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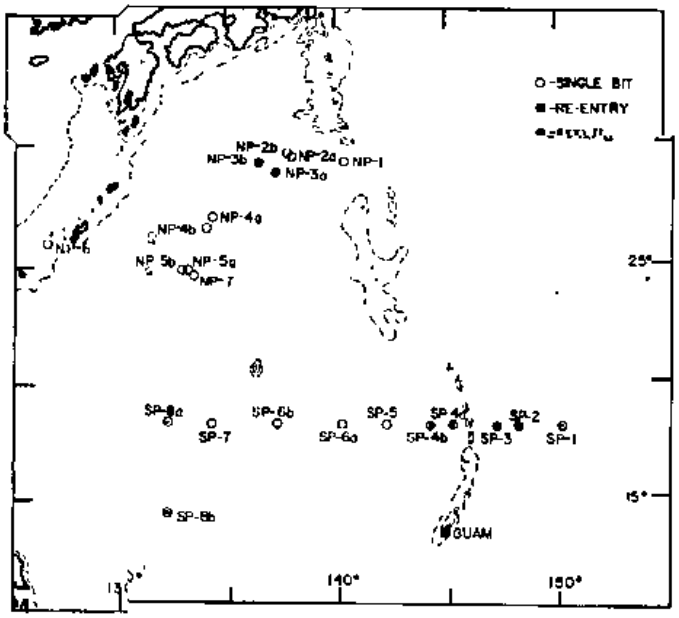

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The information contained herein is preliminary and privileged and should not be cited or used except within the JOIDES organization or for purposes associated with IPOD. This Journal should not be used as a basis for other publications.

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BACK ISSUES

Copies of the following back issues of JOIDES JOURNAL are available from the JOIDES Office.

November 1975	Edition 1975/3
March 1976	No. 4 1976/1 (Special Issue: Manual on Pollution Prevention and Safety)
September 1976	No. 6
January 1977	Vol. III, No. 1

TENTATIVE SCHEDULE - IPOD I

Leg	Arrive	Depart	Days at Sea	Purpose
55	Honolulu (18 June)	24 July	42	Emperor Seamounts, PAC 7 (EMP-1, K-0)* **
56	Kushiro (4 Sept)	7 Sept	35	Kuril Arc (K-1, 2, 3)**
57	Yokohama (12 Oct)	17 Oct	49	Japan Trench (J1-12)**
58	Yokohama (5 Dec)	10 Dec	51	Shikoku, N. Philippine Sea (NP-0 through 7)**
59	Okinawa (30 Jan 78)	4 Feb 78	50	S. Philippine Sea (SP-6,7,8)**
60	Guam (26 March)	31 March	50	S. Philippine Sea (SP-1 through 5)**
61	Guam (20 May)	26 May	51	Nauru Basin (CP-1, 2, 3, MM-1)**
62	Honolulu (15 July)	20 July	55	N. Pacific Paleoenvironment (EP-1 through 4)
63	Seattle (13 Sept)	18 Sept	51	E. Pacific Paleoenvironment (EP-1 through 4)
64	Acapulco (9 Nov)	14 Nov	49	Gulf of California (GCA-1,2)
65	Mazatlan (2 Jan 79)	7 Jan 79	50	Gulf of California (GCA-1,2)**
66	Manzanillo (26 Feb)	3 March	50	Mid-America Trench (M-1,2)**
67	Acapulco (22 April)	27 April	50	Mid-America Trench (G-1,3)
68	San Jose (6 June)	21 June	49	Galapagos (GSC) (Mounds Area)
69	Guayaquial (9 Aug)	14 Aug	49	Galapagos (GSC) (Old Costa Rica Ridge)
	Balboa (2 Oct)			
	Galveston (11 Oct)			

*Sites are shown on accompanying map

**Re-entry scheduled for this leg

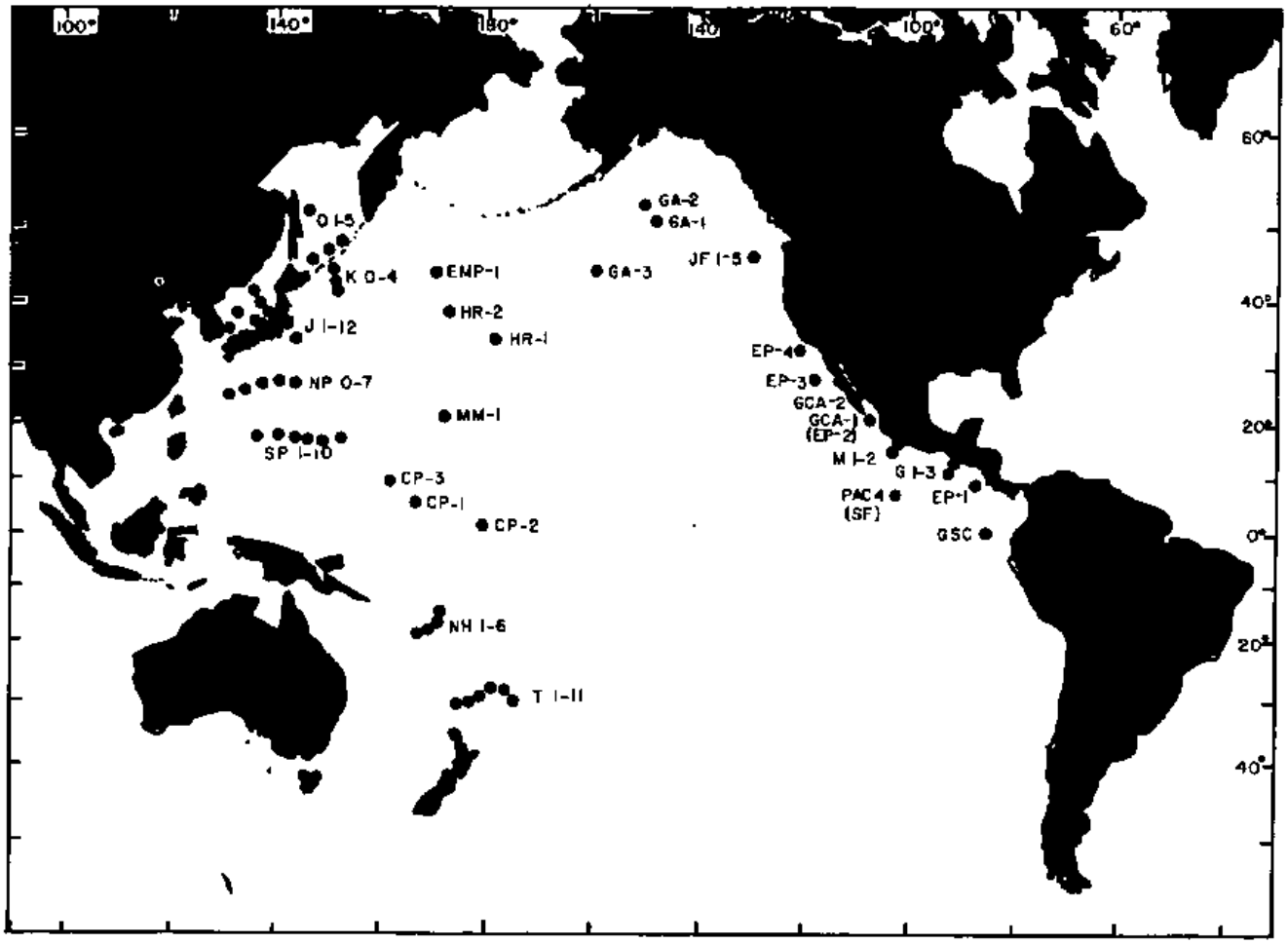


Figure 1. Tentative Drill Sites, IPOD I - The Pacific.

REPORT FROM THE EXECUTIVE COMMITTEE (4-5 April 1977)

JOI, Inc Regional Studies

JOI, Inc. has held a workshop (17 January 1977) called "Ocean Geodynamics". They are in the planning stages of requesting from NSF approximately 340 million dollars for geophysical studies. This program will involve new techniques and instruments, i.e., OBS, narrow beam echo sounding, etc. If it is acceptable, it will resolve the problem of regional studies.

Downhole Logging

The visit by United States experts to the USSR to examine their downhole logging equipment has taken place. The USSR logging equipment appears to be moderately compatible to the systems now used on board GLOMAR CHALLENGER.

Deep Sea Drilling Project Report

The operational reliability of the GLOMAR CHALLENGER and associated problems are being studied by DSDP and Global Marine. Drydocking is needed in the near future. It appears that either the west coast of the U.S. in June 1977 or in Tokyo later in the year are the best times. Some re-designing of bits is being done. Recently some bits have been damaged by hitting the edge of the cone upon re-entry.

Planning Committee Report

The PCOM decided to assign a third leg to drilling in the AT 2.3 site area. According to the DSDP report, drilling is proceeding well. Decisions regarding a fourth leg will have to be made by approximately 20 April 1977.

No funds exist for downhole logging after Leg 53. Schlumberger has offered their services free of charge for Leg 53. Their equipment will remain on board until we leave this site. The first available time that the USSR logging equipment can be installed will be in Japan before Leg 56. No logging funds exist for Legs 54 and 55.

Special legs for downhole logging experiments are a major objective of the OMP. The PCOM encouraged the establishment of a working group to develop downhole geophysical instruments. The PCOM further recommends providing funds for a working group meeting. The funds for the development of this equipment will be sought outside the project initially. If successful, then downhole geophysical experiments can be incorporated into the drilling program at a later date.

The Industrial Liaison Panel (ILP) has been asked to examine the theoretical and actual technical capabilities of the GLOMAR CHALLENGER and advise JOIDES as to whether or not we are being realistic with our drilling program. In addition, the ILP is in the process of expanding its membership to include a maximum number of 9 (4 U.S. representatives and 1 representative from each of the non-U.S. IPOD member countries). It should be noted that this panel never meets. It addresses specific problems by appointing subcommittees which meet and make suggestions to DSDP. In the future, the ILP will also advise JOIDES directly.

The Site Survey Panel (SSP) would like its mandate redefined. They would like to become more than a service panel. The PCOM agrees with the SSP and has moved that the SSP mandate be made similar to the other advisory panels.

The Rules of Procedure Governing the Appointment of JOIDES Panel Members During IPOD I:

1. Each non-U.S. contributor is entitled to provide one member on each panel.
2. The total needs of each panel should be considered in making and approving nominations to panels. Alternates will be permitted and their attendance, in company with regular members, will be permitted, so long as no more than one journey is charged to JOIDES and each delegation has only one vote.
3. Panel members should be appointed for two-year terms and except in special circumstances, appointment for more than two consecutive terms should be discouraged.
4. Panel chairmen may, with the agreement of their panel and as the agenda may suggest, invite other temporary members for particular meetings. This privilege should be exercised with due regard to economy. Such temporary members shall have no voting rights.
5. Any panel member not attending two consecutive meetings without reasonable cause shall automatically be deemed to have resigned membership.
6. All panel members will be expected to participate actively, e.g., by the preparation of papers when requested.

There are three special circumstances:

1. The Industrial Liaison Panel members are appointed for an indefinite period.
2. The Pollution Prevention and Safety Panel members are appointed for an indefinite period.
3. The Information Handling Panel members should not be changed for a one-year period.

JOIDES Symposia

It was recommended that JOIDES accept co-sponsorship of the Ewing Symposium. It was recommended that JOIDES co-sponsor a symposium with the Royal Society/ Geological Society of London.

Synthesis Volumes

It was recommended that JOIDES endorse and co-sponsor the Indian Ocean Synthesis Volume with AGU.

Shipboard Scientific Staffing

It is the general consensus of the EXCOM that equity be achieved among the non-U.S. IPOD shipboard scientists. After some discussion centering on when this equity should be achieved, it was recommended to achieve equity in participation of non-U.S. scientists on board GLOMAR CHALLENGER for Legs 45-57 with equity extending to the ending of IPOD I.

Subcommittee Report on "The Future of Scientific Ocean Drilling"

The four JOIDES subject panels' (PMP, AMP, OCP, OPP) scientific objectives and plans were summarized and discussed. The Subcommittee notes that its plans address two major trends in the development of earth science. The first trend is to study the interactions between paleo-oceanography, paleoclimatology and paleo-geochemistry of past and present environments. The second trend is oriented to the dynamics and nature of the oceanic and continental crust.

1. Passive Margin Panel Objectives:

   a. to study the origin of passive margins
   b. to study the nature of boundary between the ocean and continents
   c. to test and improve models of passive margin formation and development.

2. Active Margin Panel Objectives:

   a. processes in the trench-arc zone
   b. origin and development of back-arc basins.

3. Ocean Crust Panel Objectives:

   a. interpretation of heat flow and magnetic anomalies
   b. problems such as hydrothermal processes and petrological differentiation, etc.
   c. nature of the deep oceanic crust.

4. Ocean Paleoenvironment Panel Objectives:

   a. to study the transition from stagnant to well oxygenated conditions
   b. to study the transition from a warm to a cold ocean.

The estimated costs for some of the major phases of the project, using both riser and riserless drilling in the program are:

1. Approximately 3 million dollars to upgrade the GLOMAR CHALLENGER
2. 52.2 million dollars (based on 1977 dollars) to convert the GLOMAR EXPLORER to a riser type drilling vessel; the Subcommittee felt that the GLOMAR EXPLORER would be valuable because it could support the weight of the entire riser pipe. Usually the riser pipe must be neutrally buoyant. Also, the costs of conversion did not differ significantly from drilling commercially from platforms.
3. Approximately 100 million dollars is budgeted for collection of geophysical data and analysis and interpretation of geophysical and sample data.

The Subcommittee examined four major cases in which drilling could proceed, selecting case 3c (page 34, Subcommittee report) as their first choice. This involves 7 years of riserless drilling (G. CHALLENGER) and 6 years of riser drilling (G. EXPLORER) with an overlap of 3 years. The total amount needed for this program is estimated at 395.7 million dollars. This figure does not include the GLOMAR EXPLORER conversion costs.

Initially, JOIDES will not submit a formal proposal to NSF. It will submit a recommendation through DSDP, to NSF for a major scientific program using a major tool (deep sea drilling). This prepared package of science and technology will be put before the National Science Board after it has been evaluated scientifically and technically. At this time the NSB will be asked if planning for this drilling program can proceed. The planning leads to the development of a program. During this planning phase, NSF will examine all of the possibilities of ship's usage, i.e., GLOMAR CHALLENGER, GLOMAR CHALLENGER and GLOMAR EXPLORER, or GLOMAR EXPLORER, and they will make suggestions to the DSDP and JOIDES as to what they believe is the most favorable plan. NSF will also inform other agencies (USGS, NAVY, NOAA) that a new scientific program is proposed.

Planning Committee Proposal

The PCOM proposal suggests a concentrated drilling effort in the Atlantic Ocean centering around the PMP and OPP proposals for the years 1979-81. The OCP and AMP objectives were given extra drilling time in the Pacific for the period 1977-79.

It was recommended that the PCOM two-year proposal plan be adopted as the scientific basis for a two-year proposal to be submitted to NSF and that DSDP be instructed to complete the proposal and circulate it to the PCOM and EXCOM prior to the July meetings.

It was recommended to approve in concept the draft report from the Subcommittee appointed to examine "The Future of Scientific Ocean Drilling". It is also recommended that the Subcommittee report be refined and edited by the Subcommittee. It then should be sent to the participants of the FUSOD meeting for their comments. A publishable document open to the general public should result. These recommendations are left to the discretion of the FUSOD Subcommittee chairman. After the Subcommittee report is finalized with the appendices added and if NSF believes it is a worthwhile endeavor, a final proposal for a 10-year program will be submitted to NSF. NSF will keep DSDP informed of the options, who will in turn contact JOIDES for advisement.

REPORT FROM THE EXECUTIVE COMMITTEE (19-21 July 1977)

Annex A: Memorandum of Understanding

No vote has been received from the USSR on Annex A of the Memorandum of Understanding. In accord with the EXCOM decision (Item 65, EXCOM Minutes, 4-5 April 1977), JOIDES will assume this vote to be an abstention. The vote for Annex A will then be counted as unanimous. From this time forward, the JOIDES EXCOM operates under Annex A of the Memorandum of Understanding, dated 18 October 1976. The most significant rule change is the abolishing of a unanimous vote in favor of a 2/3 absolute majority vote to pass all official matters.

Deep Sea Drilling Project Report

The GLOMAR CHALLENGER was in drydock at San Pedro, California for several weeks (late June-early July). She is presently on her way to Honolulu where a crew change will take place, with Leg 55 scientists coming aboard. Some of the items which were modified or fixed of importance were:

1. Pipe rack fixed and redesigned
2. Sandline winch was repaired
3. Structural improvements on mid-ship area
4. Moon pool corners strengthened
5. Repair of the tanks that separated from bulkheads, etc.
6. Some of the derrick elements were replaced.

DSDP feels that Global Marine has done a good job in repairing the CHALLENGER. Global Marine estimated the cost of drydocking at approximately $750,000. The FUSOD report lists $3,000,000 which would be needed to bring the G. CHALLENGER up to desired standards. Some of these needed improvements were performed at drydocking:

1. The electromagnetic speed log belonging to Global Marine was reinstalled.
2. The Omega navigation system is on board, and
3. The 3.5 kHz system is on board.

The CHALLENGER has passed a drilling approval inspection by the Coast Guard. The summer of 1979 will be the next Cost Guard inspection.

The FY 1978 budget and program was presented. The total budget for FY 1978 is 16.65 million dollars; no money for logging is budgeted in FY 1978. The NSF target budget for FY 1979 is 16.65 million dollars; this is low. The only way to operate under this budget would be to act in a phase down mode. NSF by 1979 will be acting under the principle of a zero based budget which means that the whole program must be justified each year.

A 5.6% inflation amount may be added to the 16.65 million dollars, which would bring the total FY 1978 budget to approximately 17.58 million dollars. This is the maximum amount which will be available. If the budget for FY 1979 is 17.58 million dollars then money for logging, inventory and the beginnings of the downhole instrumentation program can be funded.

Leg 54 encountered difficult drilling conditions which resulted in poor penetration. Drilled approximately 8 days, and established good possibility at a reentry hole in the area. This evidence was vital to the PCOM for continuation of the future 4-month geothermal program on Legs 68 and 69.

National Science Foundation Report

A 5 million dollar proposal to evaluate all aspects of future drilling and non-drilling alternatives has been approved at all levels through NSF. This includes evaluation of the GLOMAR EXPLORER, GLOMAR CHALLENGER, and other alternatives as they arise, e.g., geophysical, platform drilling, etc.

The present project has just received a 15-month extension which will end in FY 1979. The GLOMAR CHALLENGER stops drilling 11 October 1979. The phase out year is 1980. No major funds exist after that time. However, in the 5 million dollar proposal accepted by NSF, 1.5 million dollars is allotted for site surveys.

NSF is very interested in non-U.S. participation. They have written to IPOD members and have asked them to participate in the 15-month extension, and have also asked for their advice on how to proceed with future drilling.

Drilling Proposal: 1979-1981

The total dollar value for the two years including moving the phase out period to 1982 is 39.81 million dollars. Under this program it is assumed the GLOMAR CHALLENGER will be used. The 1979-81 budget (FY 80, FY 81) includes logging and continued rental of the XRF equipment; the on board computer is not included. It was suggested by the EXCOM to the DSDP that the budget should approximate the following:

DSDP - 39.811 million dollars (includes non-U.S. IPOD contribution)

Site Surveys	5 million dollars	
Problem definition & geophysical development	5 million dollars	U.S. Contribution
Data analysis	2 million dollars	(as an increase over the current year)
Downhole measurements: instrumentation implantation	4 million dollars	

TOTAL BUDGET (2 yrs): 55 million dollars

DSDP Publications

The EXCOM accepted the PCOM motion to support the publication of a supplemental volume for Leg 38.

Downhole Logging

A logging problem has developed, particularly the compatibility of USSR logging tools with U.S. cable. The Ad Hoc Committee on logging suggested USSR logging be done on at least two legs. Gearhardt-Owen has offered to do logging for approximately $250,000 per year, and PCOM is proceeding to solicit petroleum industry support for downhole logging, as well as support from sources outside the U.S. One main problem with the Soviet instrument package appears to be the inability to send two instrument packages down at the same time. Thus, intercalibration between packages is a significant problem to be overcome.

Site Surveys

Site surveys must be maintained if a drilling project is to continue in long range. If funding is available, DSDP should be able to begin funding for the new drilling proposal in FY 1979. Much of the site survey data are not being supplied to the data bank, a problem which apparently exists in much of the JOIDES program.

ALCOA SEAPROBE

The ALCOA SEAPROBE is presently available to WHOI for review of its capability as a scientific platform. The vessel has no rotary capability but instead has sophisticated pods attached to the end of the drill string. The present string could possibly be extended to 15,000 ft and converted to rotary capability. The EXCOM supported the suggestion that information on SEAPROBE be obtained and that the panels be asked to evaluate the usefulness of SEAPROBE.

Downhole Instrumentation

In line with the FUSOD report the EXCOM believes that long-term downhole measurements are scientifically very important and enthusiastically supports the concept of the use of the holes for long-term downhole instrumentation such as seismometers, strain meters, etc., and affirms that the EXCOM will attempt to provide the ship time necessary to emplace the instruments.

REPORT FROM THE PLANNING COMMITTEE (8-11 February 1977)

Deep Sea Drilling Project Report

Recovery in basalt in the AT 2.3 area is extremely good averaging over 60%. A pilot hole at 417A was drilled to a subbottom depth of 421m and was terminated when the bow thruster shaft bent. Extensive repairs were made at San Juan. Leg 51 returned to the same area and attempted to set a re-entry cone in a trough (approx. .5 km offset) adjacent to the subbottom topographic high where the pilot hole was located. Leg 52 returned to the same area, made a successful re-entry, and drilled to a total penetration of approximately 708m. After some discussion, the PCOM recommended to deem it appropriate to spend another leg in the AT 2.3 area for a deep penetration attempt in ocean crust. The time allotted to this leg (Leg 53) will be approximately 1 month and will come from the leg assigned to PAC 5 and PAC 6 areas.

Even though bad hole conditions were present on Leg 50 and logging was only done in the upper part of the hole it was quite successful. Logging added tremendously to scientific results and changed interpretations which otherwise would have been questionable. The results of logging on Leg 51 should also prove valuable because of high core recovery.

Panel Reports

Downhole Measurements Panel. Special legs for downhole logging experiments are a major objective of the DMP. For a leg to be a success an integrated study with detailed site surveying and downhole logging is essential. A working group should be formed as soon as possible to develop instrumentation for downhole geophysical experiments. The development of such instrumentation would be at no cost to the DSDP as funds will be sought outside initially. It is hoped, however, that if instrumentation is successful then funds may be requested for downhole experiments in the two-year proposal. The PCOM encourages this kind of downhole geophysical instrument development, and recommends travel funds be provided for a meeting of the working group and a report be made at the next PCOM meeting.

Industrial Liaison Panel. The purposes and function of the ILP were explained. Their major purpose is to keep DSDP aware of the latest developments in ocean research technology and engineering. Working directly with DSDP, the panel has given advice and help on bit design, re-entry cone design, drill pipe failures, and is currently working on a riser design for IPOD for operation in waters of 10,000 ft. To date industry has only used a riser system in 2500-3000 ft of water. The Panel operates largely through appointing subpanels. An ILP subpanel has met twice during the 1975-76 period. Membership on the appointed subpanels to examine specific problems has been in the past composed entirely of U.S. representatives.

The PCOM recommended that the JOIDES ILP examine the theoretical and actual technological capabilities of the CHALLENGER and advise whether or not we are being realistic when we propose to drill 1000m into oceanic basalt and 2000m into continental margin sediments in water depths up to 6000m.

To help activate the ILP and expand its membership so representation is international, the PCOM recommends that the Chairman suggest a new membership for the ILP with a limit of 9 (i.e., 3 U.S. representatives plus the Chairman and one representative from each non-U.S. JOIDES country) for presentation to the EXCOM for final approval without going through the PCOM.

Information Handling Panel. The Panel suggests that reviews voluntarily solicited by the authors, although valuable, are not always sufficient to ensure high quality. Outside reviews by experts in the various disciplines included in the IR should be sought wherever possible by the DSDP scientific editor. In this respect, the assistance of the individual JOIDES panels should be furnished. The Panel recommends that the final decision as to the publishability of manuscripts, after the above procedures have been followed should be retained by the Associate Chief Scientist for Scientific Services. The Panel urges that the JOIDES PCOM and EXCOM fully support the efforts of the scientific editor to fulfill his responsibility for maintaining high quality of the IR.

The IHP recommended that DSDP acquire computer hardware necessary to operate at the level shown in Appendix B of their minutes. Equipment at this level will cost about $80,000. The PCOM recommends to DSDP that they acquire a computer of the sort described by the IH Group, if it can be shown to be cost effective. Acquisition of this computer takes second priority to logging for future legs. Rosenfeld requested that all Panel chairmen write to him stating strong justifications (with arguments) why this computer should be purchased.

Ocean Crust Panel. The report began with a review of Pacific drilling sites. The PCOM recommended adoption of the OCP plan pertaining to the Siqueros fracture zone. The OCP felt that the drilling plan for Leg 55 should be modified from what was previously suggested. The best drilling plan seemed to be a pilot hole followed by a multiple re-entry hole on North Suiko Seamount, and a single bit hole at an unnamed seamount between Nintoku and Suiko.

These are to be followed by a single bit hole at K-O site. If no re-entry hole is possible at Suiko, then the K-O site should be a re-entry one. There seems to be a question whether the site surveys are good enough for a multiple re-entry on Suiko. The drilling plan for Leg 55 will be brought up at the April PCOM meeting.

OCP drilling requests for drilling between Legs 59-69 include:

a) a deep multiple re-entry hole in Mesozoic Pacific crust,
b) a multiple re-entry hole in early Tertiary crust formed at high paleolatitudes,
c) one leg drilling zero age or near zero age crust in or near the Gulf of California,
d) one leg for study of geothermal processes near the Galapagos spreading center, and
e) one leg drilling in the Vema Fracture Zone in the Atlantic.

The PCOM recommends to DSDP that they acquire a Schonstedt downhole magnetometer, but not at the expense of conventional logging.

The OCP recommends that on board XRF analytical capabilities continue to be supplied on all legs. Further the OCP recommends that the XRF equipment be modified to include x-ray diffraction capabilities. The French are making every effort possible to supply XRF on board. The matter of the XRD modification was sent back to the panel for clarification and justification.

The OCP wished to establish a geothermal working group. The PCOM agreed with the OCP that they establish such a working group and authorized one meeting. Due to financial constraints, if a second meeting is required, it will be examined when the request is made.

Active Margin Panel. The chairman presented a table of the AMP sites with calculated times on site, transit days and total days required for drilling. These are corrected estimates of what was previously reported. With this schedule, in mind the AMP asked the PCOM for two additional legs in order to complete the objectives in the Middle America and Kuril-Japan transects. The AMP drilling options (prioritized) were presented to the PCOM.

a) If one leg is added it will be the second leg of the Middle America trench (highest scientific priority).
b) If two legs are added the Middle America trench and Kuril-Japan region will be drilled.
c) If no legs are added then the schedule remains the same.

The PCOM assigned two additional legs to the AMP.

Pertaining to downhole logging, the AMP would like logging to be done on all legs. Their highest priority is for the Okhotsk-Kuril-Japan legs. Dmitriev reported that the Sea of Okhotsk-Kuril trench survey data are ready and will be mailed to SSM as soon as possible. The Safety Panel review will be in June 1977. It is imperative that this material reach SSM as soon as possible.

The AMP intends to invite the co-chief scientists for upcoming legs to AMP meetings.

Passive Margin Panel. Permission has just been given by the Mexican Government to survey in the Middle America trench. Permission to survey in the Gulf of California will also be asked as well as recommendations for a Mexican member on the Gulf of California Working Group. The Caribbean Working Group has reported that site surveying in the area is complete and sites are proposed and ready to be drilled. Curray summarized the PMP requests for Legs 59-69. Originally PMP was requesting four legs in the schedule: 2 in the Caribbean, 2 in the Gulf of California. The PMP feels that one of the Gulf of California legs can be tied in with the OCP request. A total of two legs will be needed in the area. Their request is for two legs in the Caribbean; one leg in the Gulf of California with an additional leg in the same area tied in with OCP.

Ocean Paleoenvironment Panel. The OPP Pacific program is divided into three phases:

a) short-term plans for Legs 53-58,
b) North Pacific (Cenozoic) - paleoenvironment sites (Gulf of California, Gulf of Alaska), and
c) West Pacific (Mesozoic) paleoenvironment objectives.

In total, the OPP requests 2½ legs in the Pacific Ocean. In light of the OPP requests, the chairman urged that site survey work in these areas be carried out as soon as possible. In reference to other sites already scheduled, J-2 is good for OPP studies whereas the Suiko Seamount may not be.

The chairman presented the proposed OPP program for the South Atlantic-Walvis Ridge area, details of which are presented in JOIDES JOURNAL, Vol. III, No. 1, January 1977, pages 27-29. Two legs are requested to be assigned between Legs 59-69 so their program may be carried out. The 2½ legs requested by the OPP in the Pacific were put into the schedule (Legs 61, 62 and ½ of Leg 63). The South Atlantic Program is not in the present drilling schedule. It is hoped that this present program can be incorporated into the two-year proposal for the drilling period 1979 to 1981.

Organic Geochemistry Panel. The OGP has assigned 9 investigators to analyze the frozen samples taken on Legs 47A, 47B and 48. A problem has arisen: the OGP was informed that these analyses will not be included in the IR volumes. These reports would need approximately 20 pages of space. There is no duplication of work with shipboard scientists. Apparently it is just a page problem. The PCOM felt that prime data should be included in the IR and recommends to DSDP that the organic geochemistry data be incorporated into the IR.

A symposium is being planned based on the results of Leg 45 organic geochemistry analyses.

The chairman presented and explained a document synthesizing the role of organic geochemistry in IPOD. The document was given to the PCOM for inclusion (wholly or in part) in the PCOM two-year drilling proposal.

The OGP recommends to DSDP that a pyrolysis-flame ionization instrument be purchased, costing approximately $20,000. Moore informed the PCOM that this is a high priority item in the fiscal 1978 budget. He also stated that we may need to train a technician and it may cost a scientific berth. After some discussion, the PCOM approved the recommendation of the OGP that DSDP seriously consider acquiring a pyrolysis-flame ionization instrument.

The chairman expressed concern over the lack of samples taken for organic geochemistry studies. The panel would like to have a 50-cm sample every 50m when it does not interfere with other sampling.

Pollution Prevention and Safety Panel. Unless adequate data are received in time, sites cannot be approved by the PPSP. All data should be in the Data Bank at L-DGO in time for safety review. Regarding the suggestion made by the EXCOM and PCOM, that membership on the panel should include a petroleum geologist with a knowledge of stratigraphic traps, the PPSP feels they are reasonably provided in this area of expertise. The Panel is gratified to see a better site and hole identification system is being promulgated.

Sedimentary Petrology and Physical Properties Panel. The Panel is concerned about the quality of samples taken aboard the GLOMAR CHALLENGER. They specifically need undisturbed samples. It was suggested that slowing the drilling rate may help with this problem.

Site Survey Panel. The SSP wishes to reorganize or re-define its mandate. Lewis presented a detailed analysis of the present JOIDES panel structure followed by a new proposed panel organization. In this new organization of JOIDES advisory panels, the SSP (re-named the Ocean Geophysics and Site Survey Panel) would be closely associated with the DMP. The major reason for this re-organization or redefinition of mandate is that the present SSP would like to attack and solve geophysical problems. Regional geophysics (large-scale) from the surface (e.g., multichannel seismic) is needed to correlate and tie in with downhole measurements (small scale). They would like to be able to conduct OBS experiments after the hole is drilled. They would like to become more than a service panel. They want to test models, make extensive surveys and recommend sites where detailed surveys have been done. Discussion followed with many of the PCOM members agreeing that the SSP needed more in its mandate to stimulate enthusiasm among panel members. The PCOM will examine the SSP mandate and make sure that (i) experimental capabilities are in the mandate, (ii) permission to develop equipment is also included, and (iii) that the PCOM will give the SSP a license to approach the PCOM with any requests for proposals or experiments to be done in deep sea drilling sites. The PCOM recommended that the SSP mandate be made similar to the other service panel mandates.

In regard to SSP re-organization, the SSP agrees in principal with the recommendations of the PCOM made at the October PCOM meeting. They made one change and one addition. The PCOM recommendation reads as follows (the change and addition are underscored).

1. The Panel membership should represent all data holders (member institutions of JOIDES plus selected other holders of extensive data bases).
2. The total panel is to meet less frequently to establish priorities, identify need of site surveys, and to appoint members to subject panels.
3. Small working groups should be made responsible for the quality of site surveys for each major site (and adjacent nearby minor ones if appropriate). A major site is defined as a site requiring multiple re-entry, extensive safety review or other special requirements.
4. One or more members of a subgroup shall meet with the proposing subject panel (or other panels if necessary) so that site survey needs and interpretations can be discussed with the subject panel.
5. Each subgroup shall report annually to the total Site Survey Panel.

6. Reports are to made to the PCOM, as necessary, by the chairman of the SSP or by the subgroup directly in cases where insufficient time is available for reporting through the total panel.
7. If site surveys are conducted by non-SSP members then the SSP would recommend that these people consult with the subject panel to develop the scientific goals for this site.

A discussion on SSP reorganization will be delayed until after the subcommittee meeting on "The Future of Scientific Ocean Drilling".

Stratigraphic Correlations Panel. The SCP is preparing a white paper to be presented to the PCOM and EXCOM. In their long-range plans the South Atlantic is the region of highest priority. The SCP wishes to conduct a stratigraphic control "experiment" to test the basic methods of stratigraphic correlation. The chairman commented that the SCP would like to address two additional problems:

a) time control in biostratigraphy is not that well known; correlations of biostratigraphy with magnetic stratigraphy is needed;
b) more controls are needed to correlate marine biostratigraphy with continental biostratigraphy.

As requested by the PCOM a list of DSDP cruise candidates was provided to DSDP and a SCP member was appointed as liaison for each leg.

The SCP intends to sponsor a symposium entitled, "Changes in Biostratigraphic Concepts, A View from the Oceans based on DSDP Data". This will be held at Lawrence, Kansas in August 1977. A second symposium is planned for the annual GSA meeting at Seattle, November 1977.

The SCP feels very strongly that the Panel cannot function properly by meeting only once a year. It must meet twice. It at all possible, the PCOM will grant this request. The problem will be specifically addressed when the time for such a meeting arises.

Planning Committee Proposal

The PCOM would like to thank the four subject panels for working diligently to produce their respective proposals under the time constraints imposed on them by the PCOM. McManus opened discussion on the two-year PCOM proposal for drilling from October 1979 to 1981. He will be responsible for the final writing. This proposal will be mailed to the PCOM members (if time permits) for final comments, be presented to NSF for preliminary evaluation, and be submitted to the Subcommittee meeting "The Future of Scientific Ocean Drilling" for incorporation into their proposal if deep ocean drilling is to continue.

The position of NSF regarding future plans for deep sea drilling was reviewed. After the 14-month extension, NSF will not fund any future drilling based on the present program. A new scientific plan is needed. Members of the NSF Board have been briefed about future drilling plans. They expect a request of 3-4 hundred million dollars over the next ten years. The Board questioned the capabilities of the GLOMAR CHALLENGER and whether it should be used. Peer reviews of the extension were cautious and hesitant. A new plan is needed. Peer reviews of the PCOM proposal will look very critically at deep sea drilling. The individual accomplishments of the Project should be included. The PCOM proposal should not be tied into a ship's track. The PCOM proposal is to go to NSF but it is not finalized until the Subcommittee meeting. It may or may not be incorporated into their proposal.

A report on the progress of DSDP regarding the future proposals was made. DSDP will present figures and costs for operating the program. DSDP is presently examining a suite of program possibilities. These involve costs using: (i) GLOMAR EXPLORER, (ii) GLOMAR CHALLENGER, and (iii) lease CHALLENGER and then go to another drilling vessel. The most favored program by DSDP is to use the GLOMAR EXPLORER after 1979 with 2 years of riserless drilling followed by 3 years of riser drilling.

The PCOM deliberated at length over the pros and cons of individual panel proposals and what sections were to be included into the PCOM proposal. It was finally decided that a two-year concentrated effort in the Atlantic based on the PMP (N. Atlantic) and OPP (S. Atlantic) proposals would be the best plan of attack. The AMP was given additional legs in IPOD I. The OCP has had a majority of holes in the past, and has several more legs through IPOD I (Leg 69). The PCOM also feels that the EXCOM will most likely submit a 5-year proposal, the last 3 years of which will be riser drilling. This will be more appropriate for AMP and OCP objectives. The instrumentation needed for monitoring holes and to do downhole geophysical experiments may need time for development. By 1981 hopefully these instruments will be available to be used in conjunction with deep sea drilling.

Although this was the general consensus among the PCOM members, several members expressed the desire to have downhole experiments and development and testing of new instrumentation discussed in the proposal. Geothermal and magnetics must be included. Rebuttal followed stating that these were good ideas and possibly should be included into the proposal, but the proposal could not be justified on these topics alone. For example, the results of the geothermal experiments in the Galapagos will not be available until after Legs 68 and 69. Also development of instrumentation is worthwhile but in a proposal it must be applied to solve a specific scientific problem. The PCOM decided to make sure to include in the PCOM proposal a section that mentions mid-ocean areas and active margins where geophysical and geochemical instruments could be deployed in holes.

In summary, the PCOM proposes that the two-year drilling proposal should include 5 legs in the South Atlantic and 7 legs in the North Atlantic, planning around weather.

JOIDES Symposium

A letter to McManus from Talwani was presented to the PCOM. The PCOM was asked to react to the plans for the Second Ewing Symposium which is to be co-sponsored by JOIDES. Two items in the letter were discussed. (1) The Royal Society symposium will not conflict with the Ewing Symposium. If there is an overlap in scientific presentations the audiences will be different, thereby minimizing any conflicts. (2) The PCOM was concerned over the space available for attendance at the symposium." The PCOM would like to see the symposium more open so any interested scientists may attend. The topic of JOIDES co-sponsoring the symposium with the Royal Society of London to be held 19-20 June 1977 was discussed. No money is requested from JOIDES. It will be completely open. A draft program will be sent out in the near future. This symposium has the full endorsement of the JOIDES PMP. The PCOM recommended to the EXCOM that JOIDES co-sponsor the symposium with the Royal Society of London.

Synthesis Volumes

The Indian Ocean Synthesis volume has to be published within the next 6 months or it will not be published at all. AGU is a likely publication outlet. The included papers will not have to be reviewed again. Creager reviewed the feelings

of the EXCOM (see EXCOM minutes, October 1976, pages 8-10) and followed with a suggestion that JOIDES carry on discussion with GSA, AGU, etc. concerning occasional synthesis volumes. A subsidized page charge funded by DSDP is a possibility. The PCOM would like the EXCOM to reconsider the problem of synthesis volumes, specifically addressing the problem of whether or not a policy should be established.

Logging Equipment Report

The PCOM was presented with an estimated cost of purchasing logging tools and services from Gearhart-Owen logging engineers. Moore then stated that the costs for logging either in-house or from outside firms were approximately the same This however does not alleviate the problem of logging for Leg 53 and onward.

Operations and Technology Report

Moore reported that DSDP is seriously concerned about the problems and failures that have been occurring on board the CHALLENGER. To help the problem, two extra days in port are scheduled between legs. DSDP has taken this matter to the highest levels of Global Marine who are also worried about the failures. A report on the meeting held at DSDP regarding hole stability was made. Moore commented that the outside experts are at a disadvantage for they are not familiar with drilling problems in water depths to 6000m.. They are also unaware of the problems of drilling in basalts. DSDP is the pioneer in this area. The suggestions resulting from this meeting were: (1) use a riser with fluids, (2) design more elaborate casing, and (3) look into the possibility of using air lift reverse circulation.

Repositories Report

The chairman of the Ad Hoc Committee to Evaluate Repositories reported to the PCOM. The PCOM will address this matter in detail at its next meeting. Some of the salient recommendations were presented.

1. All post IPOD I cores should be stored at Scripps.
2. The Committee urges that the PCOM investigate the possible options for long term maintenance of DSDP/IPOD core collections as an international research resource. The Smithsonian was mentioned as a possible permanent repository.
3. The membership of the NSF Sample Distribution Panel was unknown to the DSDP Curator or to other DSDP staff. The Panel recommended that the membership and mode of operation of the NSF Sample Distribution Panel be listed in the JOIDES JOURNAL and appended to the DSDP/IPOD Sample Distribution Policy.
4. The Committee feels that a PhD level individual is not necessary for supervisory sampling personnel. It recommends that the personnel supervising sampling at the east and west coast repositories be experienced petrologists (preferably MS level) capable of ensuring that the DSDP/IPOD core material be utilized in a scientifically effective manner.

REPORT FROM THE PLANNING COMMITTEE (12-14 July 1977)

JOIDES Publication Policy

The letter on the publication policy has been written and distributed to journals. The letter will also be distributed to the PCOM members for additional lists of journals. Related to this topic, it was suggested by some PCOM members and the IHP that the present Sample Distribution Policy be reformatted, titled, and divided into three major categories for clarity: (1) availability of data, (2) publication policy, and (3) sample distribution policy.

Core Repository Requests

Riedel informed the PCOM that requests to provide a requestor of a sample a list of all other investigators who were working on the same core, is very difficult at the present time to carry out. However, the curator would provide on microfiche a list of who was working on all cores and what sampling was done on all cores.

Royal Society Symposium

The Royal Society Symposium program is almost finalized. They have approached all the shipboard scientists, many of whom will participate in the Symposium and therefore anticipate no problem regarding permission to publish manuscripts. The manuscript deadline is December. It was commented that the Academy of Sciences USSR would like to participate in the Ewing and Royal Society Symposia. It was informed that communications should be made directly to Talwani (Ewing Symposium) and Laughton (Royal Society Symposium).

Paleontologic Reference Center

No official request has been sent to the Smithsonian asking them to become the N. America repository. The PCOM would like progress regarding this matter and requests that DSDP send an official letter to the Smithsonian as soon as possible.

Deep Sea Drilling Project Report

Results of Leg 54. Drilling in the Siqueros Fracture Zone (PAC 4) Area was extremely difficult and the scientific objectives of the cruise were not achieved. Because of this difficulty in drilling and not being able to find an adequate sediment pond for a re-entry site, the GLOMAR CHALLENGER was sent to the Galapagos area. This area was chosen over the PAC 5 area for several reasons. The scientific crew thought that drilling in the PAC 5 area would be just as difficult. If drilling in the Galapagos is just as difficult, it is advisable to learn the problems now because two future legs are planned for this area and there is a possibility that the proposed downhole instrumentation experiment may be carried out here.

The CHALLENGER proceeded to the Galapagos and successfully cored into the geothermal mounds recovering both sediment and basalt although total penetration was poor. The intermound area was also cored. Samples are now stored at DSDP in a nitrogen atmosphere so they will remain unoxidized. J. Natland is preparing a statement on the feasibility of drilling in the East Pacific Rise. It appears the drilling is quite poor and bits are torn up easily. The drillers on board stated drilling conditions in the area were one of the worst encountered to date. The PCOM would like DSDP to make sure that all co-chief scientists on future legs be advised as to changes which might occur. Their role as to chief scientists has changed. They may be diverted to other areas. They must be briefed with documentation for all priority sites. They must consult with JOIDES and DSDP regarding changes in plans.

In light of these developments the OCP re-evaluated their drilling plans in the Eastern Pacific. They recommend an increase in priority for a lower Tertiary deep crustal site (e.g., PAC 6) and a decrease in priority for OCP objectives in the region of the Gulf of California (e.g., the Guaymas Basin and the Tamayo Fracture Zone). Leg 54 results make it clear that for deep penetration in fast spreading crust, older regions must be drilled where alteration and sealing make drilling easier. Because of this reassessment the OCP recommends that Leg 55 drill a single bit hole at PAC 6 in transit to the Emperor Seamounts. This has a higher OCP priority than K-O.

GLOMAR CHALLENGER Drydocking. It was reported that very extensive structural repairs have to be done at drydocking. A report is being written on what was done during the drydocking, which will be distributed to the PCOM. The scientific equipment and repairs which took place were:

1. Upgrading microscopes.
2. Electronic equipment - tested and repaired.
3. 3.5 kHz system installed - hull mounted (actually in moon pool).
4. Global Marine updated and installed their speed log.
5. Compressor - upgraded.
6. XRF extensively repaired.
7. Omega system (computer navigational system) best commercial model made is now on board ship.
8. Upgraded sonobuoy - commercial sonobuoys are in hand. However, they are fragile and were not made to be thrown off the ship.
9. DSDP has ordered the French Pyrolysis Flame ionization instrument.
10. The long core spinner magnetometer is being installed.
11. Improvements in the science lounge.

DSDP Data Protection. Usher has instituted steps to insure that DSDP data will be protected against disaster, e.g., fire, water, earthquakes. A copy of his study is available from Moore.

PCOM Proposal for Research in the IPOD by Scientific Ocean Drilling in the Atlantic Ocean during the period 1979-1981.

The PCOM proposal for the period 1979-81 was presented. The proposal was accepted unanimously. It was suggested that flexibility be maintained by scheduling each leg in a manner as not to prevent the scientific objectives of the leg from being reached because of time constraints.

Panel Reports

Downhole Measurements Panel. The DMP reviewed the results of logging on Legs 50-53 which included the loss of the logging equipment. The Cambridge oblique seismic experiment was carried out on Hole 417D. The experiment appears to have been technically successful although the maximum hole depth was just adequate for significant results. Apparently it was not possible to get the USSR logging experts to the GLOMAR CHALLENGER during the drydock period. The problem of compatibility of USSR logging tools with the U.S. cable has not been solved. Apparently $45,000 has been raised by Japan for logging on Legs 56 and 57. An approximate equal amount is needed for insurance. Because we will not purchase the downhole magnetometer, DSDP now has the amount necessary for insurance. Bid requests for logging Legs 56 and 57 are out. The DMP will also contact the major U. S. petroleum companies to see if contributions toward logging might be obtained. Both DSDP and the DMP are examining the problem. It was suggested that the DMP and DSDP go outside the United States for contributions, e.g., foreign petroleum companies, etc.

The panel recommended that a simple test of pumping against a single packer in the hole which is now available be done as soon as possible (e.g., Leg 55). The result would be valuable for planning a hydrofracture experiment. It would be valuable to know if the GLOMAR CHALLENGER can pump up the hole. An electrical resistivity experiment for Leg 59 was proposed. The panel recommends that DSDP make every effort to assist in the proposed measurements.

Kirkpatrick is providing the DMP with a map of the Atlantic with a list of holes and their characteristics which have re-entry cones that might be re-entered.

Ocean Crust Panel. If samples are provided to investigators the current publication policy should be observed. It was noted that violations cannot be ignored nor forgotten. Other breaches have occurred. The PCOM realizes that professional ethics is the overruling force and the principle which we rely upon concerning publications. Problems have occurred with publications and cruise reports contain privileged information. If violations continue distribution of the shoreboard reports, etc., will be restricted.

Regarding the request for on board XRD, the PCOM decided to put XRD on the equipment request list to DSDP but gave it a low priority. For paleomagnetic investigations on board GLOMAR CHALLENGER, the OCP recommends the purchase of equipment for measuring induced and viscous magnetization. The instrument manufactured by Schonstedt costs $5,200. The PCOM made note of this request and placed it on the equipment request list to DSDP.

The OCP sees its role changing for the next several years. They are aware of other group's priorities and needs and will do everything possible to support them.

Ocean Paleoenvironment Panel. The OPP is almost at the specific site selection level and need site surveys and shiptracks. They are finding it difficult to obtain these data. The panel requests that the drilling order in the South Atlantic be reversed. Thus the Southeastern Atlantic areas would be drilled first.

The OPP requests that a shoreboard sediment analysis of Leg 53 sediments be done. This was scheduled for the end of July. The OPP is preparing a white paper to be published in GEOTIMES. It is basically an extraction from the FUSOD document. Regarding site surveys in the North Pacific, some sites are well documented. It was requested that the biostratigraphers improve the collections on board the CHALLENGER; the present collections are in need of repair.

Organic Geochemistry Panel. It was emphasized a request that co-chief scientists be made aware of the sampling procedures outlined by the OGP. This includes both frozen and other samples taken. The OGP would like representative samples from every lithology and age for future studies. Methods are not available now which will be available in a few years. Organic geochemistry sample requests have to be made two months in advance of the cruise and go through the Panel Chairman. The OGP requests that investigators who will be submitting papers for the IR be provided with the shipboard reports. The PCOM discussed this issue and decided that the co-chief scientists will give to the DSDP representative a list of people who should receive the shipboard report. It was also suggested that non-U.S. PCOM members receive a copy of the shipboard reports. The PCOM urged the OGP to see that when organic geochemistry work was done on a leg that a short synthesis of the organic geochemistry be prepared. This should be the responsibility of the on-board organic geochemist. If no scientist is on board, the Panel chairman should write the synthesis. The report should be as short as possible. The OGP is concerned about contamination problems, e.g., cosmoline coatings on the sand line. The OGP plans to propose that specific legs be devoted to organic geochemistry studies, e.g., South Atlantic.

Pollution Prevention and Safety Panel. Sites for Legs 55, 57 and 58 were accepted with only minor shifts in location. Leg 56 sites, Okhotsk (O1-3) were rejected, whereas Kuril (K) trench sites were accepted. The SIO Safety Panel held a similar meeting and approved the Okhotsk sites. DSDP will always choose the most conservative opinion. A second PPSP meeting was scheduled for 15 July 1977 to examine any new data that were not previously available. I. D. Murdma, co-chief scientist for Leg 56, was scheduled to present materials for review by PPSP at both its meetings of 7 June and 15 July, but he was unable to attend either meeting. As it stands now, Leg 56 will drill Kuril sites (K-0, K-2c, K-3a) only. Another PPSP meeting is being scheduled to discuss the Sea of Okhotsk during the AMP meeting to be held 1-3 August 1977. Unless new data are presented the Okhotsk sites stand rejected.

Site Survey Panel. The SSP needs to know sooner about funds in planning for site surveying especially in 1979 (e.g., Gulf of California, Galapagos). Funds for site surveying are included in the 5 million dollar proposal to study future drilling operations which has been approved. The SSP will know by the first of the year. The PCOM emphasized that all panels must plan for 1979 drilling and beyond. The PCOM feels that the SSP should not bypass outside review. Further the PCOM recommends to SSM that covering letters be attached to the proposals giving guidelines for review with a list of criteria for use in ranking the survey proposals.

All site survey data should be stored at L-DGO. M. Langseth (SSM) is compiling maps of geophysical and geological information available for each site whether drilled or not. The PCOM made the following suggestions: (1) For those sites that are drilled, the maps should go into the appropriate IR, and (2) for those sites which are not drilled (i.e., not in IR) the information can be published elsewhere.

Stratigraphic Correlations Panel. The PCOM accepted the changes in the SCP mandate (see PCOM minutes, 12-14 July 1977, Appendix 3).

A plan was presented to the SCP for a list of biostratigraphers. The PCOM encouraged the SCP to compile this list for Moore. However, they rejected the idea that every biostratigrapher should be cleared with the SCP. Moore will consult with the SCP designated liaison if scientific party participants are suggested who do not appear on his list. The SCP will be given Moore's list for additional names and comments. A list would be helpful from all panels.

A concern has developed about the present inadequacies of the paleontological reference collections (both individual index species and assemblages) aboard the GLOMAR CHALLENGER. The PCOM believes that suitable reference collections are an important component of the shipboard scientific material especially in light of the wide age range of sediments normally obtained during each drilling expedition which is outside the expertise of any single investigator. Because of current reference-fossil inadequacies, the PCOM recommends that the SCP develop a program to update these collections to a point where they become useful. It was asked to have an inventory made of all paleontologic and mineralogic collections on board the CHALLENGER.

Inorganic Geochemistry Panel. The IGP would like the XRF to be used if a well qualified person is on board ship. The XRF belongs to France (CNEXO) and they require their specially trained technician to operate it.

Many scientists in Japan would like to analyze samples both for general and specific studies. The PCOM is very concerned about the fact that acceptance of the Birmingham XRF offermay have preempted Japanese efforts. The PCOM wants the co-chief scientists of Legs 58-60 to be notified that the PCOM has made a commitment to Birmingham to release funds for logging. Should a problem arise the PCOM wants the co-chief scientists to be aware of the situation and hopes that they can satisfactorily adjudicate a conflict should one arise.

Downhole Measurements Working Group. A preliminary multi-institutional proposal was presented designed to instrument three holes in the East Pacific. The areas of interest are the Tamayo Fracture Zone, Mid-America Trench, and the Galapagos sites. The plans are to leave the instruments in the holes for a year or more. A letter endorsing the concepts in the proposal will be composed and sent to the agencies considering the proposal and to the non-U.S. IPOD Planning and Executive Committee members for distribution in their countries. It will be explained that JOIDES and DSDP are planning appropriate holes and will study the feasibility of implanting the instruments and the associated costs. This letter will be jointly sent by JOIDES and DSDP.

ALCOA SEAPROBE Report

A report on the ALCOA SEAPROBE was presented. The ship is described as basically an aluminum barge which has received excellent protection over the last eight years and shows no evidence of electrolysis or corrosion. WHOI arrangements involve ALCOA maintaining ship costs and WHOI evaluating it for possible uses for science at sea. If not viable, WHOI can return SEAPROBE to ALCOA. If WHOI wants it, the title will be transferred within a few years. The ship is unique because of the array of sensors attached in pods to the bottom of the drill string. Improvements would consist of combining Angus and Deep Tow systems with 3.5 and 12 kHz systems, side-scanning sonar, and video-camera systems. Drilling and coring capability could be provided by adding either a conventional rotary apparatus or a turbo drilling system. The present depth capability is 10,000 ft. but the greatest interest is at 15,000 ft. which is the maximum limit of the ship. SEAPROBE might fit JOIDES' and other needs by being used to collect 100m-long oriented, undisturbed soft sediment cores. It was suggested that information on SEAPROBE be obtained. The panels will be asked to evaluate the usefulness of the SEAPROBE. It was suggested that this information be sent to NSF.

JOIDES Policy on Synthesis Volumes

JOIDES favors the preparation of synthesis volumes as a way of presenting the scientific results of deep-sea drilling in a broad regional or topical perspective. Prospective coordinators or editors of a synthesis volume seeking JOIDES support or funding should submit to the subject panels an annotated outline of the proposed volume, with possible authors and publishers, and a full discussion of the aims and scope of the volume. At the first meeting of the calendar year the PCOM shall appoint an ad-hoc subcommittee composed of three of its members and pertinent panel chairmen to evaluate the proposals for volumes received during the past year. On receiving a recommendation from the subcommittee to approve the volume, the PCOM shall evaluate it. If the PCOM concurs with the subcommittee's approval, it shall, through the EXCOM, so notify the prospective editors, and the DSDP. During any given year it may be recommended that available funds be divided among more than

one volume. Peer review and quality in the preparation of the proposed volume shall be the responsibility of the volume editors. The method used may vary with the volume being prepared. The DSDP should budget approximately $10,000 per year for at least one synthesis volume per year, but, except in special circumstances, publications should be undertaken outside DSDP.

REPORT FROM THE ACTIVE MARGIN PANEL (13-15 December 1976)

Organic Geochemistry Panel Report

One direction of organic geochemical research is to determine the maturity of organic matter and understand how the organic matter contributes to the generation of petroleum. This approach has been applied in the past to "cold" passive margins. In active margins there are opportunities to compare like sediments and like organic material undergoing different thermal conditions. The last OGP meeting emphasized that the W. Pacific provided an opportunity to learn about the thermal geochemical processes in thermally anomalous areas. Four sites were proposed which would be of considerable interest to OGP:

a) A case for the relationship between tectonics and temperature was argued for, i.e., a relationship in terms of petroleum generation.
b) Objectives: To test similar sediment of similar age, in similar tectonic environments but having different thermal environments.
c) S. E. of Honshu triple junction region may provide opportunity where these objectives may be investigated and which is of interest to the OCP and AMP. Here it may be possible to test both pelagic sediments and terrestrial sediments in front of and behind trenches.

Site Survey Panel Report

HIG is planning a detailed survey on SPI-4 in late spring 1977. VEMA is going to the western part of the South Philippine Sea and wants guidance on sites. Seismic techniques will be used extensively including OBS and sonar buoys.

Site Survey Reports

South Philippine Sea. Monitor records of m.c.s. traverses tying the various proposed IPOD candidate sites in the South Philippine Sea were presented. Highlights of the records include presence of thick sediments in the arc-trench gap, western flank of Honshu Ridge, western flank of Kyushu - Palau Ridge and what appears to be high velocity crustal material at shallow depth. Preliminary multichannel site survey data from the SP sites in the western part of the Philippine basin were presented. A newly discovered 5700m deep chasm striking nearly N-S which may connect with the Yap trench was reported. The processing of the data is expected to show further details. M.c.s. data from the SP sites in the eastern part of the Philippine Basin in the region of the Mariana Arc were presented. Additional detailed surveying is planned for the spring of 1977.

Sea of Okhotsk. M.c.s. data for the Kuril Basin and Pacific Ocean east of the Kuril arc were presented. Single channel data for other sites were presented although all other sites have now been surveyed with m.c.s. and the data are being processed. The meeting expressed great interest in this display of new USSR data especially the m.c.s. profiles on the Pacific which appeared to show some remarkable details of sea floor deeper structure. The KJ site in the Sea of Okhotsk Transect is a Mesozoic magnetic anomaly. It was noted

that PAC 7 site is covered by the USSR m.c.s. data. The magnetic anomaly M0 or M1 corresponds with PAC 7 where there is about 3.5km crustal thickness above the MOHO from the sea floor but where there is 6.5km of sea water cover on this shallow MOHO.

Japan Trench. Single channel seismic data were presented as the multichannel survey data are not yet available. The J1 and J2 sites are covered by single channel data from which it is evident that the J2 site requires a re-entry hole.

North Philippine Sea. Multichannel seismic data were presented with a detailed bathymetric map. Topography suggests that fracture zones correspond with magnetic features. Site NP0 has been moved into deeper water and requires re-entry. The thick sediment cover in the Shikoku Basin was pointed out. Site NP3 is on the "upwall" of what may be a caldera. It was argued that the clear magnetic anomaly pattern allows the spreading center to be tested in the North Philippine transect. Multichannel seismic data for Daito Ridge and associated basins were also presented. The interpretation favored at present regards the Daito Ridge as a subsided Mesozoic island arc. Supporting evidence for this is provided by the presence of very shallow marine carbonate sediments containing Nummulites boninensis and dredged samples of andesite and granodiorite. It was suggested that the presence of an isolated now inactive island arc in the North Philippine Sea was a target meriting IPOD interest and that site NP7 should therefore have elevated priority. It was argued that the apparent absence of related active trench accorded with the old arc subsiding through loss of heat. A suggestion that a dredging program on this ridge would be more informative than a single hole IPOD site was made. It was pointed out that the dredging results reported here were not uniquely characteristic of an island arc, they could equally well be correlated with a rifted segment of continental crust derived perhaps by back-arc spreading from a continental margin.

Tonga Trench. One major objective here is to characterize the ocean crust rocks before subduction and to compare with the volcanic part of the arc. Evidence indicates that the Fiji Plateau could not have formed exclusively by subduction. A different process such as perhaps entrapment is required for the Fiji Plateau. It was suggested that the origin of the South Fiji basin has implications for the whole Southwest Pacific region.

Middle America Trench. Attention was drawn to the particular importance of the Middle America Trench region as one where there were opportunities for the IPOD program to be correlated with land surface geology, deep wells on land and extensive oil company geophysical data. This was a suitable region for IPOD to make a concentrated effort. Cruises are planned to start in Mid-February 1977 with 3 traverses to investigate sites off Mexico, Guatemala and to study exposed rocks in the southern part of the region. Oil company seismic data have already been made available for planning the traverses and on shore well data is also available. The advantage of having better bathymetric data in this region was discussed. A letter recommending the purchase of suitable equipment to carry out multibeam scanning bathymetric surveys will be drafted.

N.W. Australia and Banda Arc. This appears to be an exceptionally old passive margin that has travelled through great range of latitude during its history, and affords a remarkable opportunity for IPOD to investigate processes associated with the change from passive to active margin behavior. Land geological evidence indicates that the Banda Arc acquired its sinuosity after Early to Middle Pliocene overthrusting. This bending would have involved the Weber basin and the margins of the Banda Sea. The isostatic behavior of a collision zone can

be tested by determining the stratigraphic successions in the successor-type basins of the Timor Trough and its equivalent features around the arc to the Seram Trough. The magmatic history of a collision zone can be tested by IPOD on the flanks of the inner volcanic arc and in the region of the displaced volcanic arc at Gunung Api in Banda Sea. The root zone of ophiolites and other thrust sheets may possibly be tested in the Wetar Strait and the region between Ambon and the Banda Islands.

Following is the priority of scientific objectives for the AMP sites:

Priority I	-	Middle America Trench & South Philippine Sea transects
Priority II	-	Kuril-Okhotsk-Japan transect
Priority III	-	Northern Philippine transect
Priority IV	-	Caribbean, New Hebrides, Tonga & Peru-Chile proposals

The AMP strongly recommended two legs to meet the objectives of drilling the Kuril-Japan and the Middle America regions.

REPORT FROM THE ACTIVE MARGIN PANEL (23-25 March 1977)

Planning Committee Report

The possibility of lengthening the drill stem from 7.6 to 8.5 km by using aluminum pipe was reported. The AMP noted this but emphasized the need for logging of holes to be given utmost priority and the AMP reaffirmed its strong recommendation that all holes be fully logged. It was reported that there is no funding for logging Leg 56. The suggestion has been made to formally ask the USSR for logging on Leg 56. The AMP noted that the dynamics of subduction aspect of the AMP proposal, involving long term monitoring of holes, is an entirely new kind of study. All members of the AMP stressed how important it is for the AMP to coordinate the land and marine realms. Many stressed how the Caribbean region offered opportunities for correlating land and marine geology. Excellent m.c.s. data exist with wide coverage of the various targets exemplifying a back-arc basin.

Downhole Measurements Panel Report

The Chairman summarized the main objectives of the OCP Working Group for long term instrumentation of DSDP holes, held on 10-11 March 1977 at Woods Hole as: long term temperature, electric and magnetic monitoring, long term tilt and gravity monitoring, long term seismicity monitoring and the one-shot seismic experiments. It is also important to develop data transmission systems, including satellite communication systems for this downhole monitoring program. The AMP called for holes to be designed as re-entry holes so as to allow instruments to be placed in the hole after drilling and thus to accommodate developing downhole technology and instrumentation. The AMP were deeply interested in a series of recordings at different depths downhole across a shear zone between overthrusting and under-thrusting plates. Operational conditions probably limited the use of hydro-fracturing techniques in the deep-sea for measurement of principal downhole stresses. Instrumentation for direct stress orientation measurements using laser holography has been developed by TRW and can be adapted for DSDP-AMP requirements.

Site Survey Management

After discussion, it was asked that a request be sent to the PCOM suggesting that the co-chief scientists or proponents, who are responsible for sending data to the SSM, also be asked to make a presentation to the Safety Panel of the data.

Japan Trench

Forty-eight channel seismic records with two cross lines were displayed. A logging budget is being sought by the Japanese and the AMP strongly stresses the importance of this logging. The northern of the two m.c.s. lines displayed reveals thinner sediment cover and is, therefore, more attractive to the AMP objectives. The infilling line to be surveyed is recommended to be sited close to the northern line.

Scientific Objectives for the Japan Trench Sites

Site	Location	Water Depth	Penetration	Objective
J12	40°37'51.68" 143°13'37.32"	1683m	1300m	Reach the Jur/Cret basement; drilling 3 weeks
J2B	39°44'52.75" 143°22'26.15"	2190m	1000m	Determine Neogene basin history
J2A	39°44'43.02" 143°39'34.63"	2611m	1800m	Alternate to J2B
J1A	39°44'49.07" 144°05'27.75"	5712m	500m	Accretionary prism
J1B	39°44'47.28" 143°55'34.45"	4414m	800m	Accretionary prism
J1C	39°44'55.59" 144°08'21.18"	6151m	500m	Alternate to J1A, J1B
J10	39°55.0' 145°33.7'	5210m	750m	Subducting ocean plate

Okhotsk-Kuril Transect

Scientific Objectives for the Okhotsk-Kuril Transect

Site	Water Depth	Penetration	Objective
03A	1275m	400m	Back-arc shelf sed; basement and younger cover
02B	1450m	1000m	Nature/age of back-arc shelf basement and sed. sequence near the basin-shelf boundary
01B	3100m	1300m	Sed. sequence and basement of Kuril basin
K2C	5250m	1100m	Sed. basement of Jur/Cret age
K3A	4430m	1500m	Sed. history of upper slope of Kuril trench
K1A, K0			Subducting slab
K4, 05			Kuril Basin

Daito Ridge Area

The islands along the ridge and dredging from the ridge have yielded andesite, granodiorite and basalt and sedimentary rocks resembling island arc type ridges separated by narrow basins whose depths suggest they are floored by oceanic crust.

The age of the ridges and narrow basins is uncertain and their evolution and tectonic affinities unknown. The Daito Ridge system and the Shikoku Basin need IPOD investigation because the determination of their structure, composition and history has a fundamental and direct bearing on our understanding of the evolution of the whole Philippine Sea. Site NP7B (which replaces NP7A) is located at SP 3850 on line 3, coordinates are 25°32'04"N and 133°14'12"E. There is an urgent need for the site survey data for the NP Sea area to be processed so that targets have better definition for selection. Further surveying will be undertaken in May using sonobuoy and OBS with air gun. The subsidence history of the Daito Ridge is a major target for NP7 sites. The sedimentary cover on the Daito Ridge appears to be very different in seismic character from the sediments in the basin adjacent to the ridge. These ridge covering sediments, which from dredging are known to include Eocene limestones, may be older than the sediments filling the adjacent basins. Site NP5B is located at SP 6000 on line 3, coordinates are 24°42'27"N and 132°45'50"E. This hole is sited to determine the sedimentary history of the basin and penetrate the acoustic basement. It should also be used to determine the age of extinction and rate of subsidence of the island arc because such a basin within the ridge must have formed after the ridge began to subside.

Scientific Objectives for the South Philippine Sea

It was pointed out that this region displays a depth anomaly in that it is 1 km below the Sclater age/depth curve. Very rugged relief with ponded sediments occurs across the ridge. Refraction studies of the axial high of the Mariana Trough revealed low mantle velocities (7.6 km/sec) compared with mantle velocities found in mid-ocean ridge crest spreading centers. The total crustal thickness of 6.2 km compares closely with normal ocean basins. Dredging has revealed the tholeiitic basalts from the rough topography region. The AMP require a hole to determine the age of initiation of spreading by putting a site on the ponded sediments near the E or W margin of a spreading basin but sited on typical ocean crust not contaminated by arc material. The hole should also penetrate the basement to determine its nature. The subsidence history of the basin will require a site on substantial sediment thickness. For Sites SP1-4 the AMP recommend that HIG survey sites are planned if possible to make use of OBS surveys on the axial part of the Mariana Trough where there are sediment ponds suitable for drilling (at 18°N and 144°40'E).

REPORT FROM THE DOWNHOLE MEASUREMENTS PANEL (2 June 1977)

Logging Reports

Leg 50. Moroccan Basin: a complete suite of Schlumberger logging was obtained to 690m depth at Site 416A. An obstruction in the hole prevented the tools reaching to the total depth of 1624m (all in sediments). The data for the logged section was excellent. Temperatures probably were good enough to correct the resistivity log and for relating to hydrocarbon maturation.

Leg 51. Western Atlantic, old ocean crust, Site 417A: Schlumberger logging was obtained to 500m depth including nearly 200m into basement. Good data was obtained, the first really satisfactory data in basement, permitting quantitative comparison of downhole and sample physical properties. There was considerable difficulty with obstructions and logging tool failures so some logs were not obtained.

Leg 52. Schlumberger logging was available but not used as a bottom hole assembly and section of pipe was lost in the hole. The Cambridge University oblique seismic experiment was carried out in hole 417D (drilled on Leg 51).

One hundred and sixty-five 20-lb charges were fired from the NOAA ship, VIRGINIA KEY, at distances to 10 km to a clamped three component geophone at the bottom and part way up the hole. The experiment appears to have been technically successful although the maximum hole depth was just adequate for significant results.

Leg 53. Schlumberger logging was attempted after recovery of a second lost bottom hole assembly. On the first lowering an obstruction was encountered, the cable jammed and the logging tool and a long section of cable lost. No data were obtained. A new logging cable has since been obtained.

The cost of the logging facility was paid by DSDP for Legs 50, 51 and 52; on Leg 53 Schlumberger provided a free service.

Future Logging

A meeting was held on 4 May 1977 at Seattle at the request of the PCOM to evaluate the Soviet proposal to provide downhole logging equipment for the GLOMAR CHALLENGER. The group at the Seattle meeting recommended that the Soviet Union be invited to provide equipment for a trial if it could commence by Leg 56. It was reported that Soviet engineers could not be at the Los Angeles drydock 12-26 June as recommended to examine the problems of putting Soviet equipment on the CHALLENGER. It was reported that the problem of the CHALLENGER logging cable not being compatible with Soviet tools had not been resolved. Either the cable could be changed or the tools modified. The Panel now recommends that the Soviet engineers visit the ship as soon as possible, at least 2 legs before logging is to be attempted. It was reported that contact had been made with Gearhardt-Owen Ltd. to see if they could put a logging facility on board the ship at low cost. They might provide a complete logging service including engineers for about $250,000 per year. The most recent digital data acquisition and on-board minicomputer processing system might be provided. This is a very attractive offer that the Panel recommends that DSDP pursue vigorously. It is also possible that money for logging on at least Leg 59 might be provided from Japan, as logging is considered essential on that leg.

Purchase of Scientific Equipment by DSDP vs. by Outside Scientists or Organizations

As a general principle the Panel recommends that the Project acquire equipment with clearly established scientific merit that would be used frequently, producing data of interest to a number of scientists or scientific groups, provided the Project has the people and facilities to operate and maintain the equipment. "Frequently" is open interpretation, but on a quarter of the legs seems a reasonable guideline. It is essential that each proposed piece of equipment receive a thorough review by competent scientists outside the Project. The Panel recommends that a downhole magnetometer be purchased by the Project subject to a clear written case being made for its value, including comments from outside rock magnetic experts. The Panel also recommends that the Project investigate taking over downhole heat flow measurements.

Hydrofracturing Experiment

The Panel recommended that a simple test of pumping against a single packer in the hole which is now available be carried out as soon as possible (e.g., Leg 55). The results might be very valuable in themselves and would be important for planning a hydrofracture experiment.

Presentation of DSDP Logging Data at Scientific Meetings

The Panel recommends that a paper on DSDP logging (Legs 48 and 50 in sediments, Legs 46 and 51 in basement) be presented at: (1) the Ewing Symposium on drilling results from the Atlantic to be held at L-DGO; (2) the next SPWLA (Society of Professional Well Log Analysts) meeting. These presentations would illustrate the value of logging in DSDP holes and emphasize the importance of logging for future deep ocean holes.

Encouragement of Proposals for In-Hole Measurements and Instrumentation

The Panel would like to encourage proposals for in-hole measurement and instrumentation and requested that the JOIDES Office put a note in the JOIDES JOURNAL and perhaps in GEOTIMES and GEOPHYSICAL PROSPECTING.

Use of Old Holes

The Panel would like to encourage the use of old holes for downhole experiments and instrumentation. It is noted that a re-entry was achieved on Leg 52 with the beacon dead. It was requested to provide a map and list of holes in the Atlantic with cones that might be re-entered, and their characteristics.

REPORT FROM THE INFORMATION HANDLING PANEL (27-28 January 1977)

Initial Reports

As the primary scientific record of the results of the DSDP program, these reports are expected to contain papers or data reports of a high quality. Under existing procedures the quality of papers included in the IRs is a joint responsibility of the authors, the co-chief scientists and the editorial staff of DSDP. In fulfilling this responsibility, these individuals may seek competent technical review of any manuscript submitted for publication. It is the opinion of this Panel that reviews voluntarily solicited by the authors, although valuable, are not always sufficient to ensure these goals. We urge, therefore, that outside reviews by experts in the various disciplines included in the IRs be sought wherever possible by the DSDP scientific editor. In this respect, the assistance of the individual JOIDES panels should be furnished. We furthermore strongly recommend that the final decision as to the publishability of manuscripts, after the above procedures have been followed, be retained by the Associate Chief Scientist for Scientific Services of DSDP.

Shipboard Computer

This Panel recommends that DSDP acquire computer hardware necessary to operate at the level shown in Appendix B of the IHP Minutes, 27-28 January 1977. The choice of manufacturer and the specific configuration will be up to DSDP. The entire Panel would like an opportunity to review the decision before a final commitment is made. We recommend the addition of 3 people to the staff of the Information Handing Group by the time the computer is fully operational. Clearly, at least a lead technician will be necessary at the outset. There will be initial training costs, usually at the hardware manufacturer's location.

Data Base: Paleontology

We recommend an immediate start and that DSDP supply a half-time employee at a sufficiently high level to accomplish the encoding. It cannot be accomplished by

the present staff in any reasonable time period. This activity, together with the other data base preparation, is given the highest priority by the Panel.

Downhole Measurements Data Base

Now that logging has started again, the Panel inquired about the responsibility for the data. We understand that Schlumberger would offer a turnkey service to provide a library tape containing borehole-corrected data representing all logs on each hole. Under these conditions, the archiving and indexing of such data tapes will impose no burden on the Information Handling Group. However, if programs for their use are required, they will have to be developed either by the interested scientist or by the Information Handling Group. If there is no turnkey service from Schlumberger, this Panel believes that the DMP should oversee the preparation of suitable archival tapes. If only raw data were submitted to DSDP, additional staff may be required to properly handle these data.

Errors in Initial Reports

Work is continuing on the preparation of an errata volume for the IRs. All authors of articles have been contacted and some have responded. This information will be compiled later this year.

Initial Report Indices

Indexing of the IRs did not start until Vol. 21; the first 20 volumes are not done. It has been proposed that these be indexed and that a merged 44-volume index be issued after Vol. 44 is issued. We recommend the addition of 1 man-year to the budget of DSDP to do the indexing.

Publication Index

The "Keyword Index to the Initial Reports, Publications and Investigations of DSDP Materials" is now available on microfiche. It is updated approximately every six months. It is required that all papers which are based on requests by the author for DSDP materials be submitted for indexing. It was recommended that all pertinent and important articles which came to the attention of the indexers be included. An introduction to the Index should contain a statement that this class of secondary publications is incomplete.

Site Survey Data

The problem of relating site survey data to eventually drilled sites was raised. This includes data from post-drilling surveys, if any. Last year we recommended that the data from site survey cores be added to the data base. There will be a need to develop a numbering system to handle these data. It was suggested that the Information Handling Group develop an equivalency table for all of the various designations which have been or will be assigned to a site. The Panel repeats its concern about the slowness of receiving some site survey data and site survey reports.

INTERIM REPORT FROM THE INORGANIC GEOCHEMISTRY PANEL

The Panel intends to participate in the "basalt-hot water interaction" working group. The participation of at least two geochemists on board ship (one interstitial water chemist and one mineralogist) who will carry out a sampling program for at least ten other participants is requested. In addition to the area of

the Galapagos spreading center. nterest is expressed in the proposed sites in the Gulf of California. It is imperative to study the complete system sediments-water-basalt, in order to gain information on the geochemical importance of reactions taking place in the sediments and basalts. The Panel, especially because of its expressed interest in the problem of silica diagenesis, is, in addition, much interested in the proposed drilling programs in the Sea of Okhotsk and the Gulf of California.

There appeared to be a diversity of opinion on the value of a detailed program of chemical analyses of sediments. This problem will be discussed in greater detail during the next panel meeting in June 1977.

The Panel has supported an expanded program of shipboard analysis of the chemical composition of interstitial waters (salinity, chlorinity, alkalinity, calcium and magnesium). The results of this program will be available to shipboard scientists and will also serve to determine whether shore laboratory follow-up studies are required. We also urge the routine use of the in-situ interstitial water sampler. This sampler will serve to verify data obtained during the shipboard interstitial water extraction program, but more importantly will serve to obtain relatively uncontaminated quantitative estimates of gas contents, not only of methane/ethane but also of rare gas concentrations. The Panel encourages the purchase of a conductivity meter which can be used to estimate formation factors in the sediments.

The Panel intends to sponsor a symposium on the diagenesis of opaline silica, probably during the IUGG meetings of 1979 in Australia.

REPORT FROM THE OCEAN CRUST PANEL (6-8 January 1977)

Site Surveys

Site survey management provided abbreviated site survey reports to panel members. SSM agreed that placing abstracts of survey reports in JOIDES JOURNAL was possible, as was circulation of information packages. After discussion, the Panel recommended that as survey information becomes available, copies are circulated to the (1) Project Chief Scientist, (2) chairmen of appropriate problem panels, (3) chairman of SSP, and (4) co-chief scientists of the appropriate legs. Also that copies of site survey reports should be made available to participating scientists on request; this might best be done by inclusion in the hole summary book.

Site Survey Panel Report

The OCP recognizes the much increased resolution of geophysical techniques, which have now converged with DSDP drilling capabilities, and provide an important means of extending drilling results to wider areas of the ocean crust. We emphasize the effectiveness of post-drilling surveys using such techniques around already completed holes, especially those of Legs 37, 45 and 46, and would encourage the use of survey time and cored material for such projects.

Active Margin Panel Report

Drilling plans for the legs for which this panel is principally responsible were reviewed. Sites of greatest crustal interest were:

Kuril transect: K0 site on arch outside trench. OCP reaffirms its belief that this site (rather than the K1 site on the slope into the trench) was the one it wished to see drilled.

Japan transect: JO beyond trench.

North Philippines transect: NP3b, a multiple re-entry site on a defunct spreading center in the Shikoku basin. NP1 ocean floor outside arc.

South Philippines transect: SP1 ocean floor outside arc. SP4, a multiple re-entry site in the youngest actively opening inter-arc basin. SP8, a multiple re-entry site at the west end of the transect, north of the central basin fault.

OCP recommends that in staffing legs with important basement penetration, four petrologists or hard rock geochemists is the minimum number for effective working. One paleomagnetist will be necessary, and one XRF technician. The most important legs are those of the North and South Philippines transect.

Current Status of Site Surveys

Two site surveys have been arranged for the Nauru Basin west of the Gilbert Islands and the Central Basin east of the Gilberts for OCP sites in old Pacific crust. Results were presented for the surveys of PAC 5 and PAC 6 sites. In PAC 6, normal ocean crust is overlain by 50m of transparent sediment and 50m of more reverberant sediment. Magnetic anomaly 32 is readily identifiable. In PAC 5, normal ocean crust is overlain by similar sediments to PAC 6. However, magnetic anomalies are not clear in this region.

Review of Old Pacific Sites

Objectives at old Pacific sites are:

(1) Investigation of the character of old unrifted oceanic crust for comparison with young unrifted crust and with old rifted (Atlantic) crust.
(2) Deep penetration into crust softened and sealed by low temperature alteration, to reach towards layer 3.
(3) Investigation of hydrothermal and weathering processes in the ocean crust
(4) Dating of Mesozoic magnetic anomalies
(5) Examining nature of crust in a Mesozoic magnetic quiet zone
(6) Providing an ocean-ward reference point for transects of island arcs.

Discussion resulted in assigning the highest priority to a site MP 2 in the Central Pacific Basin on anomaly M9 at about $1^{o}45'N$, $178^{o}40'E$. Sediment thickness is 300m, spreading rate 6.4 cm/yr, and paleolatitude 30-40°S. This site would be a multiple re-entry site aimed at many of the objectives above. Site surveys have been planned for this site and for an alternative site in the Nauru Basin to the west. A slightly lower priority was assigned to a single bit penetration at KO, at the oceanward end of the Kuril transect. This has already been planned for Leg 55. A slightly lower priority again was assigned to SP1, the site at the oceanward end of the South Philippines transect. This site has the disadvantage of possibly thick and difficult sediments and of lying on crust of uncertain magnetic anomaly age. At a lower level of priority came multiple re-entry at KO (as opposed to single bit penetration given a high priority above), and at MP1, the site within the Nauru Basin. Lower again was the priority assigned to JO and NP0, the oceanward sites of the Japan Trench and North Philippines transects.

Review of Middle-aged Pacific Sites

Two different groups of sites were discussed in this category: (i) older Tertiary high paleolatitude paleomagnetic sites, scheduled for multiple re-entry; and (ii) low paleo-latitude single bit sites to form a trans-Pacific transect from the PAC 4 site. Objectives at such sites would include:

(i) Study of a crustal section in one of the well-developed classic Pacific magnetic anomalies, at a paleolatitude large enough for negligible problems with polarities, concentrating on magnetic measurements.
(2) Study of progressive aging of oceanic crust, providing points of intermediate age.
(3) Completion of a mantle flow-line transect to investigate variation in nature of lavas erupted with time at one point on a non-rifted, fast spreading plate boundary.

Discussion identified two high priority aims:

1. A multiple re-entry high paleolatitude site primarily for magnetic studies. This aim seems best met in an area of Pacific crust that has drifted north through the Tertiary and now lies near the Tuamotu Islands at about 15°S, 140°W. The paleolatitude is about 35°S, spreading rate is more than 5 cm/yr, thin chert-free sediments are present and weather is good throughout the year. Investigations of the survey position in this area are proceeding. A second choice for the location of such a site would be on the Tertiary anomalies in the Gulf of Alaska, though weather conditions there would seem to make a multiple re-entry hole more difficult. Proponent is Hall.

2. Single bit sites on a mantle flow-line transect away from the PAC 4 site. The PAC 5 and PAC 6 sites, already surveyed, lie along this transect. Because of the unsatisfactory magnetic anomalies at PAC 5, we put the highest priority on PAC 6 for this drilling, but one single bit hole at PAC 5 would be necessary to make the transect complete. At the PAC 6 site, more than one single bit hole will be necessary to ensure proper sampling of crustal composition, and it is proposed that these are placed at increasing intervals along magnetic anomaly 32. These can be structured so as to investigate small scale structural and petrological heterogeneity for comparison with the important results from the Atlantic. Of the sites investigated in the PAC 6 survey, OCP prefers 6a, but OCP recommends inversion of PAC 6 magnetic data before a final decision is taken on siting the holes.

Review of Young Pacific Sites

The sites were assessed according to their ability to provide answers in specific areas: (1) structure of and processes in the active spreading zone (a zero-age hole), (2) magnetic properties and structure of very young crust, (3) structure of young crust formed at high spreading rates, (4) relationship of structure to micro-topographic setting, and (5) variation of petrological properties vertically as compared with surrounding dredged material. Some sites were able to attack more than one of these areas, and discussion identified the following high priority sites:

1. A multiple re-entry site at PAC 4, with nearby single bit holes. (already planned for Leg 53).

2. A major program of drilling accompanied by downhole measurements, sampling and experiments in the area of the Galapagos Spreading Center. This is envisaged as requiring eventually 3 legs, of which one would be drilled in the period up to October 1979. Its appearance at a late date in the Pacific drilling program is caused by new results of geophysical surveys in the region, demonstrating with high probability the existence of hydrothermal convection in the oceanic crust. These results are very complete and have generated a great deal of interest in the geological community.

3. A leg devoted to single bit sites in the region of PAC 1 (Tamayo fracture zone) and the Guyamas basin in the Gulf of California. These sites would particularly tackle problem areas 1, 2, and 3 on the previous page. Larson as a member of the Gulf of California Working Group is proponent for this group of sites.

This cluster of sites would allow all of the problem areas set out above to be attacked in three principal regions. At a somewhat lower priority, we would recommend one additional site, in very fast-spread crust on the East Pacific Rise at 1^{o}-2^{o}S to be drilled to investigate the structure of crust that has been produced at very high spreading rates indeed.

Planning for Leg 53

Further analysis of site survey data was presented to the panel and it was able to develop further its plans for the PAC 4 drilling on Leg 53. Topographic and multichannel reflection records showed that the center of the OBS array was not, as had previously seemed the case, in the moat surrounding the E/W transverse ridge but on slightly shallower ocean floor a few kilometers to the north. In addition, geochemical analysis of lavas from the E/W ridge and the nearby ocean floor showed that they can be distinguished using the shipbaord X-ray fluorescence set. Thus the chances of the influence of the ridge extending to the center of the OBS array are reduced, and the ability to recognize it if it did is increased.

The OCP recommends that Leg 53 begin with a pilot hole at the center of the OBS array and follow this with a pilot hole at the OCP site to the north of the array center. During the drilling of the second hole, rocks from the first will be examined and analyzed. If there is any doubt that the OBS site is normal after the analysis, then the northern site should be the place for multiple re-entry. If the re-entry finishes before the end of the Leg, the highest priority would go to an extra single bit hole near each of the possible prime sites. Lower priority would be given to a single bit hole near the Siqueros fracture zone, and still lower priority to a single bit site on anomaly 5 to the west of the prime site.

Planning for Leg 54

If the deep hole at PAC 4 is still going, to continue drilling there and pick up some drilling at PAC 5 and PAC 6 later is recommended. If a borehole magnetometer is available, it is suggested to drill one single bit hole at PAC 5 and a line of holes along anomaly 32 at PAC 6, with intervals of 200, 400, 1200m successively between holes, to look at small scale variability of the crust. If no borehole magnetometer is available, it is suggested to drill two single bit holes at PAC 4 to extend the program there, followed by one single bit hole at PAC 5 and PAC 6.

Planning for Leg 55

The objectives for these sites are (a) to find the paleolatitude of formation of one or more seamounts in the chain to test the fixed hot spot model; (b) to find the age of formation of at least two seamounts in the chain to find the rate of migration of volcanism along the chain; (c) to investigate systematic changes in petrology and chemistry along the chain, and (d) to compare the structure, age and petrology of a small seamount with a large one.

The best drilling plan seemed to be: (a) a pilot hole followed by a multiple re-entry hole on North Suiko seamount, and (b) a single bit hole at an unnamed seamount between Nintoku and Suiko. These are to be followed by a single bit hole at the KO site. If no re-entry hole is possible on Suiko, then the KO site should be a re-entry one.

OCP Drilling in the Period Between Leg 59 and Leg 69

Five legs were selected as being of high priority for this period: (a) one leg drilling a deep multiple re-entry hole in Mesozoic Pacific crust; (b) one leg drilling a multiple re-entry hole in early Tertiary crust formed at high paleolatitudes, primarily for paleomagnetic purposes; (c) one leg drilling zero age or near zero-age crust in and near the Gulf of California; (d) one leg beginning the study of geothermal processes near the Galapagos Spreading Center, and (e) one leg drilling the Vema Fracture Zone in the Atlantic Ocean.

OCP Input to Long Range Planning Beyond October 1981

Four main fields for developing ocean crust drilling are:

1. Technological. Developments of bit design to improve recovery and allow high temperature drilling instrumentation for downhole experiments both during drilling and long term post drilling experiments and drilling capability to allow spudding in where no sediments existed would all immensely increase scientific return on drilling.

2. Geothermal drilling.

3. Deeper crustal drilling, penetrating directly 2 km into layer 3, and into deeper layers of the crust where they are nearer the surface in fracture zones or elsewhere.

4. Oceanic margin drilling aimed at the structure and hard-rock processes of the early stages of formation of oceans.

Such drilling would not require a much larger ship than CHALLENGER, but would require a much more sophisticated approach to the drilling process. Maximum drill string length envisaged would be about 8000m.

Borehole magnetometer. The results of a test of a Schoenstedt borehole magnetometer on the grounds of Washington State University, Pullman, Washington were reported. The instrument was able to distinguish normally magnetized flows from reversely magnetized flows and sediment from basalt. To purchase this instrument and a back-up, to construct a pressure casing and to buy recording and electronics equipment would cost about $30,000. Delivery time is about 60 days. The instrument could be run on the ship by the DSDP technicians.

OCP recommends purchase of this magnetometer system. It will provide an important logging capability for basement holes that can be run on the ship routinely. It will be needed with a high priority for Leg 54 and is of utmost importance for the objectives of Leg 55.

XRF and XRD. The OCP recommends XRF to be carried on board for all legs sponsored by any panel expecting substantial basement recovery. Contrary to expectations, the recent CNEXO modifications to the XRF van did not include addition of an X-ray diffraction unit. DSDP was asked to investigate the availability of a Siemen's XRD powder camera that could be attached to the Siemen's generator on board the ship. Ship board XRD, especially as applied to the mineralogy of altered and metamorphosed rocks, is given high priority by the OCP.

REPORT FROM THE OCEAN CRUST PANEL (30 June - 2 July 1977)

Collars and Core Barrels

Experience with the use of a Monel metal lower collar and core barrel on Leg 51 suggested that they were not always necessary magnetically, and that because the metal is softer than the normal steel, it may bend and so hazard the hole. However, occasions have arisen when shipboard paleomagnetic measurements have shown that large viscous components are present in the magnetization of basement rocks. For this type of material the use of Monel metal equipment is likely to reduce or prevent acquisition of viscous remagnetization during drilling, so allowing preservation of the important in situ viscous magnetization. OCP recommends, therefore, that one set of monel metal lower collar and core barrel should be kept operational on the ship, to be used on the recommendation of the shipboard paleomagnetist when the need arises.

Site Surveys

OCP suggests that circulation of a quarterly list of site surveys completed (and by whom), and those for which no report has been received by SSM might help the flow of data.

Legs 51 to 54

The group of legs near Bermuda were remarkable for the very high rate of recovery, which gave the first accurate section through the upper part of the ocean crust. Both deep holes were terminated by accidents that may have been connected with the use of drill string longer than had been used before. The Cambridge oblique seismic experiment was run in one of the holes with complete technical success. Current plans are for the accounts of the results from all three legs to be combined together.

The lessons of Leg 54 were discussed. An important result was the relation between the character of the bottom reflection and the ease of drilling on fast-spreading ridges, though it was clear that drilling on young, fast-spread crust will never be simple.

The potential aid of shipboard X-ray diffraction was stressed in connection with the identification of alteration minerals on Leg 51 and of hydrothermal minerals on Leg 54. OCP recommends that a downhole temperature measurement instrument should be available on GLOMAR CHALLENGER as a matter of course, and that the ability to operate the instrument should be available on board.

Leg 37 IR

The Leg 37 Initial Report was still delayed, though it was believed to be appearing imminently. It is now three years since the end of that leg, much longer than is appropriate for an IR. OCP considers that the present publication policy has led to unreasonable delays in the publication of results, especially those from oceanic crustal legs.

Structural Geologists Needed

OCP recommends that all samples to be used for observational work should be oriented when taken, and that one of the petrologists on the ship during multiple re-entry basement legs should have interests in structural geology. OCP members are to contact structural geologists to encourage them to work on previously cored material.

Downhole Measurements Panel Report

Prospects for logging seem more optimistic as a result of negotiations now in progress. The DMP has recommended that DSDP buy a downhole magnetometer. DSDP is to investigate the possibility of taking over the Erickson and von Herzen downhole temperature device. A preliminary study of the hydrofracturing experiment begins on Leg 55 with attempts to seal off a hole and pump it up. A design study has started on the project for leaving instruments in holes on a long term basis. Instruments being considered are strain meters, seismographs and temperature probes. Present plans are for a near-surface buoy to carry power and to record results. Target date for first installation is early 1979, and present plans are for using the instruments in holes drilled in the East Pacific.

Site Survey Panel Report

A request was made for a high-resolution survey of the upper part of the ocean crust in the Galapagos area. OCP supports the SSP in their proposal to elicit techniques to examine the seismic structure of the upper 500m of the ocean crust, with the highest possible resolution.

DSDP Report

DSDP is to buy a downhole magnetometer. There is now an HP97 calculator on the ship for which a variety of programs has already been written. The microscope situation on the ship has been reviewed, and an integrated system evolved, which is now in operation.

Planning Committee Proposal 1979-81

The OCP requests that when a hole drilled for passive margin or paleoenvironmental interests reaches basement, drilling should continue until the bit currently in use has worn out. Basement samples obtained in this way could be very valuable in investigating spatial and temporal variation in crustal processes, in examining aging processes in the crust, and in looking at the early stages of oceanic development. The OCP requests that time should be found for one leg to complete the trans-Atlantic traverse with single bit holes linking the ridge-crest sites at 22°N (395 and 396) with the sites at AT2.3 (417 and 418). The Panel requests that, if time is found for the completion of the transect mentioned above, consideration be given to selecting one of the sites on this transect as combining a degree of alteration sufficient to stabilize the hole with a sea floor shallow enough for penetration of 1-km to be obtained. Measurements on ophiolite complexes suggests that the sheeted complex (if it exists in the oceans) should be

reached by this depth, and that hydrothermal alteration should be clear as well. We recommend that an attempt be made to reach 1 km sub-basement at such a site during the period 1979-81.

West Pacific Island Arc Legs. The objectives identified are: (1) spatial variation of crustal age in island arc provinces in relation to development of arcs; (2) compositional variation of back-arc lavas with time since inception of back-arc spreading, especially in relation to lavas of island arcs and of the ocean floor; (3) comparison of geochemistry and structure of back-arc and within-arc areas with Troodos-type ophiolites (which are distinctly different from normal ocean crust); (4) comparison of alteration style, hydrothermal processes, etc. with those of normal ocean crust; and (5) elucidation of arc history and structure using basement samples, volcaniclastics, etc.

Nauru Basin/Central Pacific Basin. Preliminary site survey data from both of these sites was considered. It is summarized below:

	MP1	MP2
Water Depth	4950m	5300m
Sediment thickness	1000m(?)	400m
Basement depth	5950m	5700m
Basement age	155my	121my
Spreading rate	4.7cm/yr	6.4cm/yr
Paleolatitude	20^{0}-30^{0}	30^{0}-40^{0}

A Lower Tertiary Crustal Site in the Pacific. This site was proposed in the OCP minutes for the January 1977 meeting and in the OCP white paper. The objectives are to provide a deep section in fast-spread crust formed at high paleolatitudes for combined petrological and paleomagnetic purposes. Recent drilling results on Legs 51-53 and 54 have resulted in some reassessment of priorities, with an increase in priority for such a lower Tertiary deep crustal site, and a decrease in priorities for the OCP objectives in the region of the Gulf of California (the Guaymas Basin and the Tamayo Fracture Zone). The reasons for this change in priority are mainly technical, concerned with the smooth penetration in the healed and sealed old Atlantic crust, and the great difficulty of penetration in young Pacific crust. Leg 54 made it clear that for deep penetration of fast-spread crust we would have to go to older regions where the alteration and sealing made drilling a much better proposition.

The OCP therefore recommends that time be found for such a lower Tertiary deep crustal site during the present Pacific drilling program. Three areas for such a hole seem possible:

NE Pacific. This is a region through which the ship is scheduled to pass, where all conditions are met, but where the weather window is very narrow.

Tuamotu region. This is a region which meets all conditions, but is very remote from the presently planned track of the CHALLENGER. Weather is uniformly good here. This area is recommended for drilling on other grounds by the U.S. Geodynamic Committee.

PAC 6 area (East of Hawaii.) This region is relatively accessible to CHALLENGER, enjoys good weather, and lies on the original Pacific transect. However, paleolatitude is low, and drilling here would only partly fulfill paleomagnetic objectives. A deep crustal hole here must have somewhat lower priority than in the other areas.

In connection with this reassessment, the OCP recommends that Leg 55 drill a single bit site at PAC 6 in transit to the Emperors. OCP views this attempt as having a higher priority than KO. It is intended to test to what extent stable hole conditions and good penetration are possible in fast-spread crust of lower Tertiary/upper Cretaceous age, as well as providing (as originally planned) a data point on a trans-Pacific transect.

Galapagos Area. The OCP supported the drilling plan as proposed by the Geothermal Working Group for the two legs. One would consist of a N-S transect of holes in the mounds area of the Galapagos Spreading Center, where circulation is unsealed, running from a high heat-flow area to a low heat-flow area. One of these holes would be deepened into a multiple re-entry hole. The other leg would lie on the Costa Rica rift to the east, where circulation appears to be sealed, and would have a similar drilling strategy to the first leg. The Panel recommends a site survey as described by the Geothermal Working Group for the Costa Rica rift area, consisting of detailed heat flow, OBS and sonobuoy refraction, detailed reflection profiling and dredging. The survey should concentrate on the changing structure of the crust with age.

Permeability/hydrofracturing experiment. OCP strongly supports permeability and hydrofracturing experiments to be carried out in DSDP holes. This will require purchase of packers and a downhole televiewer. The resulting information would include the bulk permeability of the crust, and the state of stress in the crust. We recommend that every effort is made to find funding for this apparatus. OCP recommends that experiments be carried out on Leg 55 on the inflation and pumping up of the MINIBOP already on the ship.

ALCOA SEAPROBE Report

SEAPROBE should be able to drill holes on young and shallow crust, on fracture zone ridges or seamounts, as well as CHALLENGER, but appears to have a greater capacity for downhole instrumentation. SEAPROBE should be capable of re-occupying holes already drilled by CHALLENGER in order to make measurements in them. The near-bottom survey capabilities of SEAPROBE are much greater than those of CHALLENGER, and she will be able to survey precisely, and target on closely identified spots. This power would be very useful in operations near ridge crests. Down-string power capabilities are such that she could lower a diamond drill rig, such as the Bedford electric drill, to the ocean floor and operate it there, thus enabling penetration of bare rock surfaces, an aim that OCP has always considered very important.

OCP requests the PCOM to commission an engineering feasibility study on the ALCOA SEAPROBE with special emphasis on drilling capabilities compared with GLOMAR CHALLENGER, and on her potential for near-bottom precisely navigated surveys including magnetic gradiometer surveys, for making downhole experiments, and for acting as a near-bottom energy source for seismic work.

XRF Facilities on GLOMAR CHALLENGER

OCP recommends that shipboard hard-rock analytical facilities be available for eight legs in the period of Legs 55-69 which have significant crustal penetration planned. These are the legs in the Emperor Seamounts (Leg 55), the North and South Philippine Sea (Legs 58-60), the Nauru Basin (Leg 61), the Lower Tertiary crust (proposed above) and the two legs in the Galapagos area (Legs 68, 69). The justification for XRF on the ship on these legs is the same as that expressed in the paper accompanying the minutes of the meeting at La Jolla, January 1977.

X-ray Diffraction

OCP reiterates its recommendation that X-ray diffraction be made available routinely on CHALLENGER for mineral identification on both soft and hard-rock legs. We suggest that a small table-top generator with photographic recording of diffraction would be quite adequate and not very expensive. We recommend that this be investigated.

Report on Progress with Paleomagnetic Investigations

OCP recommends purchase of equipment for measuring induced and viscous magnetization on the ship. These are properties which are important in some types of basalt that are likely to be important in the Pacific Ocean. Viscous remanent magnetization decays away with time, and there are definite advantages in measuring it on the ship. An instrument to measure these properties has been developed by Schonstedt at a total cost of $5200.

REPORT FROM THE OCEAN PALEOENVIRONMENT PANEL (26-28 May 1977)

South Atlantic Working Group Report

Area SA-2 (Walvis Ridge transect) is now well documented with good seismic profiles. Areas SA-1 (Angola Basin), SA-3 (Cape Basin), and SA-4 (Eastern Flank of Mid Atlantic Ridge) need more geophysical information before specific site selection.

Low latitude drilling in the northern part of the South Eastern Atlantic is considered as a contingency program, provided the working group could supply enough data about appropriate geophysical setting of potential sites (in terms of sediment thickness, adequate paleodepth, and reliable basement isochrons). Included in the 2-year proposal are drill-areas in the South Western Atlantic. These areas are now labeled SA-5 (Argentine Basin), SA-6 (South Vema Channel) and SA-7 (North Vema Channel). The very tentative schedule presently proposed by DSDP calls for drilling in the South Atlantic in the following order: SA-6, SA-7, SA-5, SA-1, SA-2, break of 3 legs, SA-3 and SA-4. The Panel recommends that the order of drilling be reversed so that the most important targets of the South-Eastern Atlantic be drilled first. This would ensure that they are actually drilled during the 2-year phase of GLOMAR CHALLENGER (previous experience has already shown that slipping in schedule can indeed push some cruises off the program). Furthermore experience in transect drilling on Walvis Ridge and Mid Atlantic Ridge could help finalize the choice of sites among alternatives along transects in the South-Western Atlantic.

The results of recent cruises of the "Islas Orcadas" in the Falkland Plateau and South Sandwich areas were presented. Several attractive topographic highs and filled basins apparently offer excellent opportunities for the recovery of high latitude sediment sections that are pertinent to the proposed South-Western Atlantic program. These targets should be tied to the SA-5 objectives. In particular the northern edge of the central basin in the Falkland Plateau may provide an excellent section.

State of the Art in the North Atlantic

A summary of the results obtained in the North Atlantic by DSDP and IPOD (including also commercial drilling in the Canadian offshore area)was presented. A quite complete information was given, based on 80 sites (100 holes) on the lithology and stratigraphy recovered. Careful examination of this data set shows that

further drilling in the North Atlantic should: 1) provide better information on middle and upper Cretaceous sediments in general; 2) provide a more complete record of the Paleocene and older sediments on Sierra Leone Rise (at or near site 366); 3) provide a complete latitudinal transect of the North Atlantic Drift; 4) provide a better high latitude record (Northern areas and Norwegian Sea); 5) document the variations of CCD and history of dissolution in the basins during the Miocene.

Mesozoic Pacific Program

New surveys have revealed a well defined low amplitude magnetic anomaly pattern in the area of CP1 (Nauru Basin). The M sequence has been extended to anomaly M28. Depth to basement at CP1 and CP2 is comparable but the sediment cover at CP1 is probably about 1200 to possibly 1400m, which is about 800 to 1000m greater than at CP2.

North Pacific Program

Some concern was expressed about Site EP4 (Tanner Basin) with regard to Safety and Pollution Prevention Panel aspects. Structural considerations alone might look negative in that respect. Commercial drilling results in the area, however, are encouraging. Considering this problem as well as likely similar ones with some of the Gulf of California sites, OPP recommended that alternate sites be worked up for the following areas: 1) possible E-W transect including Site 173; 2) site(s) west of Patton Escarpment near EP4; 3) site(s) at distal end of sedimentary fans off Southern Baja California; 4) transects perpendicular to the coast between EP1 and EP2; 5) site(s) within Costa Rica Dome area (approximately 8°N, 110°W); 6) site(s) in the North Aleutian Abyssal Plain (around 160°W).

REPORT FROM THE ORGANIC GEOCHEMISTRY PANEL (8-10 June 1977)

Summary of Panel Recommendations to DSDP/IPOD.

1. Establish a systematic gas sampling program on shipboard for shorebased analyses of gas, gasoline and isotopic compositions.
2. Establish on a routine basis the study of vitrinite reflectance and fluorescence in shore-based laboratories.
3. Request a publication overrun of Shipboard Reports and Initial Core Descriptions so that individual investigators can have copies. These copies should be sent from the DSDP office to all investigators requesting organic geochemical samples for papers in the IRs.
4. At sampling sessions for organic geochemical samples, a DSDP representative who participated on the Leg being sampled should be present for discussion and consultation.
5. Request DSDP operations be especially careful in selecting equipment for drilling operations so that minimum organic contamination will occur.
6. Sampling for the OGP should at a minimum follow the guidelines given in the shipboard operators manual. All major sedimentary facies should be sampled including sections appearing to be barren.

Presentation on Organic Geochemistry

Recommended reinstatement of gas sampling program with additional information to be obtained on carbon isotopic compositions and concentrations of both low and intermediate molecular weight hydrocarbons. Considered the Baleric Basin, site 134, where gas composition was characteristic of the onset of catagenesis; here the host rock is not the source rock. Showed $\delta^{13}C$ compositions in Black Sea at

site 397; differences in gradients with depth may be due to migration. Described trends in C_4-C_7 with depth; increased with depth more in Black Sea and Angola Basin than in Blake-Bahama region. Showed through vitrinite reflection studies of site 391, the presence of an unconformity with about 800m of section missing; Cretaceous black shale has not reached maturity; three populations of virtinite reflectance in Cretaceous section.

Observed that for samples studied: 1) kerogen maturation profile shows changes in reflectance with age; 2) burial of at least 2km is needed to get 0.6 reflectance (required for oil generation); 3) paleogeothermal gradient was not greater than today (about 14°F/1000'); 4) recycled vitrinite is confined to Cretaceous; 5) much of the organic material in the black shale is terrestrial, much of it is oxidized; 6) data on extractable organic material confirms maturity data from vitrinite reflectance.

Recommended that vitrinite reflectance and fluorescence studies be conducted routinely on DSDP/IPOD sediments. Discussed black shale of South Atlantic and eastern North Atlantic Ocean. In the South Atlantic the black shale contains different types of organic material of different origin at different stages of maturation. In the eastern North Atlantic the Miocene black shale is truly marine; the Cretaceous black shale ranges from terrestrial to a mixture of terrestrial and marine; at Site 398 most of the organic material is terrestrial and very oxidized (subareal oxidation before transported to basin of deposition). One objective is to ascertain the condition of the preservation of organic matter at the place of deposition. Described molybdenum as a paleoenvironmental indicator of stagnation; residence time about the same as calcium; main source of molybdenum in sediment is from water; when H_2S is present, molybdenum values increase. Stressed the importance in identifying organic-rich anoxic sediments. Stressed importance of migration; suggested use of electric logs as a measure of migration of elements; gas may follow same pathways; may provide predictive information on gradients. Cautioned against lumping all black shale occurrences. Compared the reservoir sands, organic carbon and oil and gas shows in DSDP holes. Discussed Site 397; showed organic carbon with depth; vitrinite reflectance data had some scatter; alkanes different in Miocene and Cretaceous; unsaturation survives with depth. Described models for preservation of organic material in basins 1) organic matter accumulating in basin bottom because of anoxic bottom conditions; 2) organic matter accumulated on slopes due to lateral oxygen minimum; 3) oxygen minimum on slopes preserving material washed down and buried.

Future Plans

To improve communications and understanding between the Panel and co-chief scientists, the Panel agreed that all research investigators who want samples will submit a completed sample request form two months before the beginning of each leg. The completed forms will be sent to the co-chief scientists through the DSDP office one month before the leg begins. A synthesis paper should be prepared for every IR volume where a number of papers in organic geochemistry appear. This paper would introduce, bring together interpretations and summarize the organic geochemical papers submitted. The Panel agreed that the shipboard organic geochemist should be responsible for preparing this synthesis. The synthesis paper will be circulated to all contributing authors of organic geochemical papers before submission to the IR. Whenever it is not possible for the shipboard organic geochemist to prepare this paper, the Panel chairman will do it.

It was proposed that drilling should be done on margins having zones of active upwelling in the modern and ancient record such as in the Gulf of California and coast of South Africa. The Panel was informed that the OPP plans to test the same concepts on the north side of Walvis Ridge.

The Panel agreed that studies should be directed to understanding the development of reducing conditions in the Cretaceous. It was suggested that a deep hole be drilled in the Bengal Fan of the Indian Ocean. The Panel requests that DSDP operations be especially careful in selecting equipment for drilling operations to avoid potential contaminants as much as possible.

Shipping Frozen Samples

The Panel was advised about the extreme efforts to which DSDP is going to preserve organic geochemical samples in a frozen state. He read a memorandum dated 7 December 1976 in which it was recommended that steps be taken to assure that samples for organic geochemistry remain frozen. The Panel strongly insisted that samples for organic geochemical studies must be frozen at the time of collection, and remain frozen until analyzed. The Panel felt that it would be better to leave the samples on the ship until safe transportation can be arranged rather than risk thawing.

Mandate for OGP

The PCOM provides the following mandate for this Panel.

1. Overall responsibility for assuring that the analyses for the more ephemeral organic constitutents of the DSDP cores be carried out by competent scientists as soon as possible after sampling.
2. To insure that core material is properly handled and preserved for both present and future analyses for organic compounds by organic chemists in general.
3. To act as an advisory panel to Scripps and the JOIDES PCOM on all matters pertaining to the organic geochemistry of the DSDP cores.

REPORT FROM THE PASSIVE MARGIN PANEL (15-18 January 1977)

BRG Proposals

The VALDIVIA survey off N.W. Australia and in the Sulu and Celebes Sea has been approved. A BGR multichannel seismic survey is planned on the Walvis Ridge, Angola and Cape Basins in early 1978.

Organic Geochemistry Panel Report

The clathrate distribution report requested in Zurich is a problem as clathrate distribution depends on P-T conditions, geothermal gradient, etc. It is very difficult to compile for the whole ocean. Clathrate thicknesses can vary between 600 and 800m on the rise. The graphs given in the Safety Handbook help predict clathrate distribution and thickness. Clathrates can be studied using a riser system. The PMP recommends that the PCOM establish a Working Group on clathrates to review these problems prior to IPOD-II drilling.

South Atlantic Working Group Report

The OPP had previously excluded margin drilling but are now considering margin paleoenvironments. The Walvis Ridge transect is designed to establish its subsidence history and thus a quantitative history of the CCD. Drilling on the east flank of the Mid-Atlantic Ridge is to examine sedimentary facies evolution in the Cenozoic. Drilling on the Rio Grande Rise, Argentine Basin and Brazil Basin has been proposed to look at polar bottom water transport. The environment of upwelling has not been targeted by OPP.

Mediterranean-Caribbean Working Group Report

The group has produced a white paper for drilling in the Caribbean. The sites recommended are: 1) North part of Barbados Ridge (800-1200m penetration); 2) Grenada Basin; 3) Venezuelan Basin. Site surveys have shown a transition between the layered crust and normal oceanic crust. A new location has been proposed on more representative crust (1600-1800m) - re-entry. Two legs are proposed as follows:

Leg 1	Leg 2
1 hole in Yucatan Basin	Re-entry Venezuelan Basin
1 hole in Columbia Basin	Grenada Basin
1 hole in Venezuelan Basin	Barbados Ridge

A one-leg only program would be:

1 hole in Columbia Basin
Re-entry hole in Venezuela Basin
Barbados Ridge (if time)

Proposed further drilling in the Mediterranean to meet objectives not met in Leg 42A are as follows: 1) nature of the basement of a small ocean basin; 2) nature of mid-plate volcanism of a small ocean basin (near site 374); 3) geological evolution of a small ocean basin between two plates (near site 375); 4) early history of a small ocean basin (near site 372); and 5) history of the Black Sea.

Australia-Banda Working Group Report

There was general consensus that if drilled the Timor Sea should be complemented by a transect across the Banda Arc. However, the AMP has not expressed interest in the area for IPOD-I. There is a need to synthesize the comprehensive suite of data held on open file by the Australian government before proceeding further.

Gulf of California Working Group Report

The OCP has the following objectives: 1) transect across the mouth of the Gulf from a site close to the spreading axis; 2) two holes in the Guayamas Basin. The PMP objectives are: 1) continent-ocean boundary off Baja, California. Multichannel data are required to aid interpretation of the OBS data; and 2) nature of the Proto-Gulf of California. This could be determined by a hole on the flank of the Guayamas Basin. A multichannel site survey is required.

REPORT FROM THE POLLUTION PREVENTION AND SAFETY PANEL (18 February, 5 March, and 21 June 1977)

A first meeting of 18 February at L-DGO dealt principally with proposed sites for Legs 47A off Cape Bojador, Northwest Africa, and 47B in the Galicia Banks area off northwestern Spain. The 47A area was considered as requiring particular caution because of: 1) the thick sedimentary section known to be present, 2) the numerous oil and gas shows encountered in petroleum exploration wells on shore, 3) the record of methane and higher hydrocarbons in the previously drilled JOIDES Hole 369 in this area, 4) the presence of several major unconformities in the section, 5) the presence of known structural disturbances, and 6) the substantial depth of penetration planned. A number of alternative locations had been proposed which it was necessary to evaluate, although eventually only Sites 397 and 397A were drilled. Both had shows of methane and some higher hydrocarbons.

Leg 47B off Spain offered fewer problems although a dozen sites were presented for evaluation of which only 5 holes (398 and 398A-DO were eventually drilled).

A second meeting of the PPSP on 5 March at L-DGO was occupied principally with reviewing proposed sites for Legs 48A (Bay of Biscay), 48B (Rockall Bank area), and 49 (Norwegian Sea). Attention was also given to a proposed very deep test site on the rise off Morocco (at that time tentatively assigned to Leg 51). The 12 alternative proposed sites of Leg 48A in the Bay of Biscay gave the Panel particular concern as the area appeared hazardous in view of the close relation of its geology to that of the Parentis and other oil and gas fields on shore near the French coast. Proposed locations for Leg 48B (Southwest Rockall Bank) presented lesser difficulties, and Holes 403, 404, 405, and 406 were subsequently drilled there with no hydrcarbon shows. The proposed sites for the revised Leg 49 presented no serious problems and this leg eventually drilled Holes 407, 408, and 409 on the Reykjanes Ridge; 410, 410A, 411, 412, and 413 on the Mid-Atlantic Ridge, and 414 on the Cruiser Seamount.

Safety Manual

Among other activities of the Panel during the last year, mention should be made of the completion of the 3rd revised edition of the Pollution Prevention and Safety Manual which was distributed in the March 1976 Special Issue of the JOIDES JOURNAL.

Well Logging

In addition to the value of well logs for providing a continuous record of various properties of the section penetrated, and the immense value of the logs for stratigraphic correlation, they are of great importance for safety and pollution-prevention purposes. Through the identification of reservoir and sealing rocks in the section, and for detecting over-pressured shales, and in determining the presence of hydrocarbons and the character of fluids filling the pore spaces of the rocks penetrated, logs are invaluable. While the well log, of course, becomes available in any specific hole only after penetration by the bit, the information it gives is still extremely important as regards safety because of its bearing on the advisability of attempting re-entry for drilling deeper, and also on deciding on proper abandonment procedure. Moreover, the log provides invaluable safety information with respect to the drilling of subsequent sites in the same general area.

Chromatograph and Pyrolysis Equipment

This information, in addition to its general scientific importance, makes an important contribution to the sum total of background information which should be considered in making decisions on the safety of continuing the drilling of a hole or of drilling further holes in the same area.

Panel Problems

Among problems that the Panel faces with respect to the evaluation of proposed drill sites, probably the most persistent and certainly the most critical has been the too common failure of chief scientists to supply adequate geological-geophysical information and to prepare it in time so that it can be sent to Panel Members and considered by them in advance of the meeting at which the Panel recommendation must be made. Again and again the Panel has been called on to make rush decisions on the basis of inadequate data and a half-baked confused picture of the supposed stratigraphic and structural situation of the proposed site, under last-minute pressure in order to avoid holding up the vessel and the program. Decisions made under such conditions are extremely dangerous, and

having to make them under such conditions constitutes a needless menace to the whole program.

The information requested on the Well Site Evaluation Forms for each proposed location should be filled out and these forms should be accompanied as needed by clearly printed seismic profiles, structural maps, and predicted stratigraphic columns. The studies and provisions directed towards avoiding the dangers of hydrocarbon accumulations in drilling from the GLOMAR CHALLENGER, should be at least as intensive as those which would be employed to find favorable accumulation sites for petroleum for drilling by an oil company drill ship.

It should be recognized that it is initially the responsibility of those who plan each leg and select its drilling sites to propose, to the best of their ability and in the light of the cautions mentioned in the Manual, only drilling sites and programs which they themselves can conscientiously support as reasonably safe. It should be clear that, in the first instance, responsibility for safety lies with the original proposers of a site.

REPORT FROM SITE SURVEY MANAGEMENT (November, 1976 - July, 1977)

Data Bank

The following data were logged in:

Revised Guide to DSDP Pacific Cores, microfilm card.
Location map of multichannel seismic profiles, Venezuela Basin.
Wiggly-line shot records (reflection and refraction) from Atl. site 12. Report of seismic refraction results.
PAC4 - Siquieros F.Z., 6 letter-size xerox pages; location of L-DGO mcs line; bathymetric chart.
PAC5 - Anomaly 1e, navigation, bathymetry, sonobuoy, magnetics mag. anomalies, seismic profile.
PAC6 - Anomaly 32, reflection seismic records; anomaly 32, large-scale navigation and ozalids of selected profiler records.
PAC5 - Paperback volume, "Geological and geophysical observations in an abyssal hill area using a deeply towed instrument."
SP4-8 - Cruise report of Mariana Transect.
North Philippine Sites: mcs, navigation
Five reels of GSI STAK tapes of the IPOD multichannel seismic line.
Site survey report, Siquieros F.Z., navigation, depth, magnetics, subbottom profiler data.
Ozalid sheets of track charts, Japan Trench (J1 & J2). Also: seismic profiles line 16-21, bathymetry, isopach map, surface currents, gravity, and magnetics.
Copies of seismic profiles (line 21-19, line 18-16, line 17'c 17", 18', 18", 19', 19") and film strips of each.
Photographs of: multi- and single-channel seismic records, navigation, reconnaissance of sediment isopach and bathymetry in the vicinity of the Kuril Trench and Sea of Okhotsk.
Complots of track charts and profiles of magnetics and bathymetry of PAC14; microfilm; a) seismic reflection profiles and navigation; b) 3.5kHz records of navigation listing and track charts of PAC14.
A "Site Survey" final report of Atl. 6, 11pp.
Interpreted profile of the Japan Trench based on L-DGO data.
Ozalids of multichannel seismic records, navigation and bathymetry of Japanese data. Also microfilm copy of same.

MP2, shipboard report, bathymetric and magnetic anomaly profiles.
Emperor Seamounts, seismic profiles and bathymetry (for preliminary Safety package).
PAC4 and 5: navigation and magnetic anomalies.
PAC4: magnetic anomaly wiggles, free-air gravity anomaly wiggles, bathymetry wiggles, navigation, airgun sonobuoy solutions, single-channel seismic records, multichannel seismic records, semblance plots for lines 17, 18, 19.
PAC5: navigation, bathymetry contoured, magnetic wiggles, gravity, magnetic and topographic profiles, magnetics, phase shifted, magnetic models, airgun sonobuoy solutions (crustal columns), single channel seismic records.
Tehuantepec Ridge, Guatemala: free-air gravity anomalies map.
Tech. Report: Part I, IPOD-Japan Basic Data Series; MCS data from Shikoku Basin and Daito Ridges.
Heat flow stations of Japanese and N. Philippine sites.
Tech. Report, Japan & southern Kuril Trenches.
Pollution Prevention and Safety check sheet for DSDP Leg 55-3.
Manuscript: "Deep-Tow Observations at the Mounds Abyssal Hydrothermal Field, Galapagos Rift," and Bathymetry of the Panama Basin, contour map.
J1 and J2, Japan Trench, single-channel seismic records.
NP1-7, N. Philippine Sea-Daito Ridge, multi- and single-channel records, CDP processes.
PAC14, Marianas Transect and South Philippine Sea, magnetic tapes (2).
Middle America Trench, earthquake OBS net, sonobuoy refraction/reflection, multifold seismic, tracks, OBS refraction.
SP1-8, South Philippine Sea, MG&G on NW Australia margin and Philippine Sea, typed summary report with maps and list of geophysical lines, track chart, preliminary map of sediment thickness and free-air gravity.
PAC8, 9, 10, MP1, Nauru Basin, seismic reflection profiles, magnetic anomalies, bathymetry, navigation track, and preliminary report.
Atl. 8, Vema Fracture Zone, navigation, bathymetry, and combined navigation and bathymetry.

REPORT FROM THE STRATIGRAPHIC CORRELATIONS PANEL (6-7 December 1976)

Priority Stratigraphic Sections

After review of the updated schedule and targets, the following special priority stratigraphic sections are requested by SCP in the interest of filling important gaps.

Leg	Location	Objectives	Priority
55	Emperor Seamounts PAC 7 site survey incomplete	To drill seamount, seaward side of Japan Trench	Continuous coring through carbonate sequence; Mid and Upper Miocene near Trench
56	Kuril Basin and Sea of Japan	To penetrate the Paleozoic (Permian)	Neogene high-latitude section; continuous coring of superjacent basement beds
57	Shikoku Basin	Principally a Tertiary section	Specific site information requested by SCP before setting priorities.
58	Marianas Basin	Same as above.	Same as above.

Long-term Recommendations

Recommendations to the PCOM from the SCP for biostratigraphic and paleomagnetic stratigraphy for the two-year IPOD I extension are as follows:

The development of that part of the PMP drilling program in the Atlantic Ocean with the major objective being a basis for integrating the benthic and planktonic zonation schemes of the shelf-slope areas with those developed from the DSDP. This program will require continuous coring in the thicker sedimentary prisms of the rise in order to provide the longest continuously cored sections possible. A minimum of three transects will be required: 1) in the southern paleolatitudes, 2) in the tropical paleolatitudes, and 3) in the high paleolatitudes.

Integration of these zonation schemes has obvious importance in correlation of deep-sea and continental stratigraphy with the greatest importance near classically studied regions. There is an increasing need by commercial interests for control in older parts of the section and progressively deeper water facies.

The justification of choosing the South Atlantic as the region of the highest priority joins with the paleobiogeographic interests of the OPP as summarized in the Working Group report, but independently the SCP expresses a need to conduct a stratigraphic control "Experiment" in this region of new ocean formation. From a small pilot study, it is proposed that basic method stratigraphic correlation can be tested with the potential of integrating many groups, methods and facies into one developmental model.

Paleomagnetic considerations for the two-year extension were contributed. The biostratigraphic objectives stated for the two-year transition period extension of the Deep Sea Drilling Project on passive continental margins are entirely consistent with magnetostratigraphic and paleomagnetic tectonic reconstruction objectives. Drilling long continuous sections in areas characterized by old, relatively rapidly accumulated, fossiliferous sediments will provide an opportunity to: 1) compile a complementary sediment-based magnetochronology, extending into the Mesozoic; 2) achieve a much more complete and detailed view of the long term (and short term as well, because of relatively rapid accumulation rates) behavior of the geomagnetic field; 3) provide a tectonic framework which will complement paleo-oceanographic reconstructions and at the same time provide checks on other independent methods of tectonic reconstructions; and 4) achieve additional insight into the interrelationship between paleo-climate, paleo-oceanographic, field polarity and intensity and faunal events.

Reference Centers

It was reported that the Natural History Museum at Basel and the Smithsonian Institution had been approved for "Reference Centers." In concept, sampling of the cores for the centers has priority over special subsequent non-shipboard party investigations. Additional repositories are yet to be named.

REPORT FROM THE STRATIGRAPHIC CORRELATIONS PANEL (18-19 May 1977)

Reference Centers

A request was presented from the Curator for guidance regarding the "Paleontological Reference Center" in the U.S. The Curator reviewed the status of Reference Collections. The Basel Museum is going forward with its part and urgently requests that a North American repository be selected promptly. The Smithsonian is unable at this time to handle the Reference Collection intended for North America. The alternative seems to be to house the second Reference Collection at DSDP headquarters at Scripps. The possibility of a third Reference Collection to be located in Japan will be explored.

Symposia

It was reported that a symposium has been organized in conjunction with the North American Paleontological Convention in Lawrence, Kansas in August 1977. It is too late to organize a symposium for the 1977 GSA meeting except for the afternoon of the Sunday preceding that meeting. That date was considered unsatisfactory. The idea of a symposium in conjunction with the GSA meeting was dropped. Instead, a symposium will be organized for the SEPM meeting (Tulsa, May 1978) around the general topic of correlation of the deep ocean and continental margin record, and possibly other topics such as paleodepth determinations.

Working Group Reports

Copies of these reports are available upon request:

Working Group A: confidence limits in time correlation.
Working Group B, Part I: integration of benthic and planktonic biostratigraphy for margin drilling
Part II: updating Mesozoic stratigraphy
Working Group C: integration of high and low latitude biostratigraphy
Working Group D: gaps in the stratigraphic record.

Data Base

The SCP discussed the DSDP request for guidance in the plans for "encoding of paleontologic data." It was eventually established that this task is "about two-thirds completed." It is not clear whether cognisance has been taken of the fact that the BGR has already done this for most of the Mesozoic.

SITE REPORTS

Complete summaries of all the sites drilled are given in the DSDP Monthly Reports.

Leg 51

Co-chief Scientists T. Donnelly and J. Francheteau report:

Site 417 (51-ATL. 2.3) Lat. 25°06.63'N; Long. 68°02.48'W; Water Depth:5468.2m

Site 417 was occupied from 2 to 3 December for mudline determination and washing test for re-entry casing. Site 417A was occupied from 3 to 10 December. The site was drilled to a subbottom depth of 421m, recovering 46 cores. Sediment penetration was 215m with 121m recovery. The sediment section consists of the following: 9m of Quaternary clay, 96m of undated clay, 26m of undated zeolitic clay, 36m of middle Eocene radiolarian clay and ooze, 37m of Upper Cretaceous clay and 11m of clay and basalt rubble. Basement penetration was 206m with 128.5m recovered including 15 pillow basalt units and a thin dolerite sill. The basalt was intensely altered with all fractures and interpillow spaces completely filled. Magnetization was strong, uniform, and reversed as predicted. The recovery of interpillow material enabled determination of a 4.5km sec formational velocity. The recovered rounded basalt pebbles and cobbles are of an enigmatic origin. A final core (Core 47) had been cut to 431m subbottom but was not recovered due to loss of inner barrel as a result of a premature bit release.

Leg 52

Co-chief Scientists W. Bryan and P. Robinson report:

Site 417 (52-ATL. 2.3) Lat. 25°06.69'N; Long. 68°02.82'W; Water Depth: 5480m

Site 417, Hole 417D was reoccupied by Leg 52 on 24 January. Leg 52 extended the penetration into basalt to 708.5m subbottom, or 176.5m beyond the drill depth of Leg 51. The loss of a bottom hole assembly and the inability to re-entry the hole in order to fish out the assembly necessitated abandonment of the site and this particular deep penetration attempt. A total of 117m of basalt were recovered in 22 cores. The recovered material consists of massive flows and interlayered pillow basalts which were subdivided into 7 lithologic units based largely on texture and mineralogy. All of the basalts are phyric, most containing three phenocryst phases (olivine, plagioclase and clinopyroxene) with the lowermost unit being a two-phenocryst (plagioclase, clinopyroxene) basalt.

Chemical analyses by XRF have been completed for 23 samples. Data for the freshest aphyric basalts resemble analyzed basalt glass from the modern Mid-Atlantic Ridge rift valley at 22-23° North and are similar to many basalts recovered in the upper part of Hole 417D by Leg 51 and from Sites 395 and 396. A typical anhydrous analysis of aphyric basalt (Sample 64-4, 87 to 89cm) is: SiO_2, 50.3; TiO_2, 1.66; Al_2O_3, 14.4; FeO, 10.8; MgO, 7.69; CaO, 11.9 and K_2O, 0.01. Loss on ignition is 1.10%, H_2O plus is 0.56%, and CO_2 is 0.06%. Very low values for K_2O in the freshest samples suggest these are "normal" LIL element-depleted basalts, while TiO_2 in the range of 1.3 to 1.7 and Fe/(Fe + Mg) averaging about 0.45 indicate somewhat differentiated compositions.

There are two magnetic lithologies: the massive flows with an NRM opposite to the sense of anomaly M_0 and the pillow lavas with an NRM in the same sense as anomaly M_0. The mean stable inclinations of both units are similar to the extrapolated paleoinclination of Site 417 although the pillow lavas have a notably

higher magnetic intensity than the massive flows.

Measured sonic velocities (V_p) range from 4.5 to 6.1 km per sec, the lower values probably being due to fracturing in the rock. Bulk density generally lies between 2.7 and 2.9 g/cc and grain density between 2.9 to 3.0 g/cc.

Site 418A (52-ATL. 2.3) Lat. 25°02.08'N; Long. 68°03.45'W; Water Depth: 5519m

Hole 418A, the second deep penetration attempt for Leg 52, penetrated 570.5m into sediment and basalt, before terminating operations on 2 March. Of the 570.5m drilled, 324m were in sediments of Quaternary to Late Aptian age, and 246.5m were in the underlying pillow basalts and massive flows.

Five sediment units were defined (from sea bed down): Unit 1, a pelagic clay with nannofossil horizons. The unit was cored only at Hole 418, from 0 to 6m. Unit 2, (III to 151.2m) is a grey orange to light brown pelagic clay. Unit 3 (151.2 to 206.5m) consists of a pelagic clay, one sub-unit contains radiolarians (Middle Eocene). A second sub-unit contains zeolites. Unit 4 (234.5 to 291.0m) consists of interlayed black, dark grey, green grey and blue green clays and nannofossil clays, with pyrite and chert. Unit 5 (291.5 to 324m) to the top of the basalt, is a series of nannofossil clays, clayey nannofossil oozes and interbedded pelagic clays. Units 4 and 5 are Late Aptian to Early Cenomanian in age and reflect a cyclic pattern of euxinic to non-euxinic conditions during the Cretaceous.

Six lithologic units were defined in the basalt section based on variations in lithology and phenocryst assemblages.

Pillow basalts make up 29.4%, massive flows 20.5%, and mixed pillow basalt and breccia 50.1% of the basement section. Phenocrysts in the basalts are chiefly plagioclase with minor olivine and rare clinopyroxene. Spinel is present in Unit 6, 510.5 to 570.5m subbottom, where it occurs as individual crystals and as inclusions in plagioclase and olivine.

Chemical analyses by XRF show that despite a relatively small variability in the overall chemical composition downhole, some minor differences do exist between various lithologic units. The major characteristics of the basalts are their high CaO and Al_2O_3 and very low K_2O. Alteration of the basalts is similar to that observed in Hole 417D, and is interpreted as due to low temperature interaction of the basalt with sea water.

Examination of magnetic profiles run by the GLOMAR CHALLENGER suggest that Site 418 lies almost exactly on the eastern boundary of the M0 anomaly. NRM and stable inclinations above 510m subbottom are positive, with the NRM inclinations averaging 23.4°. Below 510m subbottom, NRM and stable inclinations are negative, with the NRM inclinations averaging 31°. The older basalts are compatible with the M0 anomaly, whereas younger basalts are opposite to the sense of the M0 anomaly.

Measured sonic velocities of the pillow basalts and massive flows are undistinguishable at one standard deviation, being 5.48 and 5.53 km per sec respectively.

An oblique seismic experiment was successfully performed at Hole 417D, a downhole geophone recorded refracted wave patterns, the analysis of which will reveal much about the characteristics of Layer 2.

Leg 53

Co-chief Scientists M. Flower and M. Salisbury report:

Sites 418A-B (53-ATL. 2.3) Lat. 25°02.10'N; Long. 68°03.44'W; Water Depth: 5511m

Hole 418A was reoccupied by Leg 53 in March 1977 and extended penetration into basaltic basement by 297.5m for a total basement penetration of 544m. Despite the successful recovery of a broken-off bottom-hole assembly, the hole was abandoned for the present after an unsuccessful attempt to log. Apparently sediment bridging caused sticking of the logging tool and entanglement of cable. To summarize drilling results at this site: the high recovery of basalt (averaging about 72%) gives an unprecedentedly clear and representative picture of the oceanic crust in section and has thrown light on several hitherto speculative aspects of crustal genesis.

Leg 53 continued to core a sequence of interlayered pillowed and massive basalt eruptions which have been divided into an additional 7 lithologic units, making a total of 13 major divisions for this site. Moderately coarse phenocryst assemblages are uniquitous and are dominated by plagioclase, with subsidiary amounts of olivine, clinopyroxene, spinel. The variation in cooling unit thicknesses gives an approximate measure of eruptive rate. Massive cooling units low in the section were traversed by several thin dikes.

Chemical analyses (125) of fresh and altered rock allowed detailed studies of alteration processes and hence interpretation of fresh magma compositions. Three magma types, defined according to Mg/(Mg+Fe) and TiO_2 contents appear to have evolved by fractionation, mostly at low pressures, and to have given rise to discrete "batches" of magma available for eruption during crustal formation. The magmas show a remarkable chemical similarity to those sampled by drilling along the same approximate spreading flow-line at 22°N on the modern Mid-Atlantic Ridge.

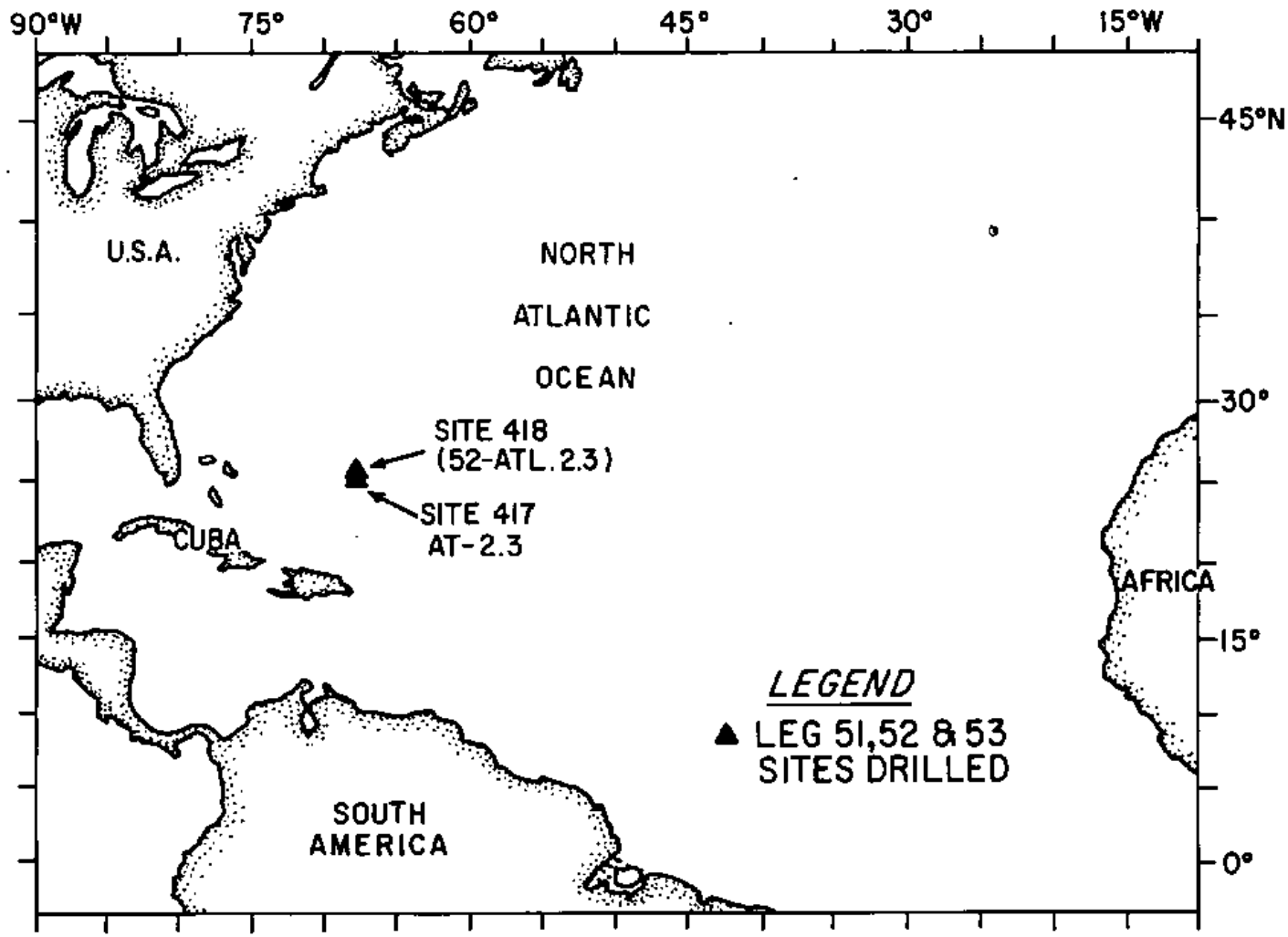
The magnetic stratigraphy is very clear, and despite location of the site on the eastern edge of the MO anomaly, reflects at least five polarity reversal events. Much of the section is in accord with the expected NRM inclination, but several sequences show abnormally high inclinations (up to 80°). Other minor excursions often define a series of time breaks during the eruptive history. These correspond with eruptive hiatuses deducted from sharp lithologic and chemical changes in the basalts and intercalation of breccia and rare sediment. We also infer that periodic tilting occurred during quiescent and even eruptive periods. Measured NRM intensities indicate that layer 2 contributes the bulk or perhaps all of the observed surface anomaly at the site.

Of the physical properties measured, wet bulk density shows the most significant downhole variation (a linear increase), and from correlation with the alteration profile, whose dominant influence is smectite, suggests that the crust below a certain level is effectively sealed from the effects of sea-water-related alteration after initial saturation.

Hole 418B was drilled to basement through 320m of sediment at a location 130m to the north of Hole 418A in order to core the sediment column at this site and to make a comparison of the sediment-basement interface with that at 418A. This was accomplished but no significant differences were noted between the two holes.

Leg 54

Co-chief Scientists R. Hekinian and B. Rosendahl report:


90°W
75°
60°
45°
30°
15°W
45°N
30°
15°
0°
U.S.A.
NORTH
ATLANTIC
OCEAN
SITE 418
(52-ATL.2.3)
SITE 417
AT-2.3
CUBA
AFRICA
SOUTH
AMERICA
LEGEND
▲ LEG 51,52 & 53
SITES DRILLED

Site 419 (PT-4C) Lat. 8°55.96'N; Long. 105°41.17'W; Water Depth: 3294m

At Hole 419, the sediment thickness was 35m and was continuously cored. No basement penetration attempted. Hole 419A, located at 8°55.47'N, 105°41.22'W, had a sediment thickness of 46m. Only a mudline core was taken and no basement penetration was attempted.

Site 420 (LDGO multichannel line) Lat. 9°00.10'N; Long.106°6.77'W; Water Depth: 3404.4m

At Hole 420, 115m of foram-nanno ooze was continuously cored. Basement penetration was 32m in highly fractured basalt in 9 hrs of rotation. A total of 1.41m of basalt was recovered. The hole was abandoned because of very poor drilling conditions. Hole 420A (LDGO multichannel line) located at 9°00.50'N, 106°6.36'W, offset 3000ft to the NNE of Hole 420 had a sediment thickness of 63m. Only a mudline core was taken and no basement penetration was attempted. The drill bit was completely destroyed from efforts at Hole 420. A reflection profile taken across 420A on way to Site 421 showed that hole was inadvertently placed in a narrow zone of thin sediments.

Site 421 (LDGO multichannel line) Lat. 9°01.41'N; Long. 106°03.68'W; Water Depth: 3342m

Site 421 is 2.2 mi NE from Hole 420. A beacon was dropped on a portion of a local sediment blanket underlain by flat acoustical basement. The sediment thickness was 86m and only a mudline core was taken. Basement penetration was 29m of highly fractured rock after 4 hrs of rotation. Recovered 1.66m of basalt. The hole was abandoned because the drill string began sticking after 5m penetration into basement, and it became impossible to rotate beyond penetration depth of 30m, in spite of mud which was pumped in hole. The drill bit was severely worn.

Site 422 (between PT-4E and 4A) Lat. 9°10.59'N; Long. 105°16.27'W; Water Depth 3254.5m

Site 422 was located in the OCP moat where a thin (46m) sediment cover overlies very flat, reflective basement. The strategy was to see if the basement reflector might represent a thick recent OCP ridge flow that might cap and cement normal fractured basalt. The sediment thickness was 46m and was continuously cored. The hole penetrated about 11.3m of drillable massive doleritic units and less than 1m of fractured basalt after 8.2 hrs of rotation. Recovered 9.3m of the former, and 0.15m of the latter. The drilled sequence consisted of 46m of Pleistocene sediments, followed by a massive drillable flow unit or sill 1.8m thick, overlying another 3.5 to 4m of Pleistocene sediments. The lower sediment unit was floored by another massive basalt unit (up to 9.5m thick) overlying fractured rubbly basalt megascopically identical to basalts at Holes 420 and 421. The hole was lost in fractured basalt due to a plugged bit. The drill bit was also severely worn.

Drilling results clearly indicate that highly reflective basement in moat results from an acoustic impedance contrast at the top and bottom of the upper massive basalt unit.

Site 423 (PT-4A) Lat. 9°8.81'N; Long. 105°6.57'W; Water Depth: 3177.5m

The sediment thickness was 38m and was continuously cored. About 15.5m of highly fractured basalt was penetrated and recovery was 0.65m of basalt after about 7 hrs

of rotation. The hole was terminated because of very poor drilling conditions, high torque levels, and potential danger of losing BHA.

Petrology: All basement rocks are broadly classed as oceanic tholeiites. Rocks from Holes 420, 421 and 423 are fractured plagioclase-pyroxene aphyric or sparsely phyric basalts. The respective magnetic ages of basement are about 3.4 m.y. at 420 and 421, 1.4 m.y. at 423, consistent with paleontologic ages. All of the above holes are probably located on normal basalts of the East Pacific Rise. Rocks from Hole 423, located in the OCP moat on basement 1.5 m.y. old are divided into two massive doleritic units (perhaps sills) that are separated by 3.5 - 4.0m of sediment. Doleritic units are plagioclase-pyroxene olivine-bearing rocks. The bottom dolerite unit overlies what is probably plagioclase-pyroxene aphyric basalts.

Major oxide analyses show wide ranges in compositions. Plagioclase-pyroxene aphyric basalts have 0.2 - 0.5% potassium and 1.9-2.5% titanium. Dolerite at Hole 422 is less fractionaed than other basalts, with 0.1 - 0.2% potassium, about 1.4% titanium. Provenance of the doleritic units uncertain, as expected, and the East Pacific Rise rocks at 9^{0}N are generally more fractionated than Mid-Atlantic Ridge counterparts.

Paleomagnetism: The magnetic polarity of the basement rocks at the four basement drilling sites agrees well with the sign of the corresponding marine magnetic anomalies. This is in contrast to measurements in the Atlantic Ocean where the observed magnetization polarity of the drilled basement rocks has not often agreed with the overlying marine magnetic anomaly.

Physical properties/acoustic correlation: Basalts from Holes 420, 421 and 423 show mean densities of about 2.88 g/cc and velocity ranges of 5.15 - 5.70 km/sec. It is clear that the low refraction velocities observed in area of uppermost crust are functions of the fractured nature of the basalts. The mean densities and velocities of the doleritic units are about 2.92 and 6.0, respectively, and would be more typical of gabbros than basalts at in situ pressure. It appears that the very strong wide and flat basement acoustic reflector at Hole 423 is generated by the merging of the impedance contrasts across three sediment-dolerite contacts over interval of only 5-6m.

Sediment lithology: Sediments at all holes consist of cyclic units of foram-nanno ooze and calcareous brown clay grading with depth into uniform siliceous foram-nanno ooze. The radiolarian ages agree with magnetic stripes. There is some suspicion that sediments below the dolerite unit in Hole 423 may be one radiolarian zone younger than those above. No basalt metalliferous sediments were recovered at any site.

Site 424 (Hole 424 - Galapagos area) Lat. 00^{0}35.63'N; Long. 86^{0}07.82'W; Water Depth: 2708m

A high frequency, fast firing rate profile was used to locate a geothermal mound about 792m NNW of WHOI reflector. The beacon was dropped 27m away from a mound on the third mound chain (north to south) in the NW group of mounds. The ship was positioned over the mound by using a re-entry tool sonar scanner. The mound is about 60m long, 30m wide and 6 m high, based upon sonar readings.

It is believed that the drill stem was placed on flank or crest of the mound. The sediments cored and recovered included: 6.5m of black manganiferous material very rich in a platy green clay-like material; 6.1m of brown to black manganiferous material alternating with varigated grayish-yellow-green foram-nanno ooze; and 9.3m of grayish-green foram-nanno ooze with isolated Mn clumps. A successful in situ water sample was taken within two meters of basement.

The sediment thickness is about 31m. About 45m of massive basalt was drilled with moderate difficulty. There was good recovery in the upper basement material and poor in lower. There was no megascopic evidence of hydrothermal alteration. The basement age was about 0.63m.y.

Site 424 (Holes 424A, 424B and 424C - Galapagos Area) Lat. 00°35.34'N, 00°35.81'N; Long. 86°07.81'W, 86°07.82'W; Water Depth: 2708m

Hole 424A was located on the 6th mound chain (north to south) in the NW group. Again, precise positioning with respect to bottom was achieved with the re-entry scanner. The mound is about 9m high. Hole 424B was located midway between the second and third mound chains at 00°35.81'N. Hole 424C is located just north of the second mound chain. The mounds at Holes 424 and 424A are topped by manganiferous sediments which also are interlayered at depth with nanno-foram ooze and green Fe-Si rich and Al-Ti poor sediment. The off-mound Holes 424B and 424C consist of normal nanno-foram ooze capped with a brown oxidized zone. Hole 424A recovered 5m of basalt before torquing and sticking required abandonment. Hole 424B was abandoned after 8m of basalt penetration, again due to torquing and sticking. All basalt recovered is massive, dense and fresh with no obvious petrologic evidence of hydrothermal alteration. Altogether, the transect spans a 40,000 yr. interval with holes spaced roughly every 10,000 yrs.

Site 425 Lat. 01°23.68'N; Long. 86°04.22'W; Water Depth: 2873.2m

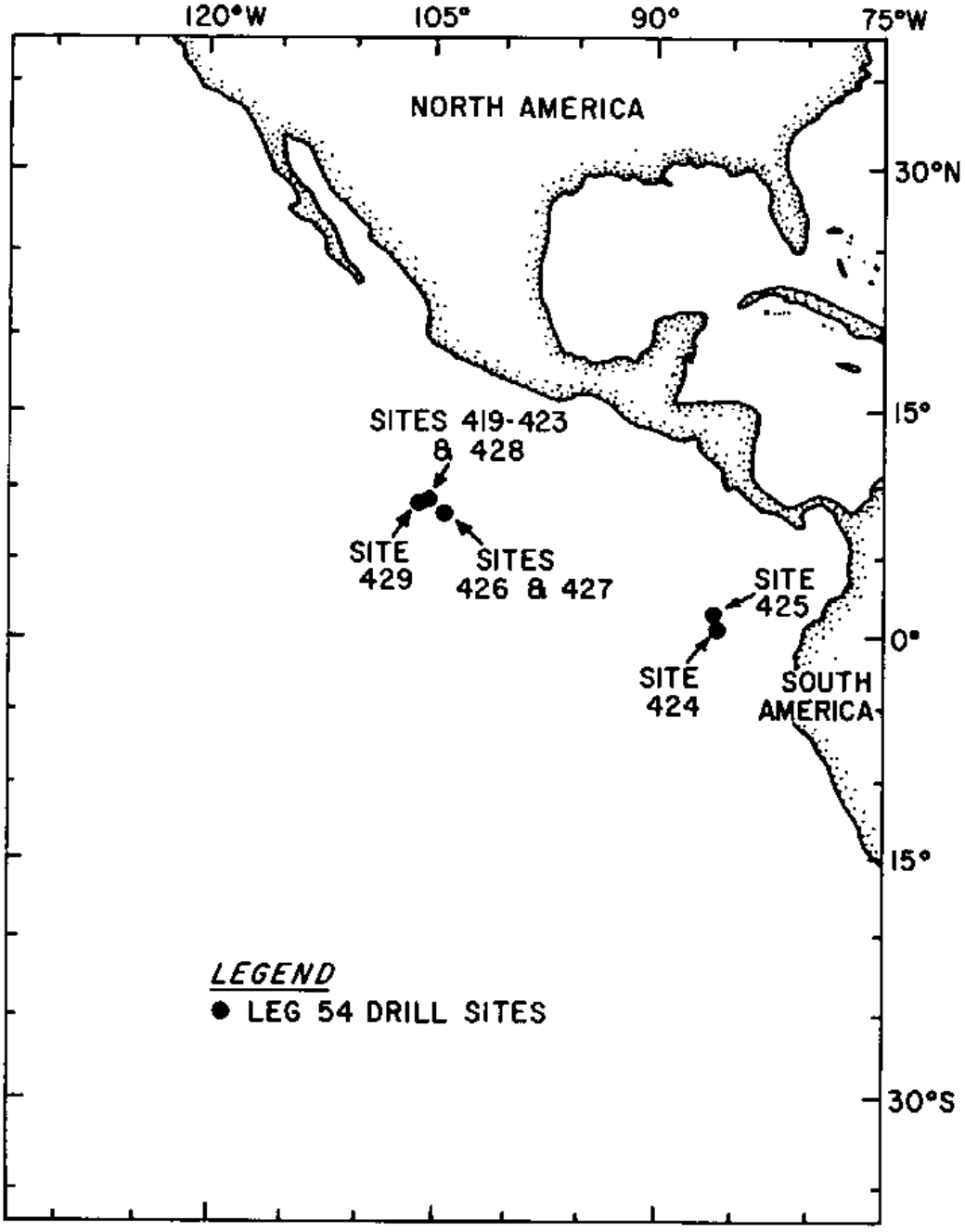
The site is located 62km north of Galapagos spreading center just beyond the Olduvai magnetic event (slightly older than 1.8 m.y.) in a sediment filled topographic depression knownto be characterized by high heat flow (about 5 heat flow units). The hole was spot cored through 79m of sediment, recovering 39m of foraminifer nannofossil ooze and siliceous nannofossil ooze. No hydrothermal deposits found. Drilling penetrated about 30m into basement recovering 5.66m of basalt and dolerite representing 7 petrographic units. Major rock types are classed as pyroxene-plagioclase sparsely phyric, plagioclase phyric and sparsely phyric, olivine-clinopyroxene-plagioclase sparsely phyric, and olivine-plagioclase sparsely phyric. Basalts show evidence for hydrothermal mineralization including red iron oxides, calcite, zeolites and green clays associated with manganese-like material in veins. Some pieces are pervasively riddled with pyrite and have a bleached appearance. Magnetic inclinations show a gradual change from about +30° in the upper basalts to about -15° in the lower basalts. A large total inclination variation suggests tilting has been involved with the eruptions both before and after if initial polarity was the same, or that basalts had a different polarity and were then tilted. The oldest sediments are Early Pleistocene in age (Anthocyrtidium angulare absent).

Site 426 Lat. 08°47.28'N; Long. 104°15.27'W; Water Depth: 2617m

At Site 426, a hole was attempted on the axial block of the East Pacific Rise because it was probably the only place where fracturing and fragmentation of young East Pacific Rise crust is not extensive. It was decided to attempt a hole if at least 10m of sediment was found; however, we could not see a 10m sediment thickness with the air-gun profiler because the minimum separation of bubble pulse train was more than this. Nevertheless, it was felt that the attempt was worthwhile so the string was lowered. Three attempts were made to spud in on the edge of the axial block but virtually no sediment was found.

Site 427 Lat. 08°6.79'N; Long. 104°36.35'W; Water Depth: 3848m

Site 427 was located in the deepest trough of the Siqueiros Fracture Zone. The trough is flat floored and has a highly reflective basement. The hole penetrated


120°W
105°
90°
75°W
NORTH AMERICA
30°N
15°
SITES 419-423
& 428
SITE
429
SITES
426 & 427
SITE
425
0°
SITE
424
SOUTH
AMERICA
15°
LEGEND
LEG 54 DRILL SITES
30°S

146m of mixed sediment types and about 29m of basalt. Recovery was 12.5m of massive plagioclase-pyroxene basalt showing traces of hydrothermal mineralization. The basalt represents a single cooling unit with a single magnetic polarity. It was probably ponded in the trough while near or at the junction of the EPR segment south of Siqueiros. The age of the adjacent crust is about 3.3 m.y.

Site 428 Lat. 09°2.7'N; Long. 105°26.14'W; Water Depth: 3296m

Site 428 was located on the transition zone between the EPR and the OCP ridge about 125km from the rise axis. The site is located in the Matuyama reversed epoch just beyond Olduvai normal event. Hole 428 penetrated and cored 61m of sediment and 15m of basalt. Recovery was 2.14m of rock. Hole 428A penetrated 52.5m of basalt recovering 12.6m of plagioclase-pyroxene-olivine bearing and olivine free basalt rock representing a number of cooling units. On the basis of mineralogy, grain size and drillability, Site 428 basaltic rocks are more closely aligned to the Site 422 OCP moat dolerite than the basalt recovered at the other PAC 4 holes. Since the magnetic polarity of the samples agrees with placement in Matuyama epoch, it is suspected that the Site 428 rocks erupted at about the same time as the adjacent rocks.

Site 429 Lat. 09°2.01'N; Long. 106°46.55'W; Water Depth: 3426m

Site 429 is located on normal fabric about 264km west of the EPR. The site was placed on a thin sediment blanket at the center of a narrow negative magnetic anomaly with an age of 4.2m.y. The hole penetrated 21.5m of basalt, recovering 2.95m of aphyric olivine free and olivine bearing basalt. The magnetic polarity of the lower part of the basalt corresponds to that predicted by the magnetic anomaly, but the upper part of the basalt has a positive polarity. It is suspected that the later unit represents younger flows originated at the time of the adjacent positive anomaly.

SCIENTIFIC OBJECTIVES: LEG 55

Leg 55 has two separate objectives: (1) to drill two holes in seamounts of the Emperor chain in the north central Pacific; and (2) to drill one hole in Mesozoic Pacific crust on the oceanic side of the Kuril trench at the southern end of an Active Margin Panel transect into the Sea of Okhotsk. Available evidence suggests that this chain of shield volcanoes, like the Hawaiian chain, was formed as the Pacific plate moved over a melting anomaly in the oceanic mantle, and that the Hawaiian-Emperor bend represents a significant change in the plate motion vector. The principal purpose of the proposed drilling is to test this hypothesis.

The principal purpose in drilling K-0 (PAC 7) is to study the genesis of the Kuril arc in cooperation with Leg 56. This hole should establish the composition of the oceanic crust (layers 1 and 2) oceanward of the trench. The results will be compared with oceanic crust within the inner wall of the Kuril trench, across the double island arc system, and beneath the Kuril Basin. The proposed drilling sites should provide an opportunity to refine paleontologic and paleo-oceanographic events during Cenozoic and late Mesozoic time in areas influenced by both Kuroshio and Oyashio Extension Currents at the present time.

Prime Aim: multiple re-entry on Suiko Seamount, single bit sites at a smaller seamount near Nintoku Seamount and at PAC 7 (K0).
Alternative: if entry in the Emperor Seamounts proves difficult, single bit sites at Suiko and a smaller seamount near Nintoku Seamount, multiple re-entry at PAC 7 (K0).

Site surveys were made by the USGS in the Emperor chain, and by the USSR and LDGO in the Kuril area, and sites were selected for drilling (Fig. 1) on the basis of these surveys.

Emperor Seamount Chain

Linear Island chain genesis and age. Wilson proposed that linear chains of oceanic volcanoes, specifically including the Hawaiian Ridge, represent the paths taken by the movement of lithospheric plates over "hot spots" in the underlying mantle. Morgan suggested that the hot spots (also called melting spots and melting anomalies) were the result of thermal "plumes" that rose vertically from the deep mantle bringing magmatic material for the volcanoes and providing the driving forces for plate tectonics. Further it has been suggested that hot spots were fixed with respect to the deep mantle, and thus provide a fixed frame of reference for plate motion analysis. The continuity of the Hawaiian and Emperor volcanic chains has been recognized which suggests that the Hawaiian-Emperor bend records a change in motion of the Pacific plate which occurred approximately 40 m.y. ago.

A corollary of Wilsons hypothesis is that the volcanoes in a linear chain increase in age away from the present location of the melting spot. It has long been known that the shield volcanoes that form the principal Hawaiian Islands from Hawaii to Kauai become progressively older toward the northwest. Recent radiometric data from the Leeward Hawaiian Islands and the western Hawaiian Ridge confirm that the Hawaiian chain continues to increase in age to the northwest beyond Kauai, although the progression of volcanism appears to be nonlinear, at least locally. Dating of rocks from volcanoes in the southernmost Emperor Seamounts and on the Hawaiian-Emperor bend demonstrate that the bend between these two volcanic chains is about 42 m.y. old. None of the volcanoes north of Koko Seamount, however, have been successfully dated. Only Meiji seamount, which may or may not be genetically part of the Emperor Chain, has a minimum fossil age of about 72 $\pm$ 3 m.y. The complete lack of reliable age data for the northern and central Emperor Seamounts makes it impossible to determine the southward rate of volcanic propagation or even to verify that the volcanoes in the chain increase in age to the north of Koko Seamount as predicted by Morgan. Thus a major aspect of the melting spot hypothesis remains untested.

The volcanoes of the Hawaiian-Emperor chain also provide an unequaled opportunity to determine the geochemical nature and mechanism of a hot spot. There is little doubt that Hawaiian volcanoes are the best studied in the world. The voluminous data from both the principal islands, the central and western Hawaiian ridge, and the southernmost Emperor Seamounts provide an unparalleled data base with which to compare samples recovered from the central and northern Emperor Seamounts. If the general melting-spot hypothesis is correct, the Hawaiian-Emperor chain comprises more than 1,000 km^3 of volcanic material erupted over a period of some 70 m.y. Nowhere else can theeruptive products from a single hot spot over such a long period be sampled without having to contend with the possible effects of continental crustal contamination. Such geochemical data are required to test the various mechanisms proposed for hot spots.

Paleomagnetic objectives. During the last few years many studies have been done to test the hypothesis of hot spot fixity. Unfortunately, because of the virtual absence of reliable age data from the Emperor chain and from other chains of comparable age, all of these studies have been constrained to plate motions during the last 40 m.y.

A corollary of the fixed melting spot hypothesis is that all of the volcanoes in the Hawaiian and Emperor chains would have been formed at the same latitude and

longitude. This prediction can be tested by paleomagnetic methods, but suitable rocks have been available from only two of the volcanoes in the Hawaiian-Emperor chain. A paleomagnetic study was made by Gromme and Vine of basalt cores obtained from two drill holes on Midway Atoll. They found that the paleolatitude of Midway was significantly south of its present latitude; but was not statistically different from the present latitude of Hawaii. A similar result was found for Meiji Seamount using basalt recovered from the bottom of DSDP Site 192. Although these paleomagnetic data are consistent with the existence of a fixed melting anomaly, additional data from elsewhere in the Emperor chain are needed to perform a satisfactory test of the hypothesis.

Recently analyzed magnetic anomalies and fracture zone trends along the Pacific-Antarctic and southern East Pacific rises have shown that the rate and direction of spreading on this ridge underwent a significant change between 63 and 38 m.y. ago. Because the Antarctic plate has moved very little during the past 80 m.y. and because true polar wandering has not occurred independently of plate motions since early Cretaceous time, the recently analyzed magnetic anomalies provide an approximate prediction of absolute Pacific plate motion for the last 80 m.y. with which radiometric and paleomagnetic data from the Emperor Seamounts may be compared.

History of vertical movement. Recently obtained seismic reflection profiles show that the principal guyots in the Emperor Seamount chain as far north as latitude 45°30' are capped by ancient coral reefs. While these results confirm a true northward component of movement of the Pacific plate throughout Tertiary time, drilling into coralline debris can also provide information on the vertical motion of the Pacific plate.

From the atoll drilling carried out so far on the Pacific plate it is known that long-term subsidence rates of from 30 to more than 50 m.y. are common. Previous experience in atoll drilling establishes without doubt that atolls serve as measuring rods in the open sea that provide information on both local and regional changes in the height of sea level relative to seamounts. Darwinian subsidence has been qualitatively proven by atoll drilling. Thermal contraction of the aging plate as it moves away from the plate-generating ridge is one contributing mechanism. Thermal contraction, however, fails to account for the emergence recorded at many atolls and volcanic islands. These emergences result either from mid-plate tectonic uplifts or from eustatic lowerings of sea level or both. We have located two of the proposed Emperor drill sites to sample what are believed to be reefal material. Analysis of benthonic foraminiferal assemblages in the drill sequences should provide critical paleo-bathymetric information relating to the age and rates of subsidence, and to the history of formation of the seamounts. We anticipate the data will be of use in extrapolating existing data on the subsidence of atolls to a previously unexplored part of the Pacific basin.

Aleutian-Kamchatkan pelagic deposits. Scholl and Creager demonstrated the existence of a thick pelagic wedge near the intersection of the Aleutian and Kamchatkan trenches, a deposit that overlies the northernmost Emperor Seamounts. The rates of deposition, character of sediments, abundance of ash beds, and geometry of this wedge place important constraints on both plate motion and periodicity of arc volcanism. The southern boundary of this wedge is uncertain. The northernmost Emperor site may be overlain by as much as 200m of this material. The sediment column at this site should clarify sedimentological, volcanic, and post-depositional processes in this part of the northern Emperor Seamount chain.

Biostratigraphic and paleo-oceanographic objectives. Sites drilled on Leg 55 will certainly yield planktonic assemblages which can be correlated with biostratigraphic reference sections both in DSDP drill sites of the North Pacific Basin and

on land of the circum-north Pacific rim. The Neogene interval in the sites is characterized by prolific sediments of siliceous microfossils of diatoms and radiolaria, and, during the Palaeogene and late Mesozoic calcareous-rich interval including foraminifera, nannofossils, and radiolaria may be encountered. All drill sites are directly beneath the track of the transitional water masses of the Kuroshio and Oyashio Extension Currents, which both transport their uniquely characteristic fossil assemblages. The analysis of variation in the abundance of siliceous and calcareous microfossils in Neogene sequences penetrated at the sites will yield information about the history of migrations of the convergence zone between the Kuroshio and Oyashio Extension Currents. Any climatically induced migration of planktonic assemblages will provide an additional means of correlation based on biologic indicators of physical events. The results from drilling are expected to help clarify the history of planktonic communities in the northwestern Pacific.

The geologic and paleontologic changes that take place at the Cretaceous-Paleogene boundary still remain one of the outstanding enigmas in ocean evolution. All Leg 55 drill sites should provide information on this problem.

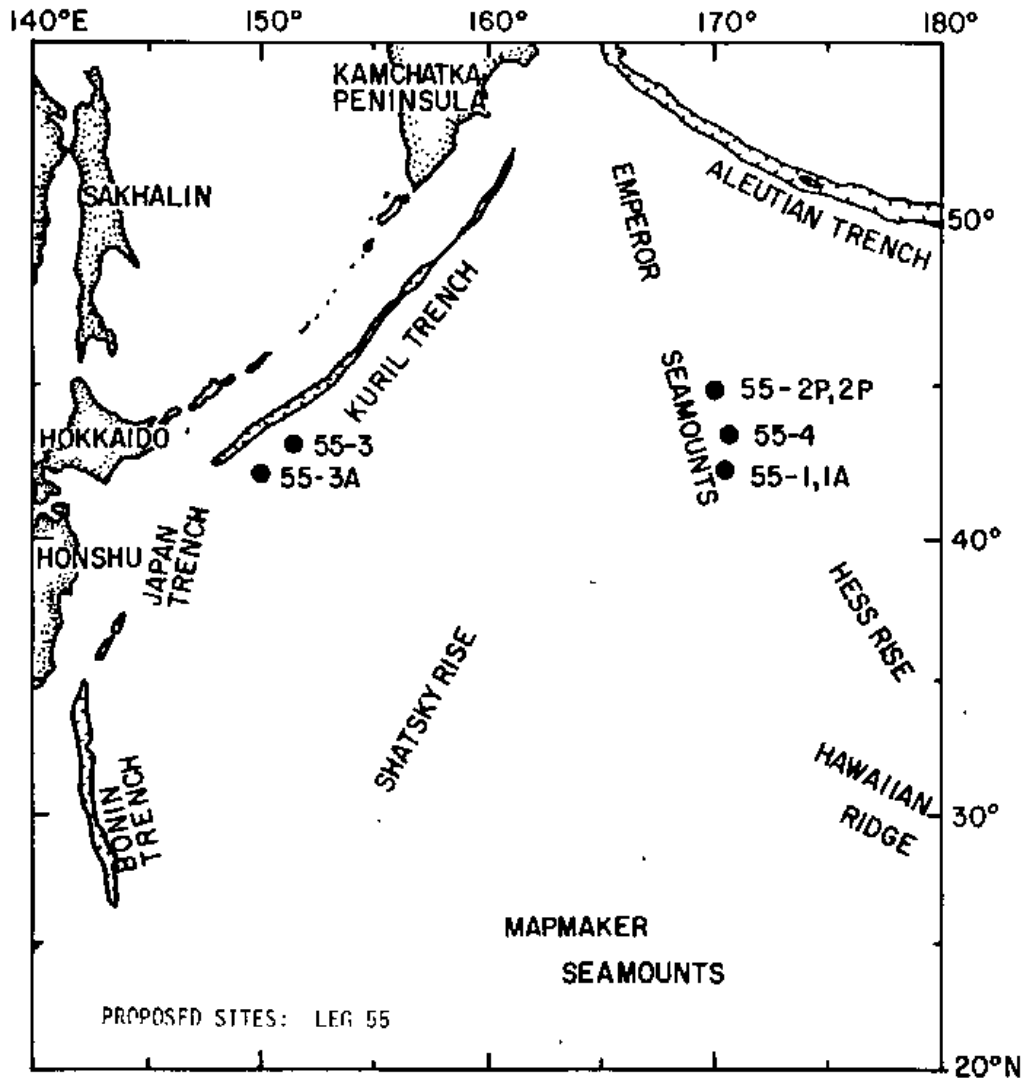
Older (Mesozoic) Crust of the Pacific Plate

Origin of the basaltic crust. Crustal drilling in the Atlantic has shown considerable variations in composition of basaltic crust with age. However, all basalts drilled have proven to be low-potassium tholeiites, and all appear to have been erupted at the mid-Atlantic ridge at various times in the past. There is some evidence, however, that chemical variation among these rocks is associated with spreading rate, and one of the objectives of Pacific crustal drilling is to evaluate this relation. Basalts previously drilled in this part of the Pacific basin were altered to such an extent that, although they could be recognized broadly as ocean-floor tholeiites, they could not be sub-classified.

The location of Sites 3 and 3A on the pretrench rise on magnetic anomaly M-1 should, in addition, furnish an oceanic comparison standard for basalts drilled on Leg 56. Careful radiometric dating of the basalts at this location should refine the age of the M-1 anomaly, and further document spreading rates and plate reconstruction in the Pacific in early Cretaceous time.

Paleomagnetic objectives. Determination of the magnetic properties of basalt should add to the growing but puzzling body of data from basalts drilled on identified magnetic anomalies. The site, however, has an equatorial paleo-latitude, and will not be ideal whether or not the basalts have the magnetic properties predicted for M-1.

Biostratigraphic and paleo-oceanographic objectives. These sites lie at the confluence of the Kuroshio and Oyashio Extension Currents and thus furnish an opportunity to study the warm and cold water Neogene zonations. In addition, continuous coring should enable us to document the Cenozoic and late Mesozoic planktonic biostratigraphy, especially changes across the time boundary, and to establish the nature and age of the lowest sedimentary rocks above anomaly M-1.


140°E
150°
160°
170°
180°
50°
40°
30°
20°N
KAMCHATKA PENINSULA
SAKHALIN
ALEUTIAN TRENCH
EMPEROR SEAMOUNTS
KURIL TRENCH
55-2P, 2P
55-4
55-1, 1A
55-3
55-3A
HOKKAIDO
HONSHU
JAPAN TRENCH
HESS RISE
SHATSKY RISE
HAWAIIAN RIDGE
BONIN TRENCH
MAPMAKER SEAMOUNTS
PROPOSED SITES: LEG 55

SHIPBOARD SCIENTIFIC STAFFING: LEGS 53, 54 and 55

Leg 53.

M. Flower	Co-chief Scientists	U.K.	Imperial College
M. Salisbury		USA	Scripps Inst. Oceanography
H. Staudigel	Igneous Petrologist	USA	MIT
E. Mathez	Igneous Petrologist	USA	Univ. Washington
C. Mevelle	Igneous Petrologist	France	Universite Paris
N. Pertsev	Igneous Petrologist	USSR	Inst. Geology, Moscow
P. Rigotti	Paleomagnetist	USA	Univ. Pittsburgh
M. Hobart	Physical Properties	USA	Lamont-Doherty Geol. Obs.
D. Johnson	Physical Properties	USA	Univ. Texas, Dallas
R. Pritchard	Geochemist	U.K.	Univ. East Anglia
H. Puchelt	Geochemist	FGR	Univ., Karlsruhe
D. Bohrer	Staff Representative & Curatorial	USA	Scripps Inst. Oceanography

Leg 54.

R. Hekinian	Co-chief Scientists	France	COB, Brest
B. Rosendahl		USA	Duke University
J. Natland	Staff Representative & Petrologist	USA	Scripps Inst. Oceanography
Y. Dmitriev	Igneous Petrologist	USSR	Inst. Geology, Moscow
R. Fodor	Igneous Petrologist	USA	Univ. New Mexico
D. Mattey	Igneous Petrologist	U.K.	Bedford College
E. Schrader	Igneous Petrologist	USA	Duke University
N. Petersen	Paleomagnetist	FGR	Inst. Allgemeine and Angewandte, Munich
W. Roggenthen	Paleomagnetist	USA	Princeton University
R. Goll	Sedimentologist/Rad. Paleontologist	USA	Duke University
M. Hoffert	Sedimentologist	France	Inst. de Geologie
S. Humphris	Geochemist	U.K.	Imperial College
R. Srivastava	Geochemist	FGR	Univ., Karlsruhe
N. Warren	Physical Properties	USA	UCLA

Leg 55.

E. Jackson	Co-chief Scientists	USA	USGS, Menlo Park
I. Koizumi		Japan	Osaka University
J. Kirkpatrick	Staff Representative & Igneous Petrologist	USA	Scripps Inst. Oceanography
G. Avdeyke	Igneous Petrologist	USSR	Inst. Volcanology
D. Clague	Igneous Petrologist	USA	Middlebury College, Vermont
B. Dalrymple	Igneous Petrologist	USA	USGS, Menlo Park
A. Karpoff	Sedimentologist	France	Inst. Geologie, Strasbourg
J. McKenzie	Sedimentologist	Switzerland	Geologisches Inst., Zurich
A. Butt	Paleontologist	FGR	Univ. Tubingen
H. Ling	Paleontologist	USA	Univ. Washington
T. Takayama	Paleontologist	Japan	Kanazawa University
M. Kono	Paleomagnetist	Japan	University of Tokyo
J. Morgan	Physical Properties	USA	Princeton University
H. Green	Geophysicist	USA	USGS, Menlo Park

JOIDES SAMPLE DISTRIBUTION POLICY - DSDP/IPOD
(Revised 2 August 1977)

AVAILABILITY OF DATA

Samples collected by the Deep Sea Drilling Project and the International Program of Ocean Drilling are available for investigation in order to (1) provide data to support GLOMAR CHALLENGER scientists in achieving the scientific objectives of their particular cruise; (2) provide investigators with materials to conduct studies beyond the scope of the Initial Reports; and (3) provide the paleontologic reference centers with samples for reference and comparison purposes.

The Deep Sea Drilling Project's Curator is responsible for distributing samples and controlling their quality, as well as preserving and conserving core material. The Curator is also responsible for maintaining a record of all samples that have been distributed, the recipient, and the nature of the proposed investigation. This information is available to all investigators upon request.

Distribution of samples is made by the Curator directly from the existing repositories, Lamont-Doherty Geological Observatory and Scripps Institution of Oceanography.

Funding for the proposed research must be secured separately by the investigator. It cannot be provided through the Deep Sea Drilling Project.

The National Science Foundation has established a Sample Distribution Panel to advise on the distribution of core material. This panel is chosen in accordance with usual Foundation practices, in a manner that will assure advice in the various disciplines leading to a complete and adequate study of the cores and their contents.

PUBLICATION POLICY

Any publication of results other than in the Deep Sea Drilling Project Initial Reports within twelve (12) months of the completion of the cruise must be approved and authored by the entire shipboard party and, where appropriate, additional investigators. After twelve months, individual investigators may submit related papers for open publication provided they have submitted their contributions to the Initial Reports. Investigations not completed in time for inclusion in the Initial Reports for a specific cruise may not be published in other journals until final publication of that Initial Report for which it was intended. Notice of submission to other journals and a copy of the article should be sent to the DSDP Chief Science Editor.

Acknowledgement should be made in publications that samples were supplied through the assistance of the U. S. National Science Foundation, and others as appropriate.

Five (5) copies of reprints of published results should be sent to the Curator, Deep Sea Drilling Project (A-031), Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093 U.S.A. Reprints are for distribution to the Curator's file, the DSDP repositories, the GLOMAR CHALLENGER's library, and the National Science Foundation.

SAMPLE DISTRIBUTION POLICY

A. Distribution of Samples for Research Leading to Contributions to Initial Reports

Any investigator who wishes to contribute a paper to a volume of the Initial Reports may write to the Chief Scientist, Deep Sea Drilling Project (A-031), Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093 USA, requesting samples from a forthcoming cruise. Requests for a specific cruise should be received by the Chief Scientist TWO MONTHS in advance of the departure of the cruise in order to allow time for the review and consideration of all requests and to establish a suitable shipboard sampling program. The request should include a statement of the nature of the study proposed, size and approximate number of samples required to complete the study, and any particular sampling technique or equipment that might be required. The requests will be reviewed by the Chief Scientist of the Project and the cruise co-chief scientists; approval will be given in accordance with the scientific requirements of the cruise as determined by the appropriate JOIDES Advisory Panel(s). If approved, the requested samples will be taken, either by the shipboard party if the workload permits, or by the curatorial staff shortly following the return of the cores to the repository. Proposals must be of a scope to ensure that samples can be processed and a contribution completed in time for publication in the Initial Reports. Except for rare, specific instances involving ephemeral properties, sampling will not exceed one-quarter of the volume of core recovered, with no interval being depleted and one-half of all core being retained as an archive. Shipboard sampling shall not exceed approximately 100 igneous samples per investigator; in all cases co-chief scientists are requested to keep sampling to a minimum.

The co-chief scientists may elect to have special studies of selected core samples made by other investigators. In this event the names of these investigators and complete listings of all materials loaned or distributed must be forwarded, if possible, prior to the cruise or, as soon as possible following the cruise, to the Chief Scientists through the DSDP Staff Science Representative for that particular cruise. In such cases, all requirements of the Sample Distribution Policy shall also apply.

If a dispute arises or if a decision cannot be reached in the manner prescribed, the NSF Sample Distribution Panel will conduct the final arbitration.

B. Distribution of Samples for Research Leading to Publication other than in Initial Reports

1. Researchers intending to request samples for studies beyond the scope of the Initial Reports should first obtain sample request forms from the Curator, Deep Sea Drilling Project (A-031), Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093 USA. On the forms the researcher is requested to specify the quantities and intervals of the core required, make a clear statement of the proposed research, specify the status of funding, and the availability of equipment and space foreseen for the research.

In order to ensure that all requests for highly desirable but limited samples can be considered, approval of requests and distribution of samples will not be made prior to 2 months after publication of the Initial Core Descriptions (ICD). ICD's are required to be published within 10 months following each cruise. The only exceptions to this policy will be for specific instances involving ephemeral properties. Requests for samples can be based on the Initial Core Descriptions, copies of which are on file at various institutions throughout the world. Copies of original core logs and data are kept on open file at DSDP and at the repository at Lamont-Doherty Geological Observatory, Palisades, New York. Requests for samples from researchers in industrial laboratories will be handled in the same manner as those from academic organizations, with the same obligation to publish results promptly.

2. (a) The DSDP Curator is authorized to distribute samples up to 50ml per meter of core. Requests for volumes of material in excess of this amount will be referred to the NSF Sample Distribution Panel for review and approval. Experience has shown that most investigations can be accomplished with 10ml sized samples or less. All investigators are encouraged to be as judicious as possible with regard to sample size and, especially, frequency within any given core interval. The Curator will not automatically distribute any portion of cores which appear to be in particularly high demand; requests for such portions will be referred to the Sample Distribution Panel for review. Requests for samples from thin layers or important stratigraphic boundaries will also require Panel review.

(b) If investigators wish to study certain properties which may deteriorate prior to the normal availability of the samples, they may request that the normal waiting period not apply. All such requests must be reviewed by the curators and approved by the Sample Distribution Panel.

3. Samples will not be provided prior to assurance that funding for sample studies either exists or is not needed. However, neither formal approval of sample requests nor distribution of samples will be made until the appropriate time. If a sample request is dependent, either wholly or in part, on proposed funding, the Curator is prepared to provide to the organization to whom the funding proposal has been submitted any information on the availability (or potential availability) of samples that it may request.

4. Investigators receiving samples are responsible for returning, in good condition, the remainders of samples after termination of research, if requested by the Curator.

5. Cores are available at repositories for investigators to examine and to specify samples in such instances as may be necessary for the scientific purposes of the sampling with specific permission of the Curator or his delegate.

C. Other Records

Magnetics, seismic reflection, downhole logging, and bathymetric data collected by the GLOMAR CHALLENGER are available for distribution at the same time samples become available. Requests for data may be made to:

Associate Chief Scientist, Science Services, Deep Sea Drilling Project (A-031), Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093 USA. A charge will be made to recover the expenses in excess of $50.00 in filling individual requests. If required, estimated charges can be furnished before the request is processed.

Shipboard-produced smear slides of sediment and thin sections of indurated sediment, igneous and metamorphic rocks, will be returned to the appropriate repository at the end of each cruise or at the time of publication of the Initial Reports for that cruise. These smear slides and thin sections will form a reference collection of the cores stored at each repository and may be viewed at the respective repositories as an aid in the selection of core samples.

The Deep Sea Drilling Project routinely processes by computer most of the quantitative data presented in the Initial Reports. Space limitations in the Initial Reports preclude the detailed presentation of all such data. However, copies of the computer readout are available for those who wish the data for further analysis or as an aid in selecting samples. A charge will be made to recover expenses in excess of $50.00 incurred in filling requests.

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JOIDES/DSDP PUBLICATIONS

Initial Reports of the Deep Sea Drilling Project, Vol. XXXVI and XXXVII were published. Initial Core Descriptions of the Deep Sea Drilling Project, Vol. XLVI and XLVIII were distributed.

GLOMAR CHALLENGER Sails on Leg 48 - Leg 48 Scientists: Geotimes, December 1976, Vol. 21, No. 12, p. 19-23.
Deep Sea Drilling Project - Ansis Kaneps: Geotimes, January 1977, Vol. 22, No. 1, p. 18-19.
Young and Hot Drilling - Leg 49 Scientists: Geotimes, March 1977, Vol. 22, No. 3, p. 25-28.
Documenting Early Rifting - Leg 50 Scientists: Geotimes, April 1977, Vol. 22, No. 4, p. 24-28.
Mid-Ocean Ridge in the Cretaceous - Leg 51 Scientists: Geotimes, June 1977, Vol. 22, No. 6.

FUTURE PUBLICATIONS

Initial Core Descriptions for Legs 49 and 50 are expected to be distributed in the near future.

The JOIDES Office is attempting to compile and maintain an up-to-date list of publiations which have used Deep Sea Drilling Project data. Therefore, we are soliciting readers of the JOIDES JOURNAL to send any information regarding DSDP publications to the JOIDES Office. Your help will be greatly appreciated.

DSDP PUBLICATIONS NOTICE

Initial Reports of the Deep Sea Drilling Project

The Initial Report series is the Project's prime publication; each volume contains the scientific results of a particular cruise of the D/V GLOMAR CHALLENGER. The National Science Foundation distributes the volumes to libraries and institutions worldwide. You may obtain order forms for their purchase from the Government Printing Office.

Superintendent of Documents
Government Printing Office
Washington, D. C. 20402

Initial Core Descriptions (ICD's)

The ICD's contain descriptions of cores, site data, and site synopses. They are produced by the shipboard scientists within 10 months after completion of the cruise and are superceded by the Initial Reports published approximately 2 years after the cruise. The Deep Sea Drilling Project distributes the ICD's only to libraries and geological institutions throughout the world and to the scientific participants of the subject cruise.

The following four publications, in addition to being distributed worldwide to libraries and institutions, may be obtained, free of charge, by individuals without access to library copies. Requests for order forms should be mailed to:

Science Services
Deep Sea Drilling Project, A-031
Scripps Institution of Oceanography
La Jolla, California 92093.

If you have access to a library that receives DSDP publications, we urge you to make use of the library copies.

Deep Sea Drilling Project Keyword Index to the Initial Reports, Publications, and Investigations of DSDP Materials

The Keyword Index consists of two parts: (1) Index of Keywords and (2) the Author-Reference List. The keywords describe each publication or investigation by viewpoint, material, oceanic area, and geological age. The Author-Reference is a bibliographic listing of the publications and investigations. DSDP publishes an updated edition of the Index, on microfiche, every 6 months. Each new edition supercedes previous editions.

Guides to DSDP Core Material

The Guides are indexes of geological parameters listed at core level for discrete oceanic areas. The data have been extracted from the published volumes of the Initial Reports, with reference to the original raw data files where necessary. The Guides are published irregularly. Only the Revised Pacific Guide is currently produced on microfiche but ultimately all the Guides will be available in this form.

A. Phase I (Legs 1-9)
B. Atlantic
C. Pacific (on microfiche)

D. Mediterranean, Caribbean & Gulf of Mexico
E. Phase II (Legs 10-25)
F. Indian Ocean.

Data Data

Data Data are bulletins that describe the data available and the capabilities and services of the Information Handling Group. They are updated irregularly. Details of the data and its modes (i.e., card, tape, film) may be obtained upon request.

#1 - Introduction to Scientific Information Handing Activities
#2 - Underway Data Processing and Cruise Reports
#3 - Computer Cartography
#4 - Processing and Display of Physical Properties and Other Quantitative Core Data
#5 - DSDP Keyword Index
#6 - A Quick Reference Key to Phase I Data
#7 - A Guide to DSDP Cores
#8 - Computer Generated Range Charts
#9 - A Program for Data Storage and Retrieval
#10 - A Quick Reference Key to Phase II Data
#11 - A Quick Reference Key to Phase III Data

Topography of the Oceans with Deep Sea Drilling Project Sites

This map is a Mercator Projection with contours in kilometers (the scale is 1:47,520,000 at the Equator) prepared by Scripps Institution of Oceanography and updated regularly.

NEWS ITEM

The JOIDES community is happy to welcome on board Dr. Thomas A. Davies, as the National Science Foundation Program Associate in the Ocean Sediment Coring Program, and Dr. Richard J. Stewart, as the JOIDES Scientific Coordinator at the JOIDES Office.

Dr. Brian McKnight has returned to the University of Wisconsin at Oshkosh and we wish to extend our appreciation for his cooperation and interest in the project the past two years. Dr. Peter Borella has resumed his teaching responsibilities at Riverside City College, at Riverside, California, and we wish to thank him for his efforts on behalf of JOIDES.

CALENDAR: July 1977 through June 1978. Readers of the JOIDES JOURNAL are reminded that the dates and places of meetings indicated on this calendar are subject to change. Persons interested in particular meetings are requested to verify this information with the Panel Chairmen or the JOIDES Office.

	1977 JUL	AUG	SEP	OCT	NOV	DEC	1978 JAN	FEB	MAR	APR	MAY	JUN
EXCOM	Seattle			11-13 Tokyo			25-27 Mexico				9-11 England	
PCOM	Seattle			3-6 Kyoto			17-20 Mexico				2-4 England	
OCP					10-12 Seattle							
AMP		1-3 L-DGO										
PMP				21-24 England								
OP						12-14 DSDP						
SSP							?					
SED. PET.												
IGP												
OGP					6 Seattle							
STRAT. CORR.												
DOWNHOLE PANEL								24 DSDP				
SAFETY PANEL												
IHP							5-6 DSDP					
LEG MEETINGS												
LEG				56		57	58	59		60		61

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