science to address the overall objectives and is subsumed in the proposal. Members suggested that the narrative be re-organized and the part rephrased so that it is more consistent with the rest of the narrative.

- Add a section emphasizing that site survey is a necessary part of the science program, but is not addressed specifically in the narrative as it will be the subject of a complete complementary proposal.

Following the discussion, J. Creager moved (seconded by R. Moberly) that the Planning Committee recommend adoption of the science narrative.

Vote 12 for, 0 against, 0 abstain. The motion passed unanimously.

ACTION Winterer — Winterer will make suggested changes and distribute a final version of the narrative and white papers shortly after the meeting.

III. EXPLORER CONVERSION PLANNING

The National Science Foundation has contracted Lockheed Missiles and Space Company to develop a blueprint to convert Explorer for scientific ocean drilling and to analyze the comparative operating costs of Explorer and Glomar Challenger. NSF will use the cost figures, in conjunction with other information, to evaluate suitable platforms for future drilling (Advanced Ocean Drilling Program).

John Nowicki, Robert Steinbach and William Perkins, all from Lockheed, reported to the Planning Committee on the results of the cost studies and Explorer conversion.

A. Interface Working Group

John Nowicki provided an overview of the Lockheed effort and on operations of the Interface Working Group developed to coordinate planning. The Advanced Ocean Drilling Program Interface Working Group comprises representatives from NSF, Lockheed, JOIDES, and JOI Inc. It provides liaison between Lockheed, the scientific community, the funding agency and other government agencies and private firms concerned with the drilling program, (Figure PCOM-2). Information about Explorer operating characteristics and design requirements to address the scientific goals are transmitted between Lockheed and the scientific community to ensure conversion planning is consistent with program objectives.

The Group is working actively to

- provide Explorer operating characteristics including those of the Explorer workboat (The 30' workboat is available at no additional cost).
- review scientific laboratory facilities and requirements.
- review special core-handling and logistical requirements (Lockheed communicating with DSDP/JOIDES on this).
- identify special ship-to-shore communications systems.
- identify types of geophysical drilling and downhole measurements data/operations required.
- identify requirements for onboard computers, remote terminals, and computer communications systems.
- identify special operational considerations, e.g., available ports.

B. Ship Conversion/Laboratory Space and Facilities

R. Steinbach reported on planning and modifications to convert the Explorer to a drill ship. The Explorer has approximately 10,000 square feet available compared with 2450 square feet on Challenger. There is also room for increased pipe storage, greatly increased berthing space (= 50 scientific party), a potential to include a full riser system, and a fully equipped scientific laboratories "to rival those on shore at major research institutions."

Explorer conversion would be a two-step process: current planning involves only that for conversion to riserless drilling, but configurations are such that the ship could be converted to a riser and full well-control capability at a future date. Lockheed personnel are attempting to nail down the major riser-ship design features that would be required now so that there are no big problems at a later date. The first step, involving a major effort, has been documenting Explorer characteristics in its present condition.

Concurrently, it has devoted much effort to core handling and scientific laboratory facilities.

Steinbach relayed some detail of the current planning and philosophy in laboratory and space utilization. Plans call for a larger capability to handle numerous routine analyses on board. Lockheed is still actively working on the plans and anticipates additional changes, so was reluctant to distribute any "blue prints" at the PCOM meeting. (Interested panel chairman and PCOM members met with the Lockheed group during an evening session for more discussion of laboratory requirements.)

C. Operating Costs

William Perkins summarized the preliminary evaluations of relative (Challenger versus Explorer) operating costs. Lockheed will

Lockheed

IWG ORGANIZATION

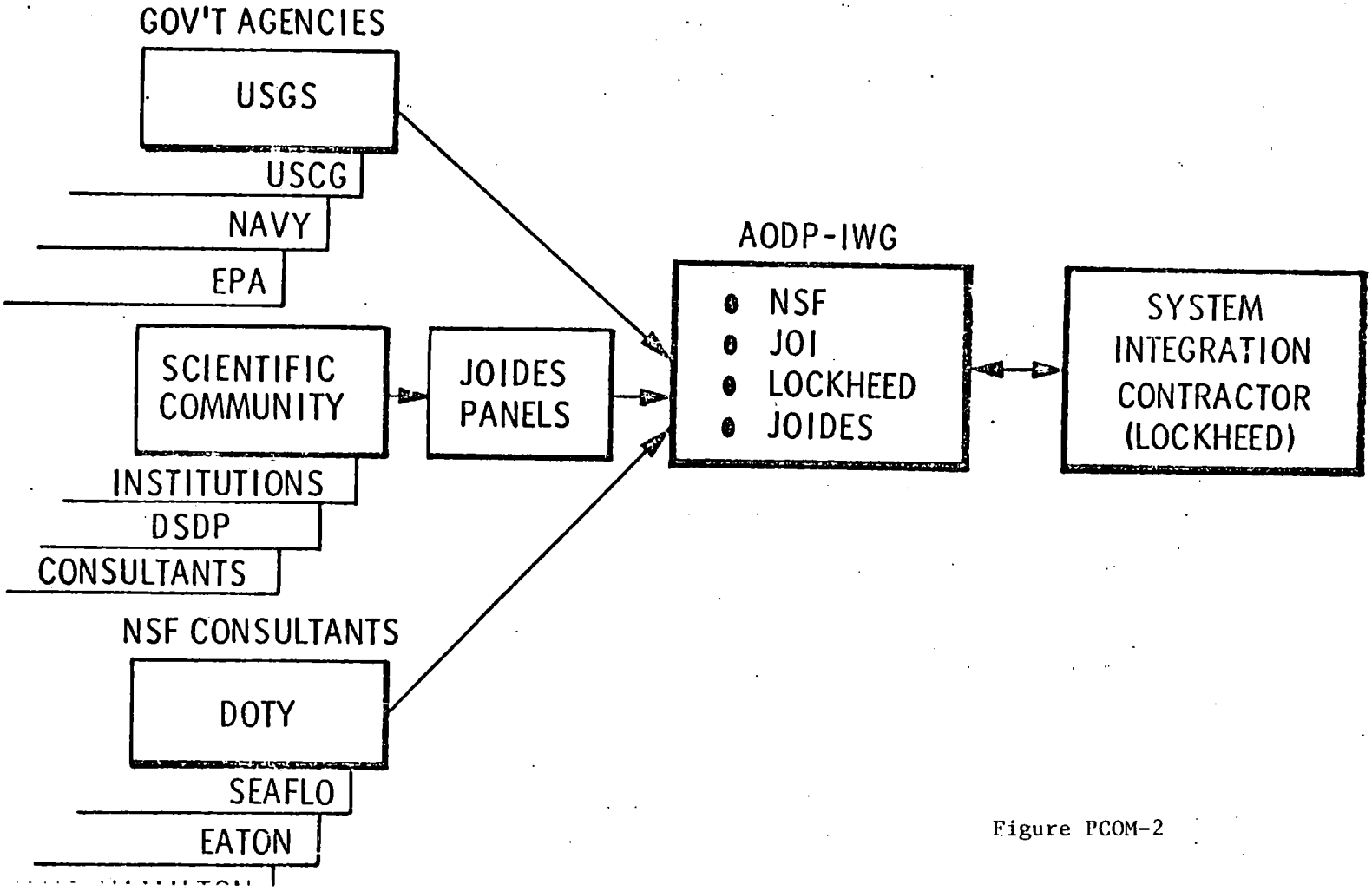


Figure PCOM-2

Lockheed

submit a detailed report on the cost analysis to NSF in the early part of March (1982). Lockheed developed the operating costs primarily on the basis of personnel, fuel and support (provisions, spare parts, other consumables, and drydocking). The day-rates are summarized as follows.

	Explorer[1]	Challenger
Ship's Crew[1]	18,454	15,088
Shore Support	2,014	1,230
Fuel[2]	11,118	3,520
Support	3,606	7,598
Communications	333	220
Others[3]	10,880	8,815
Total	46,405	36,471

[1]SEDCO supplied data for Explorer and NSF supplied data for Challenger personnel costs.

[2]Fuel costs estimated on the basis of expected horsepower requirement per actual Explorer usage and long-term historical data for Challenger.

[3]Other costs include bits, ad valorem taxes, casing, travel, logging operation.

Taking into account return on investment (=$4641 for Explorer and $9980 for Chalenger, Lockheed estimates the relative operating costs as

Explorer - $51,046; Challenger - $46,451

The operating cost for Explorer is thus 10% higher than that of Challenger.

Many assumptions and explanations are built into the cost analysis. Figures are preliminary; details of the cost break-down, assumptions, and sources will be supplied in a report to NSF shortly.

Discussion

Owing to the late hour, the PCOM discussion was somewhat curtailed and focused mainly on how costs were determined and what the figures mean in terms of a realistic program.

E. Winterer thanked the Lockheed group for their presentation and their help and participation at the meeting.

364 POTENTIAL ADDITIONAL NON-U.S. PARTICIPATION

JOIDES continues to encourage additional non-US membership. As reported earlier, NSF is developing a plan to involve additional non U.S. membership (some at reduced cost and reduced priveleges) which it will

present at the May Executive Committee meeting. Canada, Australia, the Netherlands, and Norway have actively expressed an interest and/or have observed at recent committee meetings. NSF is "in touch" with several additional nations which it has invited to a May (1982) meeting in Washington to review the program. John Keene, representing Australia, attended the present meeting and reported that the Consortium for Ocean Sciences (COGS) initiative for joining IPOD remained strong and was in fact even gaining support within the Australian scientific community. The Australians will soon decide which government agency will represent the Australians and negotiate the proposals and/or memorandum of understanding. The Bureau of Mineral Resources strongly supports the program and is a likely candidate. The Australians hope that government to government negotiations can begin early next year (1983) so that Australia can join in on the planning of the 8-year program. Keene noted that because Leg 90 will be drilled in the Australian region, additional interest has been stimulated among the Australians. (The PCOM also recommended that C. von der Borch be a co-chief scientist on the cruise.)

Discussion. In response to a query Keene said that the Australians could not join before the end of the current phase (FY 1982-83) because the agencies involved in the decision-making and negotiations simply cannot move more quickly. E. Winterer thanked Keene and the Australians for their continued interest and support.

365 FUTURE MEETINGS

The Planning Committee will next meet

7-9 July 1982
International Institute for Mineral Resources Development
Fujinomiya, Japan
(Kazuo Kobayashi - coordinator)

6-8 October 1982
Lamont-Doherty Geological Observatory
Palisades, New York
(Dennis Hayes - coordinator)

25-28 January 1983
Texas A&M University
College Station, Texas
(William Bryant - coordinator)

J. Cann invited the PCOM to hold its summer 1983 meeting in the United Kingdom; specific dates and sites will be discussed at a later meeting.

366 CLOSING REMARKS

E. Winterer thanked Jose Honnorez for the excellent arrangements for the meeting which was exceptionally complicated by evening sessions and a large attendance (Panel chairmen, NSF, JOI, Lockheed and DARPA). The Planning Committee members also enjoyed the reception held at

the Rosenstiel facility.

The Planning Committee applauded E. Winterer for his job as Planning Committee chairman during the very critical 1980-82 period noting his very large contribution addressing forward planning and bringing JOIDES through a very busy and difficult period.

E. Winterer adjourned the meeting at 1200 on 29 February 1982.

SHIPBOARD COMPUTER SYSTEM DESCRIPTION

Introduction

The Deep Sea Drilling Project proposes to place a medium-sized minicomputer system on board GLOMAR CHALLENGER in order to improve data collection and data handling activities at sea. This computer system was given top priority in a list of scientific improvements for the ship in the 1980 Program Plan. We anticipate that installation of the computer system will result in inprovements in drilling safety, data quality and data presentation in Deep Sea Drilling publications.

Recent advances in computer technology make it possible to design a very powerful computing system which is modest both in physical size and cost. The system being proposed will handle the initial tasks well and allow for future system expansion without any loss of investment. Because the system is compact and uses only standard off-the-shelf components, it will be completely portable should the Project decide to employ a different drilling vessel some time in the future. All software investments would be maintained in this type of system transfer.

Initial System Objectives

Prior to installation of the computer system on board GLOMAR CHALLENGER, it is our intention to provide software to accomplish three main tasks. These tasks will provide improvements in drilling safety and data quality and a reduction of scientific and technical workloads.

Task #1. Gas Chromatograph Data Acquisition and Processing

When the GLOMAR CHALLENGER is drilling in gaseous sediments, it is necessary to perform continuous gas chromatograph analyses in order to monitor potential hydrocarbon content of the gases. The analyses of a gas sample by a gas chromatograph can take anywhere from 5 to 30 minutes, depending on the type of chromatograph in use. In order to provide a complete analyses of a particular gas sample, more than one chromatograph must often be used. The raw data signals from the gas chromatograph are fed through an integrator to assist in the computation of the area under various peaks in the gas chromatograph curve. When several chromatographs are being used to analyze one sample, they often must share the use of the integrator, requiring the samples to be run in series mode instead of parallel mode. Running the samples in series mode greatly increases the total elapsed time between receipt of sample and the availability of meaningful results.

Resulting hydrocarbon content data are very important in deciding whether or not to continue drilling the hole and potentially could effect the safety of the ship. During an analysis of potential methods for speeding up gas chromatograph processing, it was suggested to add more integrators to permit running samples in parallel. Investigation of the costs involved in adding sufficient additional integrators indicated that a small minicomputer capable of performing the same functions as well as additional computational functions could be bought for approximately the same cost as additional integrators. This realization was in fact the impetus for considering placing a minicomputer system on board GLOMAR CHALLENGER at this time.

The proposed system will have the ability to monitor all five gas chromatographs simultaneously thereby permitting them to be used for sample analyses on a completely independent and a full parallel mode. Data will be collected and completely reduced providing scientists on board with the concentrations of hydrocarbon fractions. The data as computed will then be stored on disk for future reference and transfers via tape to the main DSDP database.

Task #2. Single Channel Seismic Data Acquisition

Using a special analog to digital interface designed by the Marine Technology Group of Scripps Institution, it is possible for a minicomputer to sample seismic data at a sufficiently high data rate to be able to permit digital reconstruction and enhancement of the seismic record. The direct digital collection will proceed in parallel to the existing analog recording. Unlike analog data, which can only be examined visually on the original trace recordings, digital data can be subjected to post processing to improve the quality of the display. Through the use of existing signal processing algorithms, it is possible to remove much of the interference and clutter usually associated with seismic records and to achieve a much clearer presentation of reflector horizons.

A prototype of this collection system is already in use on board a Scripps ship, and is performing well. Software has been written which runs on the Prime computer at Scripps to perform the essential post processing functions and to create improved displays of data. Using very high density magnetic tape recorders, we believe it will be possible to record seismic data for a complete day of steaming on three 2400-foot magnetic tapes. These tapes would then be sent back to Scripps for processing. The computer system being specified has the computational potential to perform this post processing on board the ship, if appropriate peripheral devices were provided for display of the data. Shipboard

post processing is to be reserved for future enhancement of the system.

Task #3. Heat Flow Instrument Data Collection

Our coring and piston coring operations will include downhole heat flow measurements - several hundred readings per core. These heat flow measurements are taken in situ and are stored within the downhole heat flow instrument. The computer system will later collect these measurements from this instrument, process them, and display the results.

Task #4. Data Entry, Management and Display

The proposed computer system which has the power to accomplish the very high density data collection required by the chromatographs and seismic experiment can easily accept additional low volume manual inputs simultaneously. It is our intention to provide a computer terminal in the core lab where scientists and technicians can directly enter readings from experiments which will be computed interactively and the results displayed at the terminal. These results will then be recorded within the data management system and be available for subsequent query and display.

It is felt that the display function in particular will relieve the shipboard scientists of many hours of tedious hand plotting of data which is necessary to get an overall view of the meaning of the collected data. The system will include a graphic display screen and a compatible hard copy device. The screen will be able to create displays of data at very high speed. Those displays which are suitable for publication or that the scientist wants to keep for personal reference can then be transmitted to the hard copier which will produce an 8-1/2 by 11 inch page size plot of the data displayed on the screen. These hard copies are good enough to be published directly in the informal publications of the Project, such as the Hole Summaries and ICDs.

System Implementation

Hardware

While the diversity of available computer products in today's marketplace would permit a number of potential system hardware implementations, it is our feeling after interviewing several vendors that the hardware implementation will comprise essentially the components listed below. Please refer to Figure No. 1 for functional shipboard arrangement of the components.

Central Processing Unit - A medium-range minicomputer with approximately 256,000 bytes of random access memory to provide for the large data buffers associated with the high speed collection of data and to permit the simultaneous execution of more than one computer

program. The machine will include interfaces to permit it to converse with various input/output devices and to monitor the scientific instruments. The internal speed of the CPU will permit it to perform the proposed initial tasks and still have additional capacity for future experiments. In order to protect the CPU from variations in shipboard power, it is anticipated that a line isolation transformer will be used.

Remote Analog to Digital Input Module - In order to collect data from the gas chromatographs it will be necessary to employ a special interface which will periodically sample the analog signal from each of the chromatographs and convert it to digital form. The computer can then collect these digital readings and accumulate them for analyses. The very low signal levels of two of the gas chromatographs will require preamplifiers to provide an adequate signal for the A/D converter. The A/D converter will be located adjacent to the instruments and the digitized signal will be transmitted from the A/D converter to the Central Processing Unit for computation.

Disk Storage - A hard disk will be provided with at least 10 million bytes of capacity. This will allow us to temporarily store data being collected in the high speed data acquisition experiments prior to recording the data on tape. The disk also represents the central storage unit for the data management and display function. Data entered into the system or computed by the system can be stored on the disk in such a way that it will be available to staff members from various terminals located on board the ship. The disk is the essential storage device to permit the subsequent analyses and display of data collected over a period of time.

Tape Drives - We will provide two 10.5 inch reel, 1600 BPI magnetic tape drives to permit data collected on board ship to be transferred to Deep Sea Drilling for inclusion in the main Deep Sea Drilling database. Magnetic tape is the only feasible high volume storage medium which permits interchange of data between computer systems. The tapes will also be used to make periodic backup copies of the contents of the disk.

Interactive Terminals - In order to permit access to data stored in the system and to provide for the control of experiments from various locations within the ship, it is proposed to install five computer terminals in various labs. All of the terminals will be capable of both sending and receiving data. One of the terminals will also be capable of creating graphic displays of stored data. The data displayed on the graphics terminal will also be available as page-sized hard copy from the hard copy unit.

Software - It is our intention that all of the application software required to support the initial experiments will be written

by the Deep Sea Drilling programming staff, with consultation from the system vendors and other groups at Scripps using similar computers. The application software will comprise at least the following modules:

1. Gas Chromatograph - Data acquisition.
2. Gas Chromatograph - Peak area computations.
3. Single Channel Seismic - Data acquisition.
4. Generalized work station data entry.
5. Elementary data retrieval and review modules.
6. Graphic display modules.

The system will be delivered with vendor supplied software which will include the following:

-A real time multi-task operating system. This will permit the simultaneous execution of programs involving data acquisition, data analyses and software development. The mixture of these tasks is handled on a priority interrupt basis by the operating system in such a way that the data acquisition tasks will have highest priority and will not be interfered with by analyses or software development tasks.

-FORTRAN and/or PASCAL compiler. To permit the development of application software on the system.

-An assembly language. Assembly language capability is important for the implementation of particularly critical sections of code which either cannot be written in the available high level language on the system or must be programmed in such a way as to achieve optimum efficiency in time critical operations.

-A program library which will include scientific subroutines, utility programs for the performance of certain system tasks and a diagnostic program library to aid in analyses of hardware problems.

Operations and Maintenance

The bulk of the responsibility for the operation and maintenance of the computer system will fall to the seagoing electronics staff. It is our intention to provide the ET's with formal vendor-supplied training courses and to involve them heavily in the initial system design and implementation. Actual repairs to the hardware will probably be done on a board replacement level. The ET's will, however, be trained to perform all routine maintenance tasks designed to keep the system operational. It is our intention to choose a

vendor who can supply service in as many foreign ports as possible in order to provide repair assistance for more difficult problems.

The actual application programs used to perform the data acquisition and analyses will be designed so that they can be operated by the technical staff and in some cases by the visiting scientific crew. Particular emphasis will be given to providing a natural dialogue that can be easily mastered by the user, so that a great deal of training will not be required before each cruise. We would hope that in addition to the ET's that at least one member of each technical staff would be able to be designated as the primary technician with computer-related responsibilities. This person would receive additional training from the vendor and from our staff and be able to act as a resource person and communications interface while at sea.

Future Potential System Expansion

The system being specified will have the hardware processing capability to assume several more experimental tasks in addition to those being initially specified. It will be our intention to give careful consideration to those tasks currently being performed on board ship which could benefit greatly from computer assisted data acquisition or data reduction.

Each new task to be implemented on board the system will be analyzed for its potential benefit to the scientific and technical staff. Preparation of new applications programs would be handled by the Deep Sea Drilling programming staff utilizing a sister system to the shipboard computer. The best arrangement for the sister system would be to have it installed here at Deep Sea Drilling. Since this represents a considerable expense and is not likely to be implemented in the near future, it is our intention to make as part of our system evaluation criteria, the availability of a similar sister system here at the UCSD campus and to arrange for the use of such a system for software development and maintenance by our staff on a continuing basis.

February 10, 1982

REPORT TO THE PCOM, MEETING OF FEBRUARY 23-26, 1982, BY THE SP4

I. Action Recommendations from the SP4 Meeting, December 2-3, 1982

A. Recommendation 1: (PCOM)

The SP4 is extremely concerned over the possibility that, because of funding cutbacks imposed on the DSDP by NSF, geophysical logging may not be accomplished on some future legs where such investigations are essential. The panel agrees that logging is not a necessity on certain legs, particularly those HPC legs which involve largely shallow penetration in poorly consolidated sedimentary sequences. In many proposed legs, however, the scientific objectives are such that adequate geophysical logs would contribute in a major way to the achievement of these goals. We emphasize below those future legs for which we consider it necessary to complete downhole logging. Brief scientific justifications for downhole logging are provided (Table A). The SP4 strongly recommends that funds by restored or additional funds be sought to support fully the logging effort.

B. Recommendation 2: (PCOM: DSDP Chief Scientist)

The SP4 Panel is dismayed that the budgetary reduction imposed by NSF on DSDP has impacted so severely on logging and developmental engineering. In the case of engineering, if funds are partially restored or new funds found, we recommend that particular attention be given to projects that will improve recovery of core and the determination of in situ physical properties within the current 1981-1983 period of time. The following list of recommended projects represents our priorities:

(1) A new core-catcher for the HPC to recover both sand and mud.
(2) In situ pore-pressure meter or in situ piezocone.
(3) Miniaturization of dip-meter and spectual gamma-ray logging tools.
(4) In situ vane-shear meter for legs dealing with slides and dedicated geotechnical sites.

C. Recommendation 3: (PCOM: DSDP Chief Scientist)

The SP4 Panel strongly recommends that the Technical Manual should - finally - be published as soon as possible. The preferred format should be that of the Initial Report Series ("Bluebooks"). Financial support (order of magnitude $40,000) should be solicited by members of the panel or any other person related to DSDP (PCOM) in order to publish the manual by DSDP.

D. Recommendation 4: (PCOM: DSDP Chief Scientist)

The panel felt that the site NWG in the New Pacific afforded an excellent opportunity to obtain geotechnical properties of a profile through slowly

TABLE A. SP4 Justification for Logging Missions; 1981-83 Challenger Program

Leg	Location	Justification
83	Costa Rica	Logging completed.
84	Mid America Margin	Logging underway - reemphasize that logging is a primary consideration for geotechnical properties.
85	E. Equat. Pacific (HPC)	No recommendation.
86	N. W. Pacific (HPC)	Because of importance to radioactive waste disposal, and the penetration of red clay, we suggest this for second priority.
87	Japan Margin	Absolutely essential - physical properties in stressed fore-arc margin, possible fractured and overpressured zones, over-consolidation.
88	DARPA	We endorse logging, recommended at the expense of DARPA, second priority to DSDP.
89	Old Pacific	Deep hole, variation of physical properties with age and burial, no previous recovery of basement that old.
90	S. W. Pacific (HPC)	No recommendation.
91	Hydrogeological (HPC)	Definitely need logging with basement penetration and again to look at physical properties variations with hydrothermal diagenesis.
92	Mississippi Fan	Highly recommend logging to supply data on details of downhole lithological variation (lithofacies), considering that core recovery may not be complete (especially coarse-grained facies).
93	ENA3	Logging highly recommended for physical properties information to correlate with seismic modelling, etc.
94	N. E. Atlantic	No recommendation.
95	Carribean, N. W. Africa, or New Jersey	Highly recommend if Barbados; highly recommend if New Jersey Transect; no recommendation if N. W. Africa.

D. Recommendation 4: (PCOM: DSDP Chief Scientist) (Continued)

and continuously deposited red clays. It will also provide a good suite of samples for geochemical and petrological studies related to eolian deposition and accordingly should be given very high priority. The panel endorses the proposal that the upper red clay section (above chert) should be double cored so that samples of adequate size can be taken for geotechnical testing.

The proposed site on Nares Abyssal plain was rated at a lower priority because the scientific problems outlined, though most interesting, have had some measure of investigation at sites 417/418 and 386, all well-cored. The proposed HPC hole would probably not get much beyond the Neogene turbidites; thus the double-cored part of the hole is likely to be only in this rapidly deposited sediment. Nevertheless this would provide an interesting contrast with the Pacific red clays if samples, free of compression effects, were to be obtained.

II. Transmittal to PCOM of the general and action recommendations of the SP4 Working Group on Research Activities related to the 1983-88 extension of Challenger-type drilling (See attachment), with report of revised priorities.

III. Information Recommendations from the SP4 Meeting, December 2-3, 1981.

A. Recommendation 5: (DSDP Chief Scientist)

The quality of physical properties obtained from tests on HPC has not been adequately evaluated. A cursory review of limited data is encouraging, but a more detailed evaluation is needed to demonstrate the value of the HPC and to determine specifications for the testing program to optimize information obtained from the HPC. The SP4 Panel recommends that a SP4 ad hoc committee be formed to evaluate the HPC and to provide a brief written report by June 1, 1982.

The results of this effort should include:

(1) Evaluation of available HPC data.
(2) Recommendations for the testing program on HPC cores to optimize the geotechnical information from each core, especially for dedicated geotechnical cores.
(3) Recommendation for changes to the sampler geometry to improve data quality but meet operational constraints (drawing on the experience of industry and previous recommendations of Walton and Sangrey).

The DSDP will be responsible for summarizing and submitting to the ad hoc committee by February 1, 1982 the available geotechnical information from HPC and companion data on rotary core.

Kraft will chair the ad hoc committee and solicit assistance from other panel members as appropriate.

B. Recommendation 6: (DSDP Chief Scientist)

The SP4 received a request to revise the existing Sediment Classification. A special ad hoc committee consisting of W. E. Dean (Chmn.), M. Leinen and Dorik Stowe has been appointed to revise and propose a new classification by June 1, 1982. The proposed classification is to be reviewed by ten individuals, as well as during open discussions at the Fine-Grained Sediments Meeting in Halifax, and the International Association of Sedimentologists in Hamilton (both in August, 1982.) Deadline is September 15, 1982.

C. Recommendation 7: (PCOM; DSDP Chief Scientist)

SP4 recommends that an ad hoc committee be formed to evaluate existing techniques and instrumentation aboard the Glomar Challenger. The committee will obtain advice from scientists and engineers who have participated as staff members aboard the Challenger within the past three years and have been responsible for the physical and mechanical properties investigations. Areas of concern will be with:

(1) unconsolidated sediments,
(2) semi indurated sediments, and
(3) hard rock.

The committee will evaluate information from the scientific and engineering community and formulate final recommendations to be implemented with recommendations to upgrade procedures and instrumentation. A request for funding the examination of the existing shipboard facilities while the Challenger is in port is pending. A streamlined version of procedures and techniques should be prepared by the committee and members of DSDP.

D. Recommendation 8: (PCOM: DSDP Chief Scientist)

SP4 strongly endorses continuation of the color-microfilm procedure of the cores. Given the fact that photos represent the only way to preserve the original color-stage of the cores, information of primordial importance would otherwise be lost. In addition, it should be stressed that archive halves will not be accessible any longer for years to come. Color photos thus represent the only information about undisturbed core material in the near future.

E. Recommendation 9: (PCOM; DMP: DSDP Chief Scientist)

The SP4 endorses the cooperative venture between the DSDP and Fugro B.V. to develop a downhole cone penetrometer-piezometer (piezocone) at Fugro's expense. It is recommended that the Chief Scientist respond favorably to the telex from Fugro to the DSDP asking for endorsement of the Fugro effort. The Chief Scientist has implemented the recommendation.

F. Recommendation 10: (PCOM: IHP: DSDP Chief Scientist)

The SP4 endorses the application of an on-board computer to core descriptions, smear slides, and other relevant studies and offers the chief scientist assistance of panel members (by the ad hoc panel mechanism) to affect these applications.

G. Recommendation 11: (PCOM: IHP: DSDP Chief Scientist)

The SP4 panel recommends replacing the ICD's with microfiche copies of the shipboard hole summaries, provided copies of the shipboard biostratigraphy and section-by-section sediment description forms are included. This will allow more information to be distributed for sampling purposes than is presently possible, at lower cost and more rapidly.

It is further recommended that this change in policy be widely announced (as in Geotimes, Joides Journal, etc.) and that the present distribution lists for ICD's be followed in the distribution of this microfiche.

IV. . Panel Membership:

Rotate off: M. A. Arthur, J. W. Handin, O. H. Pilkey, A. F. Richards.

Replacements: R. L. Carlson, Texas A & M University. (for Richards)

W. E. Dean, U.S. Geological Survey (Denver). (for Arthur)

Gregory Mountain, LDGO. (for Pilkey)

M. T. Ledbetter, University of Georgia. (for Handin)

ATTACHMENT

(1) List of Priorities of Scientific Goals for Sedimentary Drilling (Prepared by SP4 WG, December 1, 1981 Meeting, Their Table 3).

(2) Revised priorities, instrumentation needs, sedimentary drilling (Prepared by SP4 WG, December 1, 1981 Meeting, Their Table 4).

TABLE 3. Priorities on scientific goals of both SP[4] WG White Paper (May 22, 1981) and COSOD WG#2 White Paper (Nov. 16, 1981).

A. OVER-RIDING THEMES REQUIRING SYNTHESIS OF CORE AND OTHER MARINE DATA (ASSUMING GOOD RECOVERY)

1) Sedimentary Record of abyssal circulation. +

2) Mass balancing of sedimentation. +

3) Unconformities and hiatuses. *+

4) Stratigraphic/mineralogic correlation of seismic-defined units. *

5) Record of Depositional Facies in specific tectonic domains. *

B. SPECIFIC PRIORITIES REQUIRING DRILLING FIRST ORDER PRIORITIES (No ranking implied)

A. Slides, slumps and debris flows. *+

B. Turbidite fans. *+

C. Contourite drifts and mudwaves. *+

D. Anoxic sediments, oxygen-minimum zones and phosphates. *+

E. Sea level changes and deep-sea sediments (and carbonate platforms and reefs). +

F. Sediment hydrology and hydrothermal diagenesis. *+

SECOND ORDER PRIORITIES (No ranking implied)

A. Red Clays. *

B. Burial and thermal diagenesis of sands and clays and resulting mechanical, chemical, mineralogical and physical changes. *

C. Evaporites. +

D. Glacial marine sediments. +

THIRD ORDER PRIORITIES (No ranking implied)

A. Silica diagenesis. +

B. Early opening sediments. +

C. Carbonate dissolution profiles. +

* Recommended by SP4 Working Group on Long Range Plans.

\+ Recommended by COSOD Working Group #2.

TABLE 4. Revised priorities, instrumentation needs, sedimentological and physical properties research, DSDP/IPOD, 1981-83, recommended by SP4 Working Group on Long-Range Planning.

A. Required for General Purposes

PRIORITY #1. A new core-catcher for the HPC to recover both sand and mud.

PRIORITY #2. In-situ pore pressure meter.

PRIORITY #3. Miniaturization of dip meter and spectral gamma-ray logging tools.

B. Specific instruments for specific legs addressing specific problems

PRIORITY #1. In-situ Piezo Cone, for legs dealing with slides and dedicated geotechnical sites.

PRIORITY #2. In-situ vane shear meter for legs dealing with slides and dedicated geotechnical sites.

Status of DSDP Reference Centers

February 1982

1. Selection of samples by Riedel and Saunders is now complete up to the end of Leg 46.

2. The position as regards processing is as follows:

   Nannofossils and Lithology (work being done at Scripps)
   Completed: Legs 1, 2, 7, 8, 9
   Two-thirds completed: Legs 16 through 23
   Samples in hand but not yet processed 10 through 15

   Foraminifera (work being done in Basel)
   a) Samples requested: approximately 2466
      Samples received in Basel: 1597
      Samples processed: 1143
   b) Legs completed: 1 through 12, 16 through 23
      Samples recently received: 13 through 15, 24 through 26

3. The original concept was for 5 reference centers. This has now been raised to 8, making the size of some of the earlier samples inadequate for splitting beyond 4. Saunders reviewed the prepared samples in Basel and sent to Riedel in November 1981 a list of 54 samples from Legs 1 through 6. These have been resampled as close to the originals as possible and are in transit to N. de B. Hornibrook in New Zealand, who will do the additional work there.

4. The Foraminiferal samples listed as completed by the Basel Reference Center are now ready for splitting and the work will be completed by May 31 at which time the samples will be dispatched to other Centers.

   The Nannofossil and Lithologic samples listed as completed by Scripps Institution are in the form of mounts on glass slides. Hand carrying is appropriate for these and they will await visits to DSDP of suitable scientists from the countries involved.

   When the above mentioned foraminiferal, nannofossil and lithologic samples have been distributed, there will be collections of useful size at the reference centers.

5. Status of individual Centers:

   Scripps Institution: formally designated in 1980. Processing Nannofossils and Lithologic smearslides. Curator, W. R. Riedel.

   Lamont Institution: situation unclear since change of director. Being clarified. Expected to process radiolarian samples.

   Smithsonian Institution: formally designated in 1981. Curator, R. Cifelli.

   Natural History Museum, Basel: formally designated in 1975. Processing Foraminiferal samples. Curator, J. B. Saunders.

APPENDIX III
(PCOM Feb 1982)

New Zealand Geological Survey, Lower Hutt: formally designated in 1981. Processing some additional Foraminiferal samples. Curator, N. de B. Hornibrook.

Japan: formally designated in 1981. Initial arrangements being made on behalf of Japanese IPOD organization by Takayanagi of Tohoku University, Sendai. Processing Diatom samples.

U.S.S.R.: we have conflicting indications as to whether the collection is to be housed in the Institute of the Lithosphere, or the Institute of Paleontology, both in Moscow. Also it is not clear as to whether the curator will be J. A. Basov or V. Krasheninnikov.

7. Future Plans

a) It is hoped that a continuation of sample selection will be possible in January 1983, if Saunders is able to visit SIO at that time.

b) It is considered that it is too early to meet with other curators during 1982, due to administrative delays in setting up centers in the various countries. A possible goal would be a meeting at the New Zealand Repository in February 1983, at the time of the Pacific Science Congress to be held in Dunedin, N.Z.

W. R. Riedel

J. B. Saunders

S.I.O. 10 February 1982

Distribution:

Chairman, Planning Committee
Chairman, Information Handling Panel
Chairman, Stratigraphic Correlations Panel

UNITED STATES GOVERNMENT

memorandum

DATE: February 22, 1982

REPLY TO ATTN OF: D. E. Appleman, Chairman, Information Handling Panel

SUBJECT: Report of the February 1982 meeting of the Information Handling Panel to the JOIDES Planning Committee, February 21, 1982.

TO: E. L. Winterer, Chairman, JOIDES Planning Committee

The Information Handling Panel met on February 4 and 5, 1982 at DSDP, LaJolla. The following members attended: D. Appleman (chairman), J. Creager, J. Hathaway, A. Loeblich, Jr., M. Loughridge, M. Melguen, J. Nowak, and P. Woodbury. J. Saunders attended the entire meeting as an honorary member. Other guests who were present for all or part of the meeting were L. Musich and Barbara Long, DSDP; A. Inderbitzen, and S. Toye, NSF; and E. L. Winterer, JOIDES. A detailed report of the meeting follows. The principal recommendations of the Panel are contained in the report; they are summarized briefly here.

1. The Information Handling Group be supported to achieve and maintain currency of all DSDP data bases by September, 1983.

2. The information handling and curatorial efforts be maintained at full strength during any hiatus in the drilling program.

3. The Mesozoic Paleo data base be incorporated as part of the DSDP data system.

4. Maintenance of the GUIDE and Keyword Index data bases be continued, and ways to continue microfiche production of the Index be explored.

5. Joides should continue to support the establishment and maintenance of the Paleo Reference Centers with necessary travel funds.

6. The DSDP/IPOD Data Center at BNDO, Brest should be supported with adequate personnel and funds.

7. Adequate planning for information handling be included in all planning for the future of scientific ocean drilling.

8. Ready access to a shore-based duplicate of the new shipboard computer system be provided to the Information Handling Group at DSDP.

We would also like to request formally that Dr. John Saunders of the National History Museum, Basel, be added to the Information Handling Panel. He can provide his own travel funds to attend our annual meeting; and his presence is invaluable in view of our interest in establishing the Paleo Reference Centers.

APPENDIX IV
(PCOM Feb 1982)

Report of the Information Handling Panel to the
JOIDES Planning Committee, February 21, 1982

I. Planning for the future of all scientific information produced by the program. Once again the panel emphasized the importance of including information handling, data and sample management in plans for the future of scientific ocean drilling. Many scientists have pointed out the critical role which analysis and synthesis from DSDP data bases will play in future scientific planning. We therefore feel that it is increasingly urgent to complete the various data bases, and to finish the software and documentation which is necessary to make this data truly accessible to the scientific community.

While we recognize that no one wants to draw up doomsday scenarios, we point out that the best insurance against any eventuality in the future is to have all of the information handling work as up-to-date as possible at all times. The status of various data bases and data handling efforts is discussed below In order to meet the future requirements of the program, we strongly recommend: (1) that sufficient funds, personnel and space be provided to the Information Handling Group at DSDP to achieve and maintain currency of all data bases by September 30, 1983. We also recommend (2) that within this period, they be allowed the additional resources to develop some of the applications software which the scientific community is requesting to aid in data syntheses. Finally, we urge (3) that the Information Handling and Curatorial effort must be maintained at full strength during any proposed hiatus in drilling; both to complete the backlog of information in the pipeline and to prepare for the next phases.

II. Paleo Data Base. This critically important data base is now encoded through Leg 44, and the data are being reviewed for quality and possible omissions of source material. Many scientists, including the Stratigraphic Correlations Panel, have commented on the need for zonal data to be included. The IHP recommends that zonal data, as reported in the Initial Reports, be encoded for all future legs, and that this data be added to previous legs as soon as possible. This should be done for both the Mesozoic and Cenzoic data bases.

The panel notes that some difficulties arise in answering paleo data requests due to the split in data bases. Cenozoic data is handled at DSDP; Mesozoic data by P. Cepek at Hannover. Although Cepek has sent his data and documentation to DSDP, they are not at present accessible by standard DSDP retrieval programs. The panel recognizes Dr. Cepek's great contribution in encoding this data base; however, they feel that DSDP must have the capability to access this data rapidly. We recommend that the IHG write the necessary software to accomplish this as soon as possible

We further recommend that DSDP make known the availability of the Mesozoic Paleo data and fill requests for this file, while keeping Dr. Cepek informed of each request and letting users know that it is Cepek's data base they are using. Our German panel member, Mrs. J. Nowak, will discuss this arrangement with Cepek.

III. Igneous Data Base. The status of this data base is summarized in the attached IHG Report. Good progress appears to have been made during the past year.

IV. Sediment Data Base. The Core Description and Smear Slide files are encoded through Leg 59. See IHG Report for details. The data base is expected to be complete through Leg 70 by September, 1982.

V. GUIDE. The Information Handling Group had tentatively decided to discontinue encoding this summary data base, both to save staff time and because the separate primary data files are now directly searchable. However, the Panel found that (1) some primary data, such as X-ray Mineralogy, is only available from GUIDE; (2) GUIDE is very useful to a variety of scientists, as discovered by those who handle requests such as Marthe Melguen (BNDO-Brest) and M. Loughridge (NGSDC-Boulder). Also, L. Musich has produced a guide for encoding GUIDE so that a relatively untrained student could do the work. Therefore the panel recommends that the encoding of GUIDE be continued as suitable help is available, and that an effort be made to use student help this summer to bring GUIDE up-to-date, as a service to DSDP data users.

VI. Keyword Index. This index to published papers and subsequent investigations has proven to be of great use, especially to first-time users of DSDP data. For financial reasons, DSDP plans to halt microfiche distribution to libraries. They would substitute custom searches of the Keyword Index file. However, the microfiche is extremely valuable for users in foreign data centers, for example. We urge that DSDP work with M. Loughridge of NGSDC and others to see if ways can be found to produce the fiche editions, at least on a limited basis. We also strongly recommend that all Initial Report chapters be included in the Keyword Index file as soon as possible.

VII. DSDP Paleo Reference Centers. The Information Handling Panel continues to promote the establishment of these centers, and good progress seems to have been made. A summary report by W. Riedel and J. Saunders has been distributed. Eight centers are eventually proposed throughout the world; those formally designated so far are Scripps and the Smithsonian in the U.S., the Natural History Museum in Basel, the New Zealand Geological Survey, and Japan. Others are proposed for Lamont-Doherty and the USSR. We feel that these centers are essential for future scientific research on DSDP samples, and that they will greatly enhance the use of DSDP data. We recommend that JOIDES continue to support the establishment and operation of the Paleo Reference Centers, especially by providing Riedel and Saunders with essential travel funds when necessary.

VIII. Transfer of data to other organizations. The NGSDC (World Data Center A) at Boulder has received the Site Summary File, advertised it and sold 13 copies on tape to date at $100 each. The Core Curators' File through Leg 44 has been transferred, but the Site-Ordered Bibliographic File is not yet ready.

No transfers were made with the USSR IPOD data centers during the year.

The French Data Center has been very successful. Established by the Bureau National des Donnees Oceaniques of CNEXO, under the direction of its Chief, Marthe Melguen, the DSDP-IPOD Data Bank at the BNDO has been operational since last summer. An excellent publication describing this Data Bank has been published as Report No. 46 of CNEXO, by M. Melguen; a copy is attached. 200 copies were mailed in December to institutions and individuals in France, Germany and Britain and the Data Bank was advertised verbally at a meeting of the Societe Geologique de France and at the last IPOD meeting in France. They received their first data request in the Summer of 1981, followed by increasing

numbers, some very extensive. Samples of questions received are attached.

Marthe Melguen cited her urgent need for a technician with a geological background to process data requests, so as to speed the output to users. The panel recommends that such support be made available, as the BNDO Data Bank serves all European scientists and is of great importance in facilitating use of DSDP data in research and exploration. We also urge that data files be transferred to BNDO as soon as possible to keep its data bank current.

IX. Shipboard Computer System. The Panel is pleased that the long-awaited shipboard computer system will be installed this summer. The Information Handling Group will have to devote most of its programming energies for the coming year to the development of operational software for this system. We recognize the importance of this project, especially as a model to gain experience for the more elaborate shipboard systems which will certainly be included in any future ocean drilling program. However, we hope that the impact of this work on the completion and maintenance of the scientific data bases and their associated software can be held to a minimum. We recommend that DSDP management reallocate resources, where possible, to achieve this goal of minimal disruption.

The panel feels that it is essential to the success of the onboard computer system that the Information Handling Group have ready access to a comparable shore-based system. It is absolutely necessary to have a means for software development and debugging without interfering with drilling operations. We strongly recommend that such system availability be provided to the IHG.

X. German access to DSDP/IPOD data. The German government has decided not to develop a full-fledged data bank, but to encourage the development of specific projects such as Cepek's on Mesozoic Paleo data. Mrs. Judit Nowak of the BGR, Hannover, reports that there is a need for better information about DSDP/IPOD data in Germany. She suggests possible establishment of an on-line system to access the Site Summary and Keyword Index Files. This would provide a place for interested scientists to start; if they wanted more information they could then go to BNDO in Brest or DSDP in La Jolla. The Panel recommends establishment of this limited introduction to DSDP data in Germany. We hope the BGR will support this work.

XI. Publication. The Panel is delighted that the Sedimentary Petrology Techniques Manual is being readied for publication; the 17 papers completed to date will be typeset and final art work completed at DSDP. We recommend that DSDP consider publication through NGSDC if funds are not available for publication this year in-house; and the NGSDC also be considered as a possible publisher for the Pacific Lithologic Logs.

XII. Improvements in data bases and their usefulness.
(1). Geophysical under-way data. M. Melguen reports hearing from geophysicists that these data are not useful because the five-minute interval is too coarse. The panel recommends that DSDP management investigate and report on this problem. We also recommend that an integrated computer-based system be provided in future planning for collecting underway and other geophysical data.

(2). Special data programs. M. Melguen commented on the usefulness of special programs to extract data from the files in various ways. The existing program to produce Selective Range Charts from the Paleo data base is a good example.

Other special programs which have been requested include (a) a program to compute for each site the paleolatitude, paleolongitude and paleobathymetry; (b) a catalog of Basement rocks. Many such programs would be most easily produced by the Information Handling Group. Because of general applicability of (a) above to a wide variety of problems, the Panel recommends that the IHG cooperate with M. Melguen in developing a Paleo-latitude, -longitude and -bathymetry program as soon as adequate manpower is available, but not at the expense of updating the primary data bases.

XIII. Documentation and Publicity. The Panel notes that whereas the auxiliary DSDP/IPOD data base centers in France and the USSR have produced excellent publications documenting and describing their services, there is still no brochure on Science Services at DSDP. Furthermore, the Chief Scientist has suggested that a comprehensive DSDP Bibliographic Reference List be produced, including both a list of papers alphabetical by author and an index by subject. The panel strongly supports both of these projects, but feels that they should not be allowed to interfere with work on the primary data bases. We recommend that the production of a descriptive brochure and of a comprehensive bibliography be given a high priority when additional resources can be made available.

XIV. Information Handling in future drilling programs. The panel feels that adequate provision for data storage and retrieval and information handling of all sorts must be included in any plans for future scientific ocean drilling. We consider the statement "Scientific Data Management and Computer Operations" by the Information Handling Group, included in the DSDP 5-year drilling proposal, to be a minimum. For the future, we think shipboard scientists will require the following:

1. Adequate word-processing equipment available to individual scientists, and suitable areas to use it.
2. Access to complete DSDP data bases on shipboard.
3. Adequate stand-alone computers or computer terminals to handle all onboard laboratory equipment and to facilitate real-time processing of samples.
4. Communications between onboard terminals and central data files.
5. Computer terminals available at all work stations as required for efficient operation and communications.
6. Extensive software to provide for on-line data entry, visual interactive graphics displays and plotters, and data syntheses.
7. Ship-to-shore satellite data links.
8. Sophisticated equipment for retrieval of visual data, such as videodisc recording of paleo reference data
9. Access to complete identical duplicate computer equipment by shore-based personnel for debugging and software development.

XV. Attachments. Attached is the 1981 Report to the JOIDES Information Handling Panel on DSDP Information and Publications Activities, and the 1982 Report on the Status of DSDP Reference Centers.

Office of Marine Geology
U. S. Geological Survey
P. O. Box 6732
Corpus Christi, Texas 78411

January 25, 1982

To: Chairman, JOIDES Planning Committee

From: Chairman, JOIDES Pollution Prevention and Safety Panel

Subject: Annual Report

1981 SAFETY REVIEWS

The JOIDES Safety Panel met three times during 1981 to review Legs 80 through 84. There were a total of 70 sites proposed, 52 being margin sites and 18 oceanic. Of these sites, 63 were approved as proposed, 5 were approved with modification, and 2 were disapproved.

MEMBERSHIP

Dr. Rustum J. Byramjee, Director of the Research and Energy Department for TOTAL in Paris has replaced Jean Laherrere as the Franch representative on the PPSP.

SAFETY REVIEW PRESENTATIONS

The Safety Panel has noted a marked improvement in the quality of safety review presentations over the past two years, and wishes me to bring this to the Planning Committee's attention. Clearly, the site proponents and working groups, especially those involved in continental margin drilling, are devoting more attention to the details that provide safe locations. The increased use of structure, isopach, and facies maps, the better quality of processed geophysical data, and more intensive reviews of regional geologies and exploration histories have resulted in fewer disapproved sites at safety reviews. We are pleased at this trend toward the elimination of hazardous drill sites prior to safety review by the site proponents themselves, rather than a dependance on the Safety Panel to weed out the potential disasters.

Louis E. Garrison

Louis E. Garrison
Chairman

APPENDIX V
(PCOM Feb 1982)

PROPOSED OPERATIONAL PLANS FOR DSDP LEG 88 - 17 AUG - 16 SEP 1982

Introduction:

DSDP Leg 88 is a 30-day mini-leg similar in purpose and scope to DSDP Leg 78B. Leg 88 is a cooperative venture between NSF and DARPA. NORDA is DARPA's operating agent. M/V GLOMAR CHALLENGER is scheduled to depart Hakodate, Japan on 17 August, drill near 45°41'N latitude/162°08'E longitude (Fig. 1), and deploy borehole seismometers. In conjunction with USNS DESTEIGUER, a site survey and refraction shooting plan will be completed. CHALLENGER will return to Yokohama, Japan on 16 Sept.

Site Location:

Selection of an optimum drilling site will be based on sub-bottom profiles collected by GLOMAR CHALLENGER enroute to the prospective area listed. The factors to be considered in choosing a drill site include minimum topographic relief, minimum sediment thickness in the absence of current scour evidence as seen on both the seismic profiles and the 3.5 kHz bathymetric profiles, and minimum 'apparent' basement relief. Areas containing apparent chert layers will also be avoided.

Areas of minimum topographic relief are necessary to simplify deployment and subsequent recovery of the borehole seismometer recorder pressure vessels. Areas of apparent active current scour will be avoided to simplify control of the seismometer re-entry sub and associated cabling and to provide a more complete sediment section for subsequent paleoenvironmental analyses. Areas of suspected chert deposits will be avoided as possible impediments to rapid drilling. In the event that all previous factors obtain, a basement low will permit the drilling of a more stable hole than a basement high because of the potential for lessened weathering.

Site Survey:

Elements to be determined during the site survey are detailed surface and basement topography and sediment distribution for about 70 kms around the site, limits and trend of the Hokkaido Fracture Zone, and locations of major seamounts for several hundred kilometers landward of the site. The site survey will be completedby the support ship, USNS DESTEIGUER, scheduled to depart Adak on 19 August and arrive at the drill site on 24 August. The site survey will begin immediately on DESTEIGUER's arrival.

A post-drill site survey will avoid the problems that have occurred when CHALLENGER is forced by weather or other unforeseen circumstance to drill outside the surveyed area. This problem has previously prompted recommendations that additional funds be requested to perform post-drilling site surveys (Proposal for JOIDES Advisory and Site Survey Program, FY 1982-83).

Between her arrival on site on 24 August and the beginning of the refraction shooting program on about 5 September, DESTEIGUER will run a site survey along track lines similar to those shown in Figure 2 (not to scale). These track lines are about 2700 kms long and will require about 8 days to complete (14 kms/hr (7.6 kts) SOA). The remaining 3 days will be used to run approximately 1000 kms of long transects South and West of the site. These track lines will permit at least one crossing of each OBS location and provide sufficient coverage for reliable correlations.

Records collected during the site survey will be combined with previously compiled data and total magnetic intensity (proton precession) routinely collected by DESTEIGUER. NORDA will reduce and collate these records and prepare bathymetric, isopach, and structural charts of the area surveyed. Magnetic anomalies will be correlated and an isochron chart produced if data are sufficient. These data will be published (open literature, Initial Reports, or NORDA Reports, as appropriate) and submitted to the IPOD Data Bank at Lamont-

Doherty Geological Observatory. NORDA is required to forward all unclassified data to NGSDC.

Refraction Program:

MSS will conduct an extensive refraction shooting experiment in cooperation with the Hawaii Institute of Geophysics and Oregon State University. Refraction data should permit the determination of seismic structure surrounding the MSS site and its comparison with "normal" oceanic crust. In addition, the planned OBS array will be used in combination with borehole seismometers to study the fine structure of the very shallow crust, the structure of the lithosphere beneath the site and in the surrounding region, and regional characteristics of seismic propogation.

With the combination of OBS array and borehole seismometers, noise levels can be quantitatively compared, amplitude, travel times, and spectral content varabilities can be evaluated, and waveform coherency determined. These factors have a definitive bearing on the basic MSS question - are borehole seismometers worth the additional efforts necessary for their emplacement?

Figure 3 shows a probable layout for the OBS array and refraction shooting tract. OSU will provide 5 of the instruments and HIG the remainder. In addition, OSU expects to have a pair of digital OBSs on board DESTEIGUER. These instruments must be deployed and recovered along each refraction profile because of their relative recording time. OBSs at 500 kms and 250 kms NE of the drill site will be deployed by DESTEIGUER enroute to CHALLENGER and recovered by DESTEIGUER prior to departure for Adak on or before 11 Sept. Other parts of the array will be recovered when the borehole seismometer recording modules are recovered in October.

The refraction profiles are 710 kms long with long axis (570 kms) oriented parallel to regional spreading; the intersection is the drill site. Along these lines DESTEIGUER will shoot approximately 400 shots (including sensor orientation) totaling approximately 19 tons of explosives. Charge sizes will range between 2 kg and 1630 kgs (two charges of this weight will be detonated). Shooting time

will require approximately 44 hrs at 18.5 kms/hr SOA (LYNCH, MSS-81) or 49 hrs at 16.5 kms/hr SOA with allowance for repositioning.

If time and forecasted weather conditions permit, all refraction data will be recorded while the borehole seismometer recording modules are on board CHALLENGER. Tapes will be returned for immediate processing and distribution in accordance with established procedures. OBS data is being collected under the auspices of ONR; data distribution will be under their guidance. If time and forecasted weather conditions are unfavorable, data recording modules will be deployed prior to refraction shooting and data recovered in October by another ship.

On Site Operations:

CHALLENGER will define the specific drill site with standard profiling equipment. After the site is marked and pilot hole made in accordance with standard operating procedures, drilling will be continued until basement is reached. The HIG borehole seismometer will be deployed as on Leg 78A, a sensor orientation shooting circle will be run by DESTEIGUER, and the HIG recording package deployed up-current. Subsequently the ship will be offset by a distance to be determined by the Captain and a reentry cone set. The hole will be drilled to basement and the borehole seismometer installed as on Leg 78B. DESTEIGUER will shoot a sensor orientation circle.

If time and weather forecasts are favorable, refraction shooting will be completed as previously described, and data recording module deployment and recovery equipment will be deployed. If time and weather are unfavorable, the data recording module deployment and recovery equipment will be emplaced (Fig. 4), and CHALLENGER will return to port while DESTEIGUER completes refraction shooting. In either case, on site operations are expected to require 14-18 days. The margin for bad weather is extremely small.

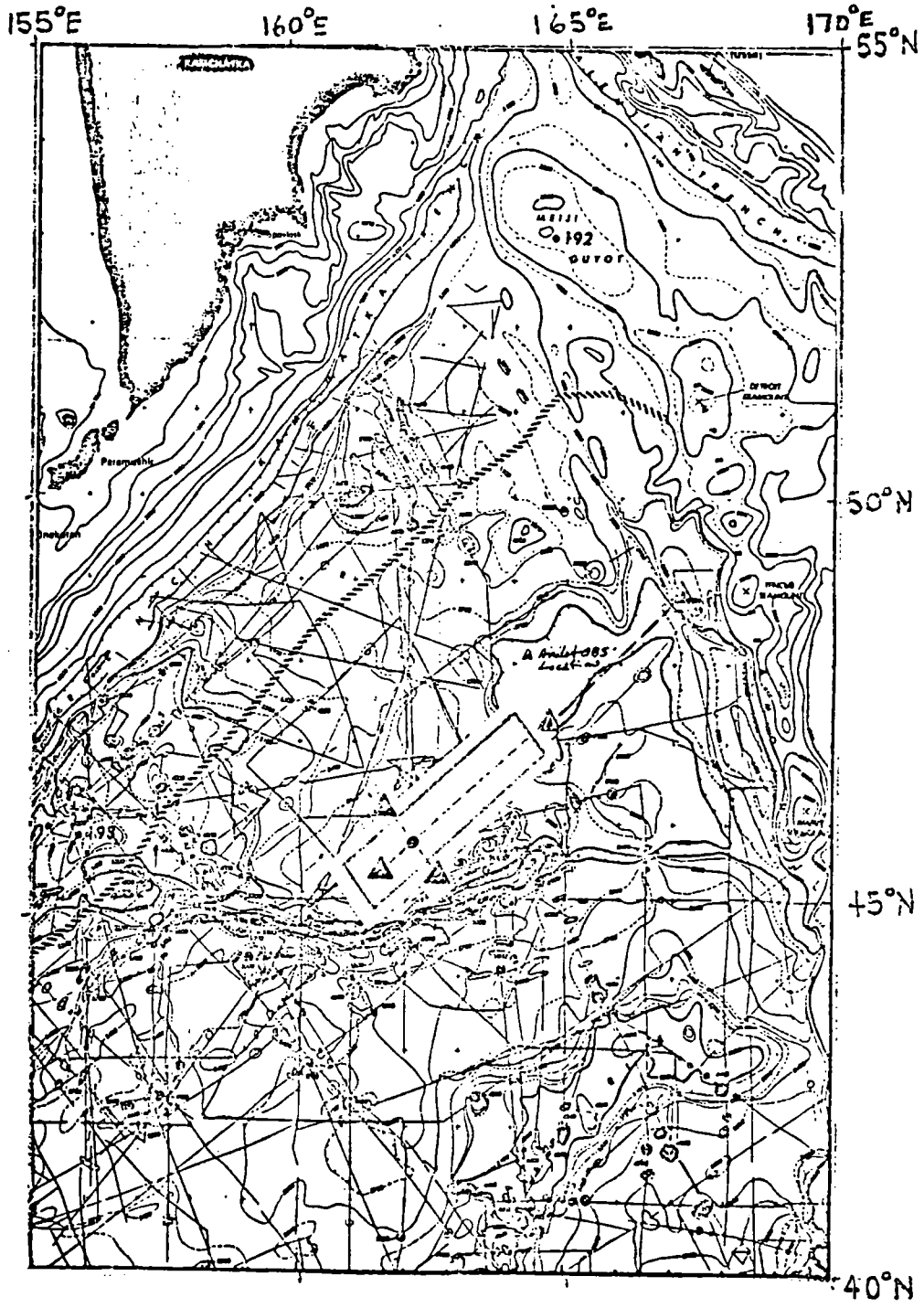
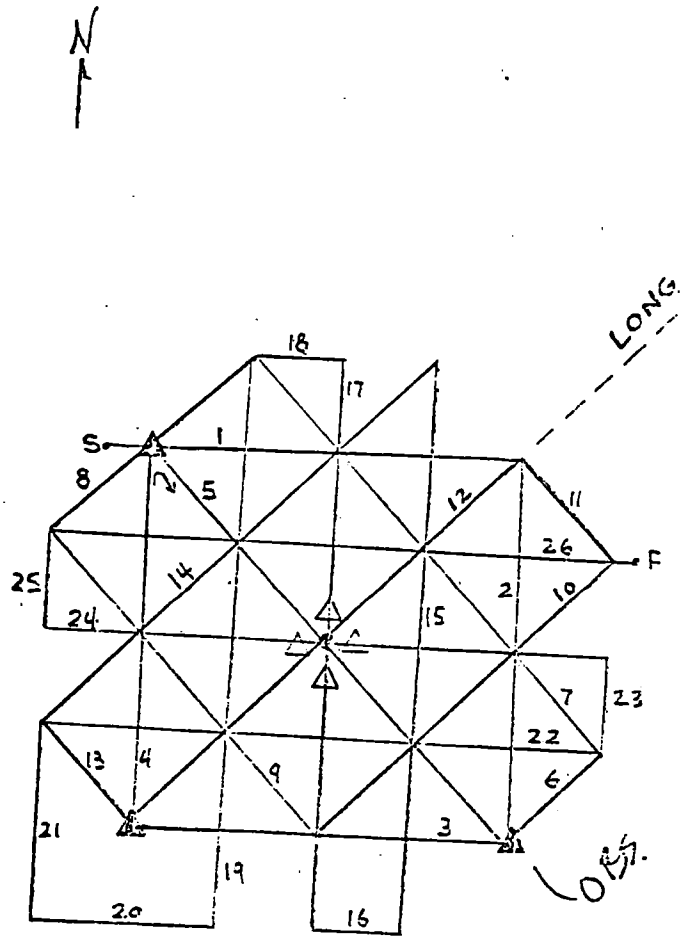


Figure (1)



SPARKER REFLECTION SURVEY

2700 KM. ⇒ 8 DAYS @ 8 KNOTS

← 100 KM →

Figure (2)

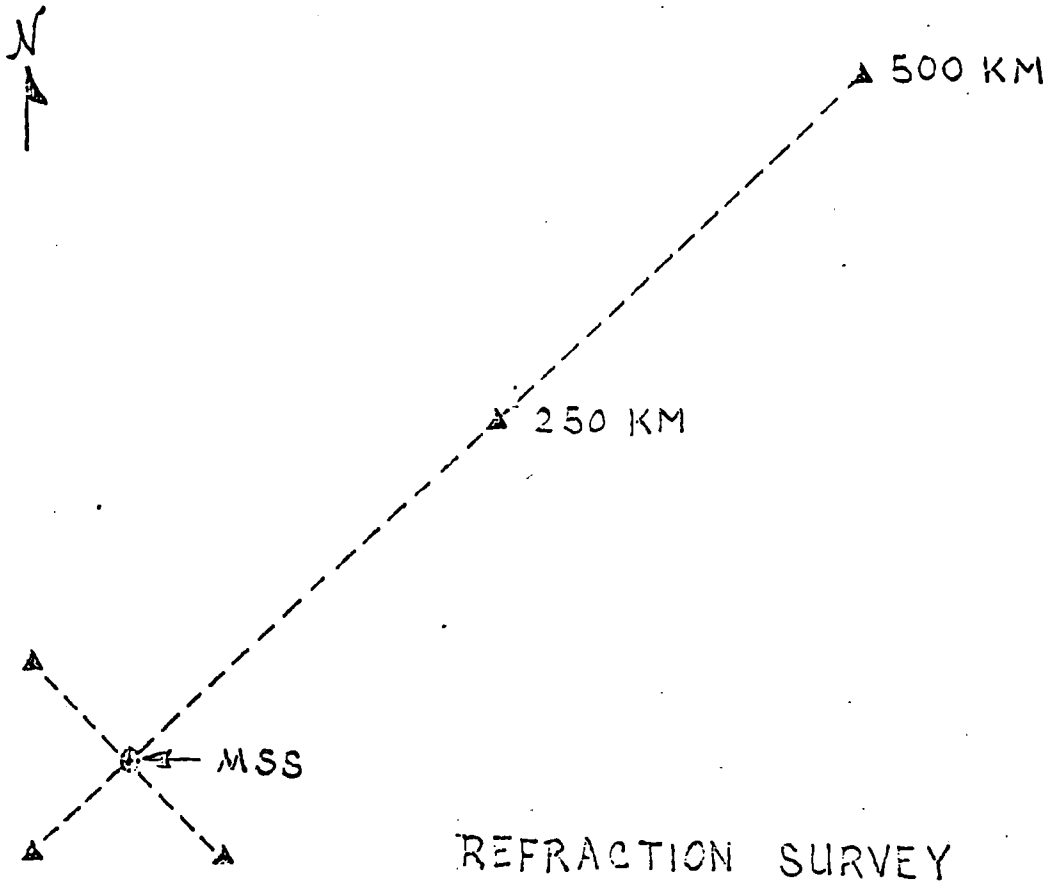


Figure (3)

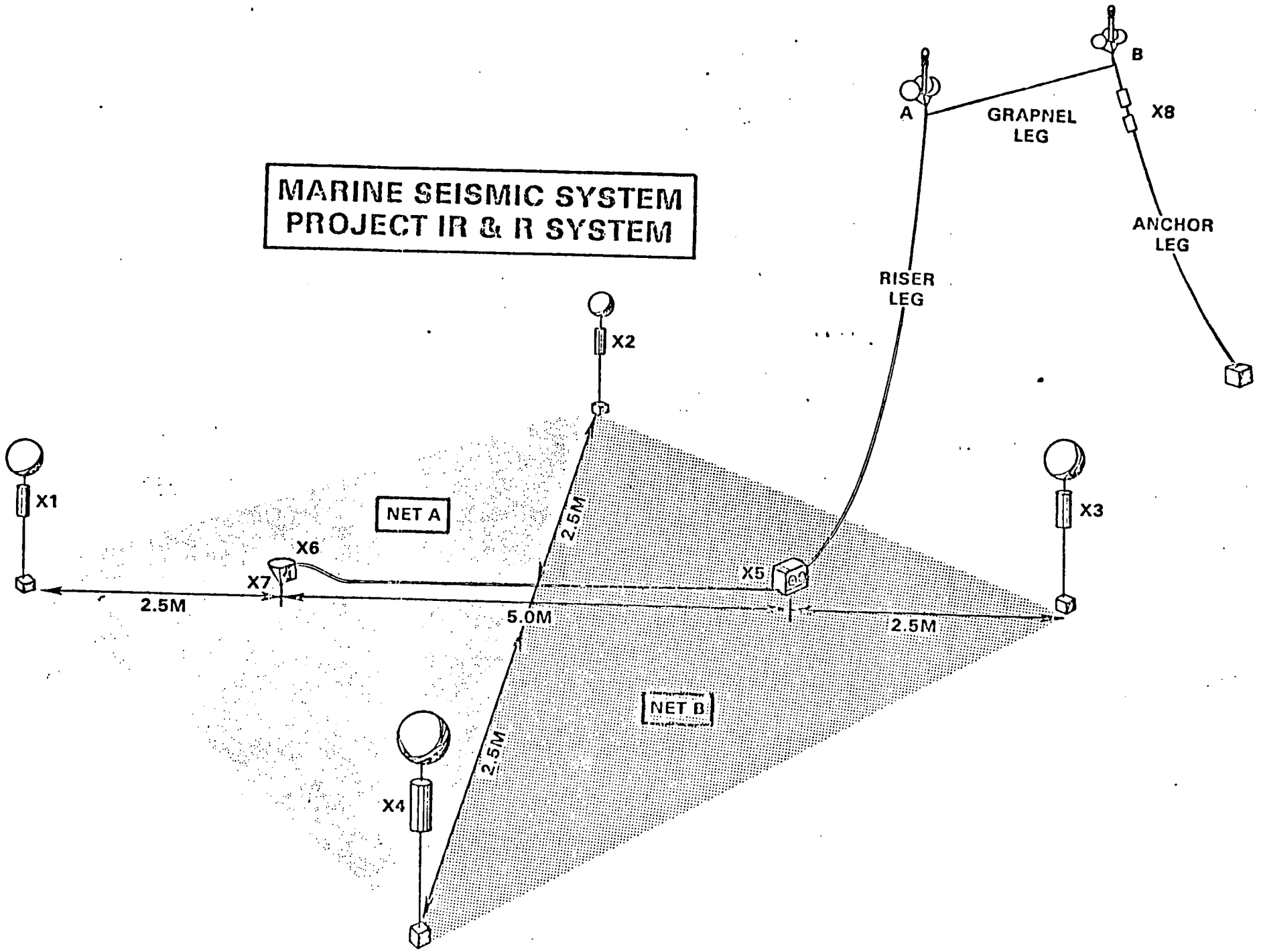

MARINE SEISMIC SYSTEM
PROJECT IR & R SYSTEM
A
B
GRAPNEL LEG
X8
ANCHOR LEG
RISER LEG
X1
X2
X3
X4
X5
X6
X7
NET A
NET B
2.5M
2.5M
5.0M
2.5M
2.5M

Figure (4)