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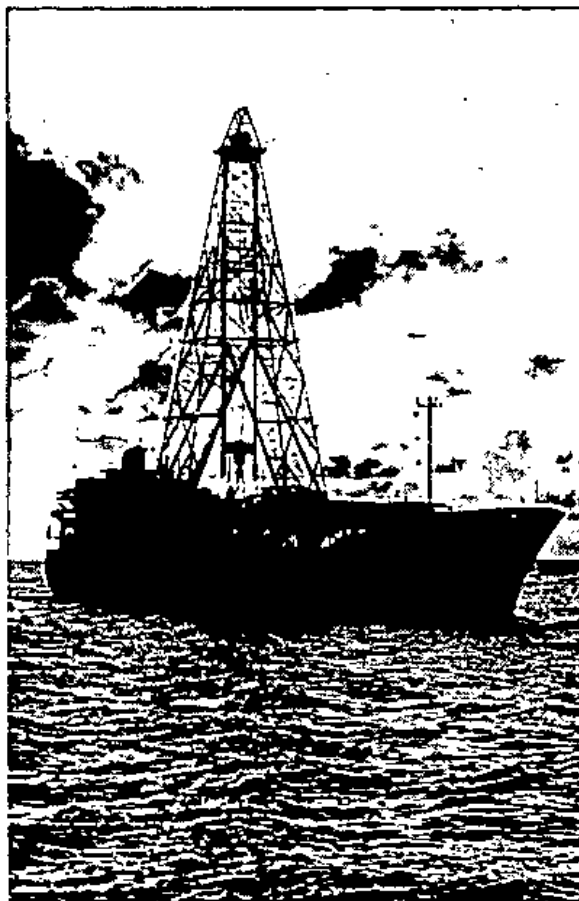


TABLE OF CONTENTS: Vol. 3, No. 1, January 1977

Tentative Schedule - IPOD.	1
Status of the Planning Committee Proposal.	2
Status of the Subcommittee on "The Future of Scientific Ocean Drilling".	2
Reports from:	
Executive Committee	2
Planning Committee.	6
Active Margin Panel	14
Downhole Measurements Panel	19
Ocean Crust Panel	22
Ocean Paleoenvironment Panel (July 76).	26
Ocean Paleoenvironment Panel (December 76).	30
South Atlantic Working Group.	35
Organic Geochemistry Panel.	36
Passive Margin Panel.	39
Sedimentary Petrology & Physical Properties Panel	43
Site Survey Panel (October 76).	45
Site Survey Panel (December 76)	52
Ad Hoc Group of the Site Survey Panel	55
Site Survey Management (August 76).	55
Site Survey Management (October 76)	57
Stratigraphic Correlations Panel (July 76).	57
Stratigraphic Correlations Panel (December 76).	58
Ad Hoc Group to Discuss DSDP Paleontological Reference Centers.	61
Site Reports	
Leg 49.	63
Leg 50.	65
Scientific Objectives: Legs 51 and 52	67
Shipboard Scientific Staffing.	69
JOIDES/DSDP Publications	69
Future Publications.	70
9th DSDP Technical Report is Published by NTIS	70
News Item	70
Sample Distribution Policy - DSDP/IPOD	71
Panel and Committee Meetings Calendar.	74
Directory of JOIDES Committees and Panels	
Committees.	75-76
Panels (in alphabetical order).	77-88

LIST OF FIGURES

GLOMAR CHALLENGER in Atlantic Ocean.	cover
Fig. 1: Drill Sites for Legs 50 and 51	8
Fig. 2: Pacific Drilling Sites	12
Fig. 3: Drill Sites for Kuril Arc, Sea of Okhotsk, Japan Trench.	16
Fig. 4: Drill Sites for Philippine Sea, Northern and Southern Transects	18
Fig. 5: Tentative Sites for the South Atlantic Ocean: Angola Basin, Walvis Ridge.	28
Fig. 6: Drilled Sites for Legs 49 and 50	64
Pacific Track.	inside back cover

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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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TENTATIVE SCHEDULE - IPOD

Leg	Depart	Arrive	Days at Sea	Purpose
53	San Juan (12 Mar)	Cristobal (26 Apr)	45	AT 2.3
54	Balboa (1 May)	San Diego (14 June)	44	PAC 4
55	San Diego (19 June) (via Adak)	Kushiro (2 Aug)	44	Seamounts PAC 7
56	Kushiro (7 Aug)	Kobe (27 Sept)	51	Okhotsk
57	Kobe (11 Oct) (drydock)	Tokyo (29 Nov)	49	Japan Trench
58	Tokyo (4 Dec)	Taipei (24 Jan)	51	N. Philippine Sea
59	Taipei (29 Jan)	Agana (21 Mar)	51	S. Philippine Sea
60	Agana (26 Mar)	Agana (16 May)	51	S. Philippine Sea
61	Agana (21 May)	Agana (11 July)	51	S. Philippine Sea Nauru Basin
62	Agana (16 July)			NW PAC Paleoenvironment
63				NE PAC Paleoenvironment
64 & 65				Gulf of California
66 & 67				Mid-America Trench
68 & 69				Galapagos & Panama

STATUS OF PLANNING COMMITTEE PROPOSAL

As announced in the addendum to the September issue of the Journal, the Planning Committee is preparing a proposal for the continuation of drilling from 1979 to 1981. The Planning Committee welcomes appropriate suggestions by any scientist for consideration in the proposed program. Suggestions should be submitted by February 1977 to Dr. Dean A. McManus, JOIDES Office WB-10, Department of Oceanography, University of Washington, Seattle, Washington 98195. The major part of the scientific program will come from deliberations in the panel meetings scheduled for December and January.

STATUS OF THE SUBCOMMITTEE ON "The Future of Scientific Ocean Drilling"

The conference on "The Future of Scientific Ocean Drilling" is scheduled for 7-11 March 1977 at the Marine Biological Laboratory, Woods Hole, Massachusetts. The fourteen-member subcommittee, under the chairmanship of Dr. Manik Talwani, has been selected, and is now in the process of planning the conference (see JOIDES Journal, No. 6, Page 2, for additional information).

REPORT FROM THE EXECUTIVE COMMITTEE (18-19 October 1976)

Deep Sea Drilling Project Report

At the last port call a minor flexing in the main deck (area is called shear-nuckle) of the GLOMAR CHALLENGER was reported. This apparently is a minor design problem which has occurred with other vessels having hull design similar to the GLOMAR CHALLENGER. Global Marine feels that this flexing is a minor problem but has assigned an engineer to examine it. There is, however, the possibility of needing an extended port stay for repairs if this problem worsens.

The 14-month proposal for an extension of the drilling program to October 1978 is in the final stages of NSF consideration. (It was approved by the NSF Board at its meeting in December.) No site survey funds were requested in the extension originally. The proposal presently being considered includes 1.5 million dollars for site survey. NSF will most likely have to examine this which may cause minor delay.

Subcommittee Report: "The Future of Scientific Ocean Drilling"

The need for the non-U.S. JOIDES members to submit their reports concerning programs relating to ocean drilling within their respective countries was emphasized.

A reply from the non-U.S. representatives stated that these reports were being completed and will be sent to the subcommittee in advance of the meeting scheduled for early March 1977. A date of 8 February 1977 (next Planning Committee meeting) was the suggested deadline for these materials.

The urgency and the importance of the subcommittee's task was emphasized. JOIDES and the Deep Sea Drilling Project are faced with serious constraints and deadlines. A rough draft of the Planning Committee's proposal to extend GLOMAR CHALLENGER-type drilling beyond 1979 to approximately 1981 must be submitted to NSF by early Spring to meet Office of Management and Budget deadlines. A proposal for ocean drilling beyond 1979, which includes the Planning Committee proposal, and drilling beyond 1981, must be submitted to NSF by early May 1977. The final proposal must be submitted no later than the middle of Summer 1977. The following statements regarding NSF's position with JOIDES and DSDP were made.

1. The NSF Board will most likely accept the 14-month extension proposal because it is in the original proposal. The contract with Global Marine can be continued without re-negotiation. This option with Global Marine must be exercised by 11 August 1977.

2. After drilling is completed in October 1979 (14-month extension), NSF will not fund Deep Sea Drilling under the present program. An entirely new scientifically justified proposal must be submitted.

3. NSF considers the non-U.S. participation in ocean drilling to be an important element. The non-U.S. countries need firm plans regarding future drilling. They also have deadlines for new proposals seeking funds to support IPOD.

4. Is the GLOMAR EXPLORER going to be used? ERDA and USGS are considering the possibility of using the GLOMAR EXPLORER for ocean margin drilling. If it is available, will it be suitable? The GLOMAR EXPLORER is going to be mothballed as soon as possible.

Global Marine has been asked to give estimates on the cost of de-mothballing and modifying the GLOMAR EXPLORER under the following possible conditions:

- a) riserless drilling
- b) riserless drilling initially, but with riser modification for later use with riser and
- c) riser drilling.

The present proposal is open ended and has long-range scientific objectives which require drilling well beyond 1979 and cannot be answered by the IPOD I mode of drilling. It has always been known that some areas would have to be drilled later with different systems. Further it was pointed out that this proposal included a five-year plan, which was cut to 4 years and funded for 3 years with a possible 14-month extension.

5. The format and basis of the Planning Committee's proposal was presented (see Report from Planning Committee, page 10). Because of the deadlines facing the Planning Committee, the Executive Committee was asked to allow the Planning Committee to distribute a draft form of the proposal to NSF prior to the subcommittee meeting. This will permit NSF to start with budgeting and examination procedures. The Executive Committee agreed with this request.

The draft proposal will be distributed to the Executive Committee and subcommittee members after the February 1977 Planning Committee meeting. The proposal will be part of the subcommittee report if continuation of ocean drilling is recommended.

New Sample Distribution Policy

The new Sample Distribution Policy will be found on page 71 of this issue of JOIDES Journal.

Reference Centers for Paleontological Materials

The procedures in establishing paleontological reference centers are found on page 61 (Stratigraphic Correlation Ad-hoc Group Report). The Planning Committee discussed the motion concerning paleontological reference centers. A change in this motion was formally recommended. The motion is to read as follows:

The Planning Committee recommends that the DSDP Curator maintain awareness of the amount of recovery of critical biostratigraphic intervals in the cores collected and take whatever steps necessary if recovery is small (immediately on publication of the Initial Core Descriptions) to ensure that appropriate samples are collected and sent to the paleontologic reference centers before filling individual "subsequent requests" (i.e., for investigations not required for preparation of the Initial Reports). Non-destructive measurements should take precedence over destructive measurements and materials should be preserved for critical destructive physical and chemical property measurements.

JOIDES Symposia and Synthesis Volumes

The Executive Committee recommended JOIDES accept the L-DGO offer to co-sponsor a symposium on Atlantic drilling results.

The Planning Committee's views on JOIDES'sponsorship of synthesis volumes was presented (see Report from Planning Committee, page 6). Opinions by Executive Committee members were expressed for and against JOIDES sponsoring its own synthesis volumes. After considerable discussion, a consensus of opinions was stated:

1. Budgeting should allow for synthesis volumes.
2. Each synthesis volume should be considered individually and examined carefully.
3. If outside sources are unavailable or unable to publish JOIDES results adequately, then JOIDES should publish these results.

In a motion the Executive Committee recommended that adequate money be budgeted in fiscal year 1978 for the publication of a special volume.

Panel Membership and Size

The question as to the size of individual panels was discussed. In the form of a motion the Executive Committee recommended to the Planning Committee that it maintain the present panel sizes and further recommended reduction when possible.

Regional Studies Proposal

Confusion and disagreement were expressed as to the purpose of a Regional Studies Program and the role of the Site Survey Panel in this program.

1. One of the purposes of the Regional Studies Program was to restore the data bank of geophysical survey information. Opinions differed as to whether the data bank is depleted. The majority of the non-U.S. IPOD countries feel that this is not a problem whereas the U.S. members feel it is a major problem. Other problems concerned what areas should be emphasized by regional studies, who should oversee selection, and how the regional studies might be funded. Some Executive Committee members felt regional studies should be promoted within the panels; others voiced the opinion that regional studies go beyond DSDP and additional funds outside of DSDP should be requested.

2. It was pointed out that the non-U.S. member site surveys proposed for drilling sites are generally excellent and are completed well in advance of the dates required for discussion at the respective panel meetings. The United States, however, has been left with the responsibility of surveying those areas which are scheduled for drilling but which have not been completed because of

limited funds. It was suggested that some of the site surveying objectives of non-U.S. countries be shifted to help solve the problems that the U.S. JOIDES members face; i.e., survey some of those areas that are needed in the immediate future instead of or in addition to those sites planned for later in the program.

3. The Planning Committee needs site surveying done on proposed sites with sufficient lead time to permit adequate planning well in advance of the time the GLOMAR CHALLENGER enters a given region.

4. The Regional Studies Program involves two major items which should be separated:

- a) Site surveys: site surveys are an obvious part of the drilling program.
- b) Regional studies: DSDP does not have funds to support such studies; outside sources of support for this program must be sought.

5. Because DSDP cannot support regional studies under its present structure and opinions suggest that this is a United States - IPON problem, the Executive Committee recommends that the matter of regional studies be referred to JOI, Inc.

6. Concerning funds for site surveys, the following recommendation was made:

The Executive Committee recognizes the severe problem of inadequate site surveys and recommends that the individual JOIDES members seek additional funds from their governments for site survey work.

7. Realizing the problem that the Planning Committee faces concerning future planning on which site surveying is determined, the Executive Committee encourages the Planning Committee to develop a scientifically justifiable plan for drilling, utilizing available data, ignoring the drilling termination date, for three years in advance. This plan should not require the ship to return to home port.

Downhole Logging Equipment

A report was made to the Executive Committee concerning downhole logging equipment. Additional funds are being requested from NSF. The Downhole Measurements Panel was asked to determine whether or not digitizing was essential. Elimination of digitizing would lower the costs of downhole logging considerably.

An invitation was extended for U.S. engineers to visit the USSR and examine the downhole logging equipment which was offered to the project. If compatible, their equipment could be used at no cost to the Deep Sea Drilling Project. The downhole logging equipment and costs problem was prioritized as follows:

- a) Pursue the offer made by the USSR. If the equipment is compatible with the GLOMAR CHALLENGER operations and there are common data reduction techniques, the problem is solved;
- b) if not, examine the offer of Schlumberger and other service company packages. Compare these offers to in-house operations and costs.

REPORT FROM THE PLANNING COMMITTEE (5-7 October 1976)

The Future of Scientific Ocean Drilling

A report was made reviewing the purposes of the subcommittee's task together with the contribution of its membership. The non-JOIDES members on the subcommittee are to have equal status as the Executive Committee members assigned to this subcommittee (see JOIDES Journal, No. 6, Page 2 for background information). Some comments which may be useful to the subcommittee were made.

1. What are the technical advantages and restrictions of a GLOMAR EXPLORER class vessel?
2. A realistic viewpoint of what can be expected to be done in the near future is needed.
3. An independent opinion on the technical aspects of Deep Sea Drilling should be solicited.
4. Opinions and presentations from non-U.S. IPOD members are valuable and should be incorporated into the subcommittee's recommendation.

Leg 48 Data Open File

The Planning Committee was informed that the deadline for bids for leasing in the North Biscay was 5 October 1976 and that the United Kingdom had not yet received the Leg 48 data packet which was to be placed on open file in the United Kingdom. It was resolved that another packet will be sent to the United Kingdom and that all data packets will be returned to USDP 30 days after the packet is placed on open file.

Reference Centers for Paleontological Materials

Please refer to the Minutes of the Ad-hoc Group from the Stratigraphic Correlations Panel, page 61 and Report from Executive Committee, page 3 in this issue of JOIDES Journal.

JOIDES Symposia and Synthesis Volumes

The Planning Committee considered JOIDES' role in sponsoring or co-sponsoring symposia and publishing its own synthesis volumes.

L-DGO has offered to be a symposium co-sponsor with JOIDES on the Atlantic drilling results. This offer is an extremely good one and the entire Planning Committee was in agreement that it be answered positively and a progress report be made at the next meeting. Other suggestions concerning this and other possible symposia were made.

1. The Passive Margin Panel recommends that the Ewing Symposium offered for 1978 be used as a vehicle to present a pre-publication synthesis of the Atlantic passive margin geology and paleoenvironment. The panel further requests participation of the problem panels in programming the symposium.

2. The Royal Society is considering sponsoring a symposium on the eastern North Atlantic passive margins. If JOIDES desires it, it may have the opportunity to be a co-sponsor.

After considerable discussion as to whether JOIDES should sponsor or co-sponsor symposia or remain advisory only, the Planning Committee recommended that JOIDES sponsor or co-sponsor symposia when deemed appropriate by either the Planning

Committee or Executive Committee. It was further suggested that money be budgeted sufficient to publish two synthesis volumes per year starting in 1978.

Deep Sea Drilling Project Report

The results of Legs 48 and 49 were reported and details may be found in the DSDP monthly reports and site summaries. It was felt that both legs were successful despite the loss of drill string and mishaps which occurred on these legs. A new bit was tried on Leg 49 but failed, not because of the bit itself but because of the engineering design in the bit. A question was asked as to whether DSDP had examined the technology on bit designs used in hard rock drilling. DSDP is involved in bit design and would appreciate any engineering recommendations from the panels concerning drill bits.

All co-chief scientists were encouraged to write comments (pro and con) about their experiences aboard the GLOMAR CHALLENGER immediately after their leg.

The progress and present status of Leg 50 was reported. Site 415 was abandoned with the GLOMAR CHALLENGER moving to site 370 (Figure 1). Additional time may be needed to achieve the primary goals.

After considerable discussion the Planning Committee decided on the following:

1. The scientific objectives of Legs 50, 51 and 52 are very important and must be met if possible.
2. An extension of approximately 12 days be added to Leg 50 if drilling is going well and if it is needed.
3. If this extension is needed the 12 days lost on Leg 51 will be added to the end of Leg 52. In doing this, Legs 51 and 52 will have the same number of days at sea (i.e., 43 days each). The ship's crew will change as previously planned but the scientific party will be changed at the end of the Legs.
4. The 12 days added to Legs 51 and 52 will be recovered by the end of Leg 54. Weather will present severe problems for subsequent legs if scheduled time into Honolulu is not observed.

The Deep Sea Drilling Project is instituting an orientation program for at least one of the co-chief scientists for each leg. At DSDP the co-chief scientist(s) will be involved in making the drilling plans, meet with the curatorial staff and be familiarized with sampling procedure, operations, etc.

The lower middle part of the drill string using aluminum pipe would increase the safe limit of total drill string to about 8.3 to 8.5 km. The Planning Committee was asked to consider whether there was enough scientific justification to request expenditure of the necessary funds. This matter is referred to the Active Margin Panel for consideration and justification.

The Ocean Paleoenvironment, Sedimentary Petrology and Physical Properties, and Stratigraphic Correlations panels are asked to submit names for shore-board parties for crustal legs 53-55.

Status of equipment on board GLOMAR CHALLENGER:

1. The Digico magnetometer aboard the GLOMAR CHALLENGER for Legs 47b-50 is in the process of being purchased and will be kept aboard ship.

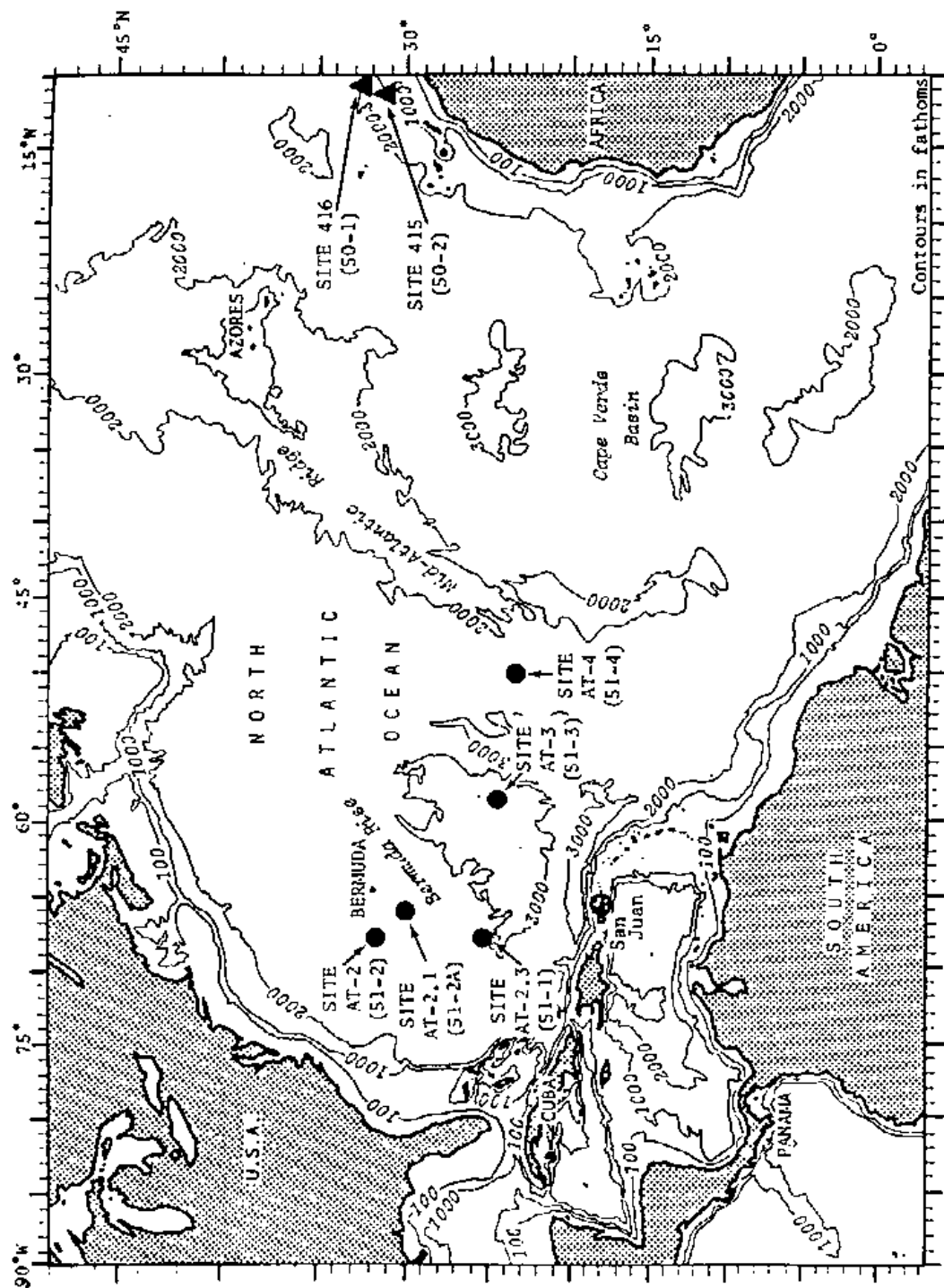


Figure 1. Drill sites for Legs 50 (▲) and 51 (●).

2. Request for a cryogenic magnetometer was dropped by the Active Margin Panel, after it was learned that the Digico magnetometer would be adequate to meet the needs of the panel.

3. A new scope for use in sonic velocity determinations (Hamilton frame) is being purchased.

4. The two-component electromagnetic log is urgently needed. The cost is minimal and it is the responsibility of Global Marine to have this installed. If Global Marine does not react to this request then OSDP is asked to pursue it.

5. A 3.5 kHz system is to be purchased and installed. The appropriate Woods Hole technician will work with OSDP to assist in determining the best system available.

Comments on Regional Studies Program and Site Survey Panel

The Site Survey Panel expressed reservations as to the purpose of a Regional Studies Program and questioned where the present Site Survey Panel was to fit into a JOIDES Regional Studies Program. What is the present function of the Site Survey Panel and what will its function be as a Regional Studies Panel? The Site Survey Panel has not been sufficiently informed as to what its objectives are when a survey is to be undertaken. If they are to interact with the other panels then scientific objectives, estimates of drilling time and assigned proponents of each site must be available far in advance of the site surveying time.

Serious concern was expressed over the regional studies program and the present structure of the Site Survey Panel by other subject panels and some members of the Planning Committee. A lack of communication exists among the panels. This feeling was expressed to the Planning Committee by many of the subject panels and the Site Survey Panel.

One of the original functions of the Site Survey Panel was to act as a focal point to centralize data, distribute the data to each panel and ask for the scientific objectives that the panels wanted answered. Also, the Site Survey Panel was to oversee the role of site survey management and the interaction between institutions.

The Planning Committee recognizing that its directives to the Site Survey Panel have been confusing appointed a subcommittee to evaluate and suggest modifications to the present structure and function of the Site Survey Panel.

The following recommendations for changes in Site Survey Panel operations and responsibilities were made.

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 to meet once a year (i.e., infrequently) to establish priorities, identify need for site surveys, and to appoint members to subject panels.

3. Small working groups (2 to 5 members) should be made responsible for the quality of site surveys for each major site (and adjacent or 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 be made to the Planning Committee, as necessary, by the chairman of the Site Survey Panel or by the subgroup directly in cases where insufficient time is available for reporting through the total panel.

The above suggestions are to be reviewed at the next Planning Committee meeting.

Shipboard Scientific Staffing

The Planning Committee recommended that senior graduate students should be considered to participate on the GLOMAR CHALLENGER on a "space-available" basis. Students are to have a sponsor submit their names to OSDP. It is further suggested that an up-to-date drilling schedule be placed in GEOTIMES with a list of the co-chief scientists and the scientific objectives for each leg.

Planning Beyond Leg 58 - "Planning Committee Proposal"

It is urgent that the Planning Committee produce a proposal for drilling beyond October 1979. The present status of the program is divided into three categories: short-, middle-, and long-range planning. The short-range planning includes the present program which is funded through August 1978 and a 14-month extension to October 1979 which is already proposed, and just recently been accepted by NSF. The middle-range planning involves consideration of approximately two additional years of drilling beyond October 1979. The long-range planning is for IPOD II or some equivalent program. It is the middle-range planning that needs immediate attention. Any proposal for middle-range plans would have to be submitted to NSF by the spring of 1977 if ocean drilling was to continue beyond 1979.

A detailed discussion ensued centering on what should be included in the proposal. The following comments summarized some ideas presented.

1. New technology (associated with GLOMAR CHALLENGER drilling) is needed if we are to achieve scientific objectives concerning deep ocean crust penetration.

2. The representatives to the subject panels made it clear that each panel had specific objectives which should be incorporated into the drilling program and schedule (see Panel reports).

3. The IPOD proposal (Contract NSF-C482) contains many scientific objectives which can be incorporated into this new proposal. We were not funded for all that was proposed in the IPOD proposal.

4. Site survey funds do not exist for drilling planned after October 1979.

5. Changes in our original purposes and objectives must be made to be compatible with technology. We should base the proposal on the present mode of drilling (i.e., GLOMAR CHALLENGER-type drilling).

6. This proposal should not merely represent a request for an extension but in fact be a request to complete the IPOD I first priority items identified at the first IPOD I planning meeting at Orangeburg, N.Y.

A subcommittee was appointed by the Planning Committee to produce for the February 1977 Planning Committee meeting a scientifically justifiable program utilizing GLOMAR CHALLENGER-type drilling for approximately 2 years beginning October 1979. A first draft of this proposal is to be reviewed by the subject panels at their next meetings, the first of which is to be held December 1976.

The subcommittee will be composed of the chairman of the four problem panels and the Planning Committee representatives to these panels. The Assistant Planning Committee Chairman will chair the committee. The other JOIDES panel chairmen will be sent copies of the first draft. If individuals wish input into the report they may do so.

The Planning Committee further recommends to the Executive Committee that the intentions of this subcommittee be widely distributed in various forms such as GEOTIMES, JOIDES Journal (see JOIDES Journal, No. 6, Addendum) and the National IPOD Organizations with replies being directed to the JOIDES Office.

Planning Committee Actions in Response to Panel Reports and Requests

Legs 51 and 52 (Figure 1): The Ocean Crust plan for drilling on Legs 51 and 52 was presented (see Report from the Ocean Crust Panel, page 20). The opinions of the Site Survey Panel were also expressed (see Report from the Site Survey Panel, page 43). After considerable discussion the Planning Committee recommended acceptance of the Ocean Crust Panel plan with the modification that two or three pilot holes be drilled before the deep crustal hole is attempted. The co-chief scientists for Leg 51 were also to be made aware that the C-19 (Conrad-19) line of geophysical data in the area is available and provides an alternative if circumstances dictate adopting a secondary plan.

Leg 53 (PAC 4): The Ocean Crust Panel proposal for drilling Leg 53 (Figure 2) was presented together with recommendations of the Site Survey Panel (see Report from Ocean Crust Panel, page 24 and Report from Site Survey Panel, page 46, 52). A decision by the Planning Committee to accept the Ocean Crust Panel's proposals was made after some debate. The co-chief scientists for Leg 53 would be informed of the Site Survey Panel recommendations and alternatives. It is understood that the final decisions on drilling sites and alternatives must be made on board ship.

Leg 54: PAC 5 and PAC 6 (Figure 2) do not require an entire leg and the Ocean Crust Panel would like to suggest possible alternatives on anomaly 10 and 32 between PAC 5 and PAC 6. The Ocean Paleoenvironment Panel was asked what they might want done at these sites.

Leg 55 (Seamounts and PAC 7): The drilling plans and alternatives proposed by the Ocean Crust Panel are found in the Report of the Ocean Crust Panel on page 24. The Active Margin Panel would like the PAC 7 site drilled on the M-1 anomaly instead of its present location (Figure 2). A response was made that the Ocean Crust Panel would be agreeable to shifting the PAC 7 drill site to accommodate the Active Margin Panel request. The Planning Committee was in agreement with the Ocean Crust Panel drilling plan with the suggestion of shifting the PAC 7 drill site to anomaly M-1.

Ocean Crust Panel: The report from the Ocean Crust Panel contains the following requests and recommendations:

1. It is requested that \$8,000 be spent to purchase a Schoenstedt demagnetizer. This will be taken care of by DSDP.

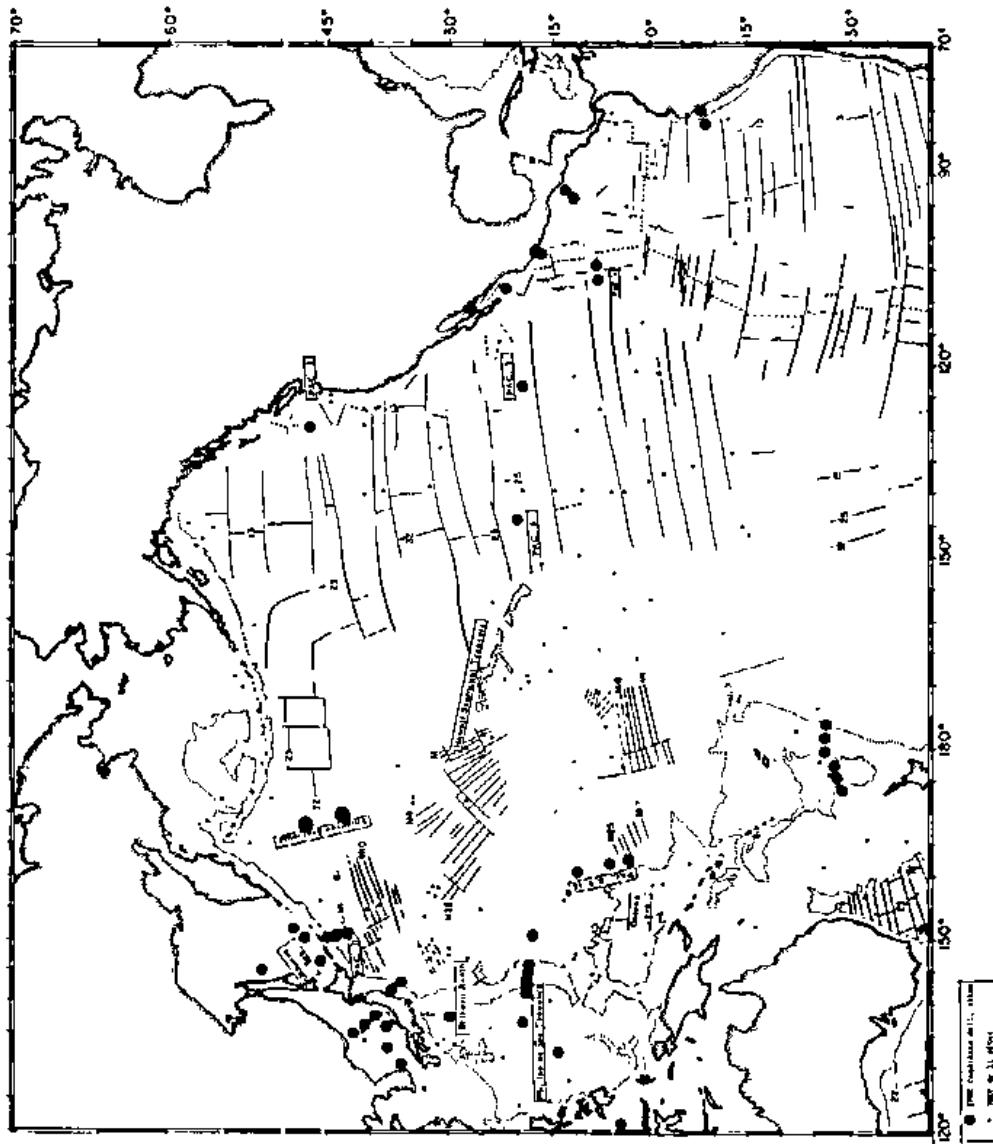


Figure 2. Pacific Drilling Sites.

2. The long core spinner magnetometer gives doubtful results. It should be replaced by a smaller one; DSDP will take care of this matter.
3. The Ocean Crust Panel recommends the purchase of a non-magnetic lower assembly (lower collar and core barrel). The Panel will inform the Planning Committee of the justification of this request.
4. The Ocean Crust Panel recommends joint membership among the panels. This is an agenda item for the next Planning Committee meeting.
5. The Ocean Crust Panel plans to sponsor a Penrose Conference entitled, "Paleomagnetic Properties of Deep Sea Basement Core", in 1978.

Active Margin Panel: The following comments were forwarded to the JOIDES Office by the Active Margin Panel.

1. The Active Margin Panel would like the intentions of the Ocean Crust Panel regarding the South Philippine Sea and the Nauru Basin stated and communicated to the Active Margin Panel.
2. The importance of compiling scientific objectives for each site together with estimated times on site was emphasized.

Passive Margin Panel: The Passive Margin Panel recommends to the Planning Committee that in view of the complications of interpanel communication, meetings of the subject panels and other panels where necessary, should be automatically attended by representatives of the other subject panels. To minimize travel costs, such representation may be on a proximity basis. This is an agenda item for the next Planning Committee meeting. It was recommended that the JOIDES Office publish in JOIDES Journal a list of published current synthesis projects of DSDP material and information. This request may be impossible to fulfill but will be done if practical. The Passive Margin Panel presented a review of their objectives for short-, intermediate- and long-range plans. These priorities are given in the Report from the Passive Margin Panel on page 42 of this issue.

Sedimentary Petrology and Physical Properties Panel: The Atterberg limits program is approved and will be implemented. The Panel emphasizes that a sample for shore laboratory water content determination must be taken with each sample collected for Atterberg unit determination. This has been brought to the attention of DSDP. The Riedel plan (shore board party) has been implemented (JOIDES Journal, No. 3, page 28-29). G. Mueller has offered to run x-ray diffraction on up to 100 samples per leg for Legs 51-56 at no cost to DSDP. The panel recommends that:

1. A lithologist with XRD experience be available to ensure intelligent sample selection;
2. The Planning Committee approve taking of 100 samples for x-ray diffraction analysis in G. Mueller's laboratory;
3. A member of the DSDP staff cooperate with G. Mueller's laboratory to ensure that the digitally recorded XRD information is incorporated in the DSDP prime data bank; and
4. Chemical analysis of IPOD samples be accompanied by analyses of USGS rock standards.

The Planning Committee recommends that these suggestions be adopted. The technical manual (handbook) will be finished by the end of 1977. The Panel

recommends that the manual together with a comprehensive index (being prepared by DSDP) be issued as the final volume of Phase I-III DSDP Initial Reports. The Planning Committee recommended that the above be implemented.

Downhole Measurements Panel: The Downhole Measurements Panel recommends that a visit to the USSR to examine their downhole logging equipment be reinstated. All indications are that their equipment is adequate and compatible. In regard to the trip by U.S. engineers to Moscow to examine their downhole logging equipment, some confusion exists. The only reason the trip to Moscow was postponed was that we are in a period of indecision concerning downhole logging equipment and costs. In light of the costs for downhole logging equipment which were presented at the Planning Committee, the following recommendation was made to DSDP: "the invitation by the USSR for US engineers to visit Moscow be accepted and that the visitors examine the USSR downhole logging equipment with the possibility of using this equipment if it is found adequate and compatible".

Inorganic Geochemistry Panel: The Inorganic Geochemistry Panel would like to participate in Leg 53 and have two representatives on board. They are interested in acquiring samples at and near the interface between sediment and ocean crust. They will also have a 10-man back-up team to help with the analyses. The Planning Committee recommended that two inorganic geochemists be placed on board Leg 53 to implement this program.

Summary Volume on Indian Ocean Results

The summary volume for the Indian Ocean is almost complete. Does JOIDES want this volume to be published as a memoir of the Geological Society of America, which has already been offered, or should this volume be published through DSDP? After some discussion the Planning Committee decided that it would be better if DSDP published this and the other synthesis volumes.

Standard Procedure for Recording, Storing and Retrieving Bulk Chemical Analysis Data

A procedure presented for reporting, storing and retrieving bulk chemical analysis data of the 10 major rock-forming elements was submitted for review to the Information Handling Panel.

REPORT FROM THE ACTIVE MARGIN PANEL (AMP) (10-12 August 1976)

The problem of coordination between site survey teams and the AMP was considered. The problem will be resolved by naming panel members and co-chief scientists who take on the role of advocate for a series of sites.

The question of proposed sites of interest to both the Ocean Crust Panel and the AMP was raised, particularly the Nauru Basin site. The AMP considered the Nauru Basin site abandoned as a result of the ad-hoc OCP-AMP meeting but this may be a misunderstanding. The AMP needs input from the Ocean Crust Panel on priority of Nauru and other joint OCP-AMP holes.

The need for the AMP to investigate arc-continental margin collision zones such as that in eastern Indonesia was raised. It was agreed that in view of the geological complexity and the logistical problems, this zone should be considered for priority drilling in a later phase of IPOD by the AMP.

Deep Sea Drilling Project Report

A report on deep site drilling was made. The Morocco Basin hole may require more than one leg and preparations have been made for a possible extension. The Morocco Basin hole is planned to be 3 km deep. Maximum drill string length by contract is 7.62 km and this exceeds the safe limit considered by some project engineers of 6.8 km. Only one AMP hole (G-1) goes beyond the suggested safe 6.8 km limit in IPOD-I. The Panel deferred discussion of the drill stem length and depth of drilling problem until more site survey data are in hand. The sites in question are at the base of continental slopes.

Site Survey

The overall status of site surveys was presented (see Report from Site Survey Panel, page 51, and Site Survey Management summary, page 55 of this issue).

Detailed Site Survey Status

Kurile Arc-Sea of Okhotsk: The area has two transects: Kurile and Okhotsk. The planned Kurile multichannel seismic net consists of 3 lines perpendicular to the trend of the island arc and 3 crossing lines parallel to it. New Okhotsk Sea data have shown that more optimum sites can be chosen than those first proposed. The new proposed sites are designed to explore three different acoustic layers as well as basement with high magnetic variability in a transition zone between oceanic and continental crust. Based on sonobuoy data an oceanic site (O-5) was selected (Figure 3). The IPOD-II site (K4) might be moved northward to O-5 (IPOD-I). A discussion of safety aspects of site O-4 ensued. Priorities assigned by the Panel: O-2b and either O-1b or O-5 have a first priority. A lengthy re-evaluation of the Sea of Okhotsk sites brought out the desirability of drilling through a thin but complete Neogene section into the acoustic basement complex on Academy of Sciences Rise (original site O-2; new site O-2b (Figure 3). The new site should be covered by crossing track lines of multichannel profiling during the next USSR site survey cruise for the Safety Panel presentation. In order to stay within IPOD-I constraints a site with thinner sediment at the edge of the area with an oceanic magnetic anomaly pattern was selected. The necessity of an IPOD-II site to achieve the scientific objective of the suite of holes was stressed. Location of the new site O-1b is shown in Figure 3. The Kurile sites were re-evaluated. Because of drilling depth the Panel expressed a preference for site K-0 (on anomaly M-1, Pac 7) with site K-1 as an alternate. The objectives require sampling of the sedimentary section to give litho- and biostratigraphy and some basement penetration. Madam Kosminskaya will be the proponent for the Okhotsk-Kurile drill sites.

Japan Trench Sequence (Figure 3): New multichannel and single channel seismic data which revises earlier concepts about the Japan Trench series of sites were presented. It was proposed that J-1 remain unchanged; J-2 has more sediment than anticipated and will probably need re-entry. A new site, J-9 was proposed to sample a broader sequence of sedimentary units on the upper slope that are in disconformable relation to each other. The possibility of gas at J-9 was mentioned and although a grid of oil company lines exists, it is not known if a crossing exists at the site. It was decided to retain J-1 as originally proposed; J-2 with possible re-entry and consider J-9 as an alternate. The time required on these sites will be calculated by Murauchi. K. Kobayashi will be the panel member responsible for these sites. N. Nasu was assigned scientific proponent for the Japan sites.

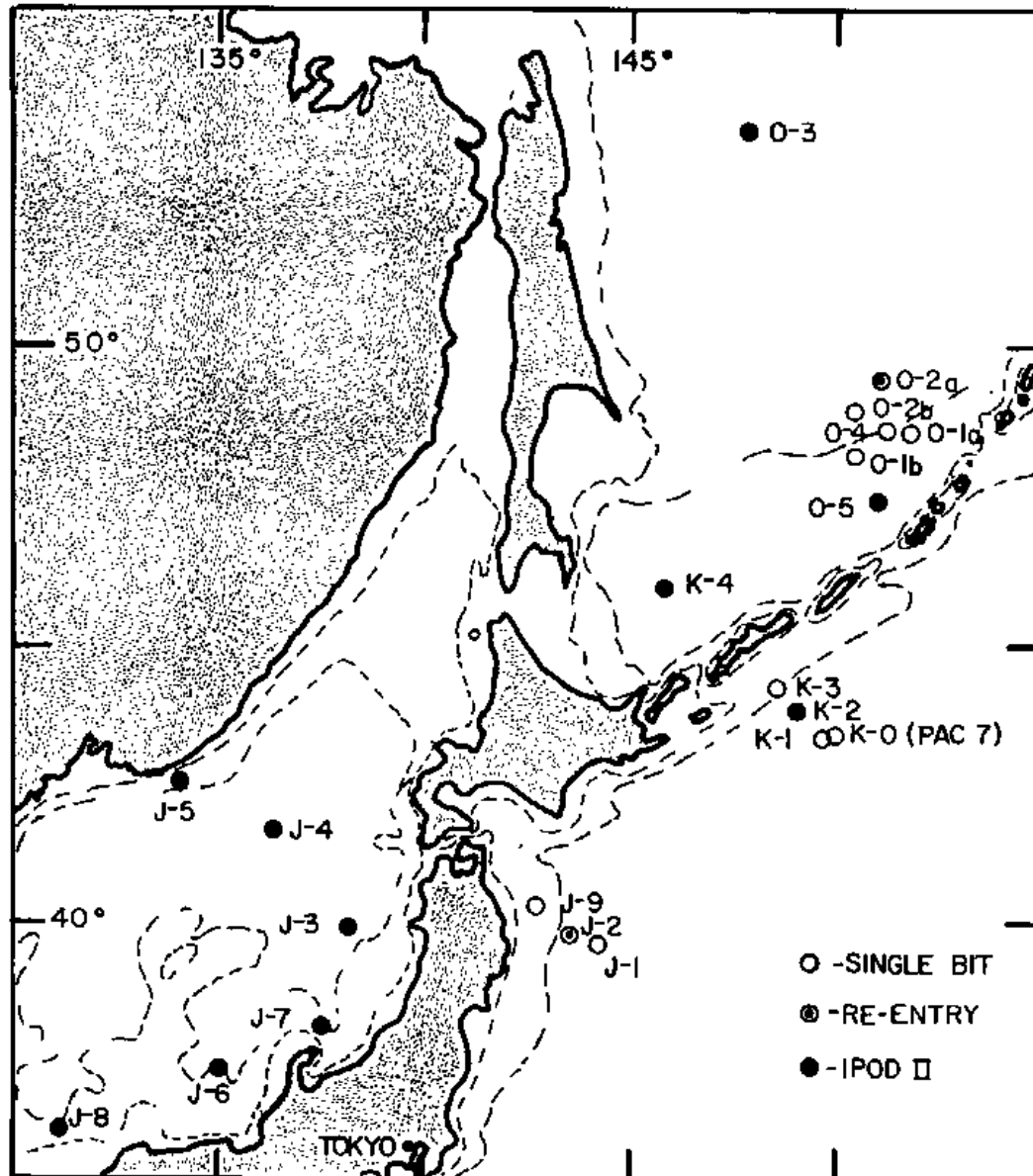


Figure 3. Drill sites for Kuril Arc, Sea of Okhotsk, Japan Trench.

Philippine Sea-Northern Transect (Figure 4): A summary of Japanese data in northern Philippine Sea was presented. NP-16 is on Bonin Arc in 2490 m water depth, with 300 m of sediment. NP-2 a and b were proposed as alternate sites as were NP-3 a and b. The NP-3 series was located to help define center of spreading in the Shikoku Basin. The NP-3 site is probably the most important to achieve the Panel objectives and its position will be defined better during the next meeting when more information becomes available. NP-2 appears to be well located. NP-1 should take a lower priority than the other two because of its lesser value in establishing the 2 proposed modes of origin of Shikoku Basin. K. Kobayashi was assigned to be the proponent of the NP sites. NP-4a, the original site might be abandoned for NP-4b although sediments are thicker at the new site. NP-5a might also be abandoned for NP-5b. NP-7a is a new proposed site on Daito Ridge. This site does not contribute as well to the AMP objective as to the Paleoenvironment Panel aims and is referred to them for consideration. It was decided that NP-5 looked feasible, NP-4 should be reconsidered at the next meeting with more complete data and that NP-7 should be given a low priority for the AMP and referred to the Ocean Paleoenvironment Panel. The time required for NP sites will be calculated by Murauchi.

Southern Philippine Transect: The results of reconnaissance survey data across the Southern Philippine Transect were presented. The bathymetry, residual magnetic anomaly and free air gravity maps reflect an oceanic, trench arc gap and arc and back arc provinces. The Mariana Basin has a characteristic second layer of 5.0 ± 0.5 km/sec. The reconnaissance refraction data suggest sedimentary rocks not resolved adequately in the single channel records. SP-1, a site referred to the Ocean Crust Panel, is not in a Jurassic quiet zone but has a well-defined oceanic pattern. Site SP-1b, on a magnetic high is at $148^{\circ}35'E$, $17^{\circ}45'N$ and 6000 m water depth (Figure 4). However, it is questionable whether all sediment was resolved by single data on the deep ocean floor. It was also suggested that L-DGO multifold shooting be restricted to the arc area, the arc-trench gap, and a short portion of deep ocean floor. SP-4 seems feasible in one of the small sediment pockets; SP-4b on the western side of the Mariana Basin appears most favorable. The remainder of the site locations should be located with more certainty when the multichannel data are available and the OBS data are reduced. L. Kroenke (SP1-4) and W. Ludwig (SP5-10) were assigned as proponents of this series of sites.

Mid-America Trench (Figure 2): Burk reported on proposed geophysical and geological work along 4 transects off Middle America. A complete suite of geophysical data backed by geologic work on land and earthquake seismology is planned. The panel urges that these site surveys be done as soon as possible. The Gulf of California was discussed and a need for knowledge of the OCP intentions was expressed. The University of Texas might be able to clean up the reconnaissance data in the Gulf as an adjunct to the Mid-America site surveys.

Tonga-South Fiji-New Hebrides Transect: French site surveying efforts were described.

1976: Leg "EVA 2" - N/O CORIOLIS will undertake surveys around previous New Hebrides profile AUS 113 and OBS will be conducted together with seismic reflection and refraction work.

1977: CNEXO has proposed about 40 days of a survey vessel to do two new legs "EVA", called now "EVA PRE-IPOD 1977".

The French would like any suggestions for new or further work in the Southwest Pacific.

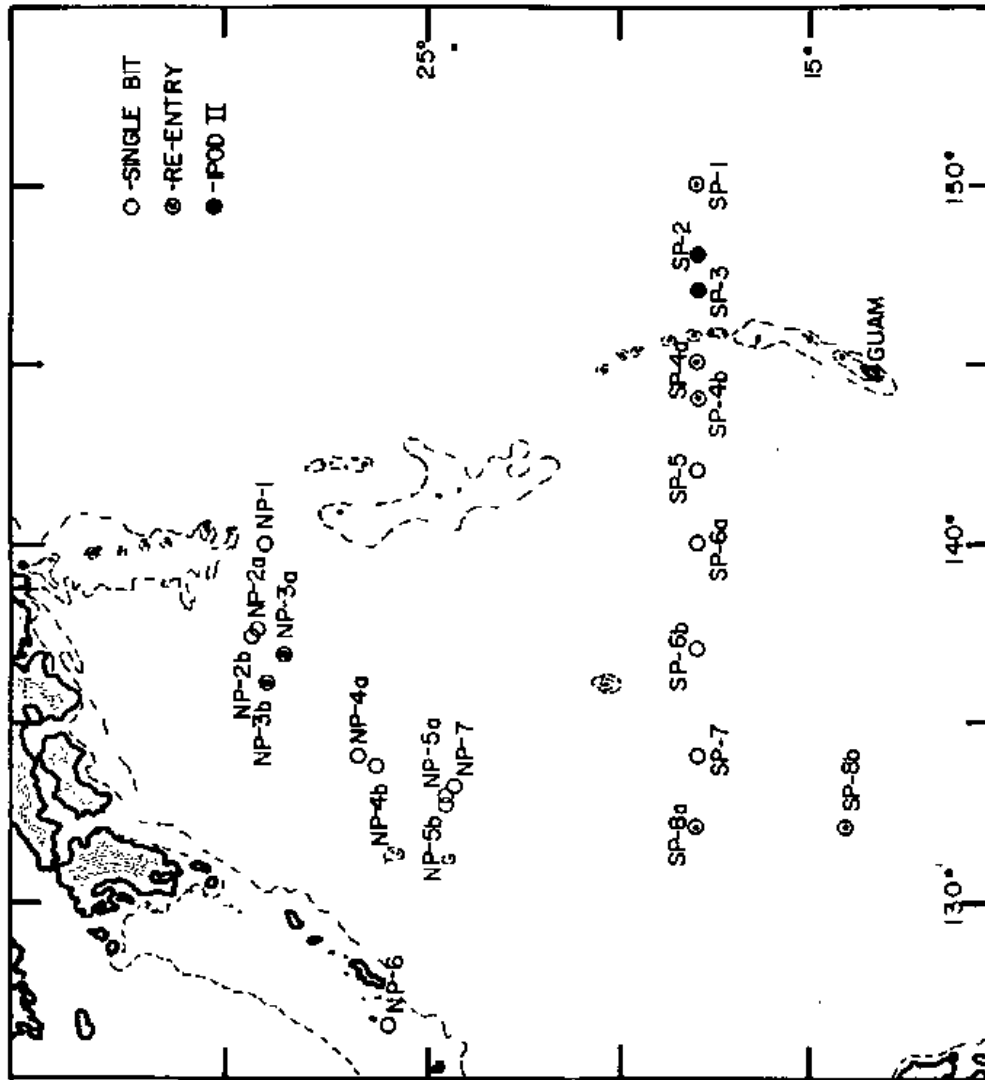


Figure 4. Drill sites for Philippine Sea, Northern and Southern transects.

Pollution Prevention and Safety Panel Requirements

Pollution Prevention and Safety Panel requirements were discussed. A large amount of material is now required, some of which should be mailed to the Safety Panel members prior to their meeting. In some instances it is best to keep the panel informed as progress is made on site surveying so that recommended changes in plans are determined early in the site surveying process. On-land geology in surrounding areas is desirable together with available data from industry.

REPORT FROM THE DOWNHOLE MEASUREMENTS PANEL (DMP) (28-29 September 1976)

Logging on Leg 46

Some of the problems and results of Leg 46 basement logging were outlined. The important problems were:

1. The small bit opening did not permit a large enough decenterer or caliper so the position of the tools in the hole and the diameter of the hole are not known, resulting in a large uncertainty in many of the measurement parameters.
2. The physical properties computed from the gamma logs assuming a sandstone matrix may not be appropriate for a primarily basalt section.
3. The average velocities and densities are much lower, and porosities higher than laboratory sample values.

Despite these limitations the logging data for this leg obviously will be very valuable. The panel felt that there was a need for coordination in the analysis of the logging data when it involves a number of people. The chief scientists should ensure that one person be assigned this responsibility on each leg (e.g., Physical Properties Specialist).

One good heat flow value was obtained by three temperature points in the sediments only. Temperature measurements were attempted once in basement but the recording was cut short and the results are ambiguous.

Logging on Leg 48

Leg 48 logging was entirely in sediments. A copy of the detailed shipboard summary relating to logging was provided. The data are being reduced. A number of problems were detailed in the summary, but none that significantly reduced the value of the data. Indications are that the logs were "immensely valuable". The tools provided all of the most important data and a complete set such as was used is needed. Tools used:

1. Gamma, sonic velocity, caliper and variable density sonic amplitude
2. Gamma, induction, spontaneous potential
3. Gamma, density, neutron
4. Temperature (Erickson-Von Herzon instrument).

Plans for Future Legs

Leg 50 was in progress at the time of the meeting with essentially the same set of logging equipment as Leg 48. Legs 51-52 planned for a deep crustal hole in the Western Atlantic should have a similar set of equipment.

The panel considered priorities for later legs, and recommended that Leg 53 (deep crustal hole in Pacific near the East Pacific Rise with re-entry), and Leg 56 (Western Pacific Trench deep hole), be given highest priority. Logging obviously would also be very valuable on Legs 54 and 55. However, the Panel felt that it lacked adequate information on the objectives of each leg and on funding to reasonably set such priorities.

An effort should be made to employ the Erickson-Von Herzen temperature instrument on all legs with a Kuster or similar instrument on board when high temperatures are encountered. DSDP will investigate purchase or rental of Kuster instruments. DSDP is to find out how much money is available so that the Panel can recommend how it should be appropriated among different legs. The Panel also requests a copy of the cost analysis of different logging schemes: in-house and industry, as requested by the Planning Committee.

The Panel discussed the question of in-house vs. industry logging. Some of the difficulties with an in-house facility were outlined:

1. Rapid obsolescence
2. Difficulty of obtaining logging equipment and the very high salaries of logging engineers (e.g., 2 x \$30K per year)
3. Slow replacement of lost tools and problem of repairs
4. High initial cost of equipment
5. Time to get started (e.g., 10 months).

It was suggested that there could be a basic "research capability" operated by DSDP technicians perhaps supplemented as required by commercial logging.

USSR Logging Cooperation

Data sheets were presented on the USSR logging equipment which indicate that the equipment is very compatible and similar to the U.S. equipment. The Panel recommends that DSDP pursue negotiations and determine correct detailed specifications and costs. DSDP representatives should visit the USSR. An engineer familiar with the GLOMAR CHALLENGER, a logging expert and a person familiar with the scientific uses of logging should be represented.

Actions from Previous Meeting

The Ocean Crust and Sedimentary Petrology and Physical Properties panels had not expressed specific interests in logging. The Sedimentary Petrology and Physical Properties Panel will be queried on the physical properties or tools they think are desirable.

The Passive Margin Panel requests a horizon dip meter log but that those currently available are too large. The tool probably is not suitable for basalt. It was determined to find out what tools the U.S. Geological Survey has and ask a representative from the USGS to attend the next meeting.

Recommendations to co-chief scientists were contained in the shipboard handbook and in detailed recommendations from DSDP. Copies will be sent to panel members. It was recommended that a panel member contact a chief scientist on each leg. Co-chief scientists for Legs 52 and 56a and 56b will be contacted.

Meeting on Scientific Downhole Logging and Experiments

A proposed one-half or one day symposium to be held at a scientific meeting was suggested. It was decided that the Spring American Geophysical Union meeting at

Washington, D.C. was most suitable. The Panel would have its next meeting at that time. A tentative program is:

1. Introduction
2. State of the Art (invited papers)
 - a. Logging tools and techniques (Logging expert)
 - b. Interpretation of logs for scientific uses, hard and soft rock
 - c. Logging operations and results: DSDP Legs 46, 48, 50, 52
 - d. Other downhole measurements
 - e. Heat flow
 - f. Other scientific drilling projects with downhole instruments
3. Contributed papers
4. Discussion session with panel

A summary of the symposium may be published. Other groups conducting scientific logging experiments should also be invited. This symposium is being organized.

The GLOMAR CHALLENGER Leg Devoted to Downhole Measurements

The Site Survey Panel supports the idea of devoting a leg to downhole measurements. It was decided that a leg in the Eastern Pacific probably would be most suitable. Detailed site survey and prior and associated geophysical studies would be essential. This will be suggested to the Planning Committee for reaction.

Downhole Experiments

The oblique seismic experiment which could not be carried out on Leg 46 will be attempted again on Leg 52. Arrangements for a shooting ship, possibly from Miami are being attempted. The downhole hydrophone did not seem to work on Leg 46 but the clamped geophone did. The Panel felt that this was a very important experiment that should be pursued. If a shooting ship is not available, the GLOMAR CHALLENGER airgun should be employed with the clamped geophone or a hydrophone. Perhaps a larger chamber (e.g., 1000 cu. in.) could be obtained.

A two-hole experiment was suggested (i.e., shooting in one and recording in another). DSDP agreed to find out what explosives could be carried on board GLOMAR CHALLENGER (e.g., Class 3).

Equipment to obtain the dielectric constant was suggested. It probably is available from Schlumberger.

A large-scale resistivity experiment was proposed in detail. The ULSEL (Ultra Long Spacing Electric Log) which is used by industry to determine the proximity of salt domes is similar. An attempt was made to obtain information from Ershad Mufti, AMOCO. A reply indicated that AMOCO's work was proprietary information. Copies of two articles on ULSEL given at SPWLA meetings were provided. At a meeting with Schlumberger representatives in Houston, the Schlumberger equipment was described as quite cumbersome and difficult to operate. Schlumberger, however, indicated that they would consider providing such equipment if requested. A special cable with long spaced electrodes is required. Schlumberger will be contacted in an attempt to get more information. This experiment would be a good candidate for a special leg.

A downhole magnetometer apparently has been made by Schoensted for Gearhardt-Owens including three fluxgate sensors and inclinometers. It fits in the pipe and has limits of 178°F and 10,000 p.s.f. The Panel requests that DSDP pursue the possibility of getting the instrument and evaluate the likelihood of useful data. A magnetic gradiometer is another possibility.

A borehole susceptibility meter used in Hawaii was discussed. USGS will be contacted for more information.

A borehole gravimeter gives accurate formation density but the current device used is too large for GLOMAR CHALLENGER. The Panel thought the hydro fracture in-situ stress measurement is potentially very valuable but a very difficult experiment. It might be suitable for a downhole measurements leg.

The Panel recommended continued heat flow measurements in sediment and in basement with the Erickson-Von Herzen equipment on every hole where practical.

REPORT FROM THE OCEAN CRUST PANEL (OCP) (30 September-2 October 1976)

Following is a synopsis of reports received since the last meeting of the OCP.

1. Small M unofficial panel reported that a meeting was planned for Galveston, 7 January 1977.

2. Downhole Measurements Panel suggests a fully instrumented hole in a geothermal area after 1-2 year instrumental development period. A symposium is to be held in Washington, D.C. in May 1977 on downhole logging. The oblique seismic experiment is scheduled for Leg 52 if a ship can be found, and there will be a logging program on this leg. The OCP resolved that a 2-3 page summary of progress to date on downhole logging should be requested from the Downhole Measurements Panel for the next OCP meeting.

Legs 51 and 52

Discussion focused on the desirability of completing the transect as originally envisaged for scientific reasons and because of the excellent site survey, balanced against the weather problems. The weather information and the presentation of survey information for alternative sites persuaded the OCP to resolve that the multiple re-entry site in this region should be in area AT 2.3, 70° south of the original line (Figure 1).

The following list of priorities was established (Figure 1):

- | | | |
|-------------|---------------------------------------|-------------|
| Priority A: | multiple re-entry at AT 2.3 | |
| | single bit at AT 2.1 | |
| | single bit at AT 3 | |
| Priority B: | single bit at AT 2 | |
| | single bit at AT 4 | |
| Priority C: | further single bit at AT 2.3 | |
| | penetration to AT 2.1 | |
| | investigate local variability at AT 3 | Plus AT 2.2 |

A possible scheme for achieving the priorities for these legs, as well as providing alternatives for various contingencies was worked out:

1. Preferred plan:
 - Leg 51:
 - a) single bit site, continuously cored, at AT 2.3, offset 300 m from multiple re-entry site.
 - b) multiple re-entry site at AT 2.3
 - Leg 52: continue multiple re-entry site.

2. Alternatives: If AT 2.3 multiple re-entry site ends early, log hole and run oblique seismic experiment at the start of Leg 52, then proceed to complete priority A objectives in conjunction with as many of priority B and C objectives as weather and other logistical limitations allow. A possible scenario would be another single bit site at AT 2.3, offset 600 m from the multiple re-entry hole, and single bit sites at AT 2.1, AT 3 and AT 2.

The OCP recommends that (1) a logging engineer be included on the staff of Leg 51 and that (2) a second paleomagnetist be appointed to the staff of Leg 51.

The OCP places its full and enthusiastic support for the oblique seismic experiment planned for Leg 52.

The OCP and the co-chief scientists for Legs 51 and 52 discussed staffing for the legs, problems of drilling plans, shipboard sampling and shore based analyses.

Pacific Plan

The OCP considers that a very important aspect of drilling in the ocean crust is a program directed at investigations of geothermal areas. A preliminary assessment of the scientific and, especially, technical problems likely to be involved in drilling and logging such a hole, is to be presented to the panel at its next meeting. The areas in question are Juan de Fuca Ridge, the Gulf of California, and the Galapagos spreading center. R. Larson and J. Cann will prepare papers on the old Pacific and young Pacific crustal sites, respectively, for the next OCP meeting.

PAC 4 Site (L. Dorman, advocate) (Figure 2)

The OCP recommends drilling the PAC 4 multiple re-entry site in one of the small sediment ponds on N/S lineated crust W of the Siqueiros ridge crest. The target with the concentration of OBS data seemed to the panel too close to an E/W transverse ridge, and thus likely to be open to the criticism of being atypical. Since this site is to be the major fast-spreading site in the foreseeable future, this argument was felt to outweigh that produced by the high concentration of survey data. OCP recommends one or more single bit holes at the target with the concentration of OBS data. Alternatively, if the planning committee prefers to put the multiple re-entry hole there, the OCP would like single bit holes at its preferred target, for comparison. OCP recommends that PAC 4 multiple re-entry site should be preceded by a fully cored single bit pilot hole offset 200 m from it. OCP recommends that at least one single bit site should be placed in the region of the intersection of the Siqueiros spreading center and the Siqueiros fracture zone. The aim of this is to continue an exploration of the effects of fracture zones on the surrounding crust. A single bit site on anomaly 5 west of the Siqueiros on normal crust will be identified.

PAC 1 Site - Gulf of California (Figure 2)

W. Melson is invited to act as overall scientific advocate for PAC 1, PAC 5, and PAC 6 with advice from Brian Lewis (PAC 1) and Bill Ludwig (PAC 5 and PAC 6).

OCP recommends that a multiple re-entry site at PAC 1 should form a part of the program for early 1977. PAC 1 is a very important site in the Pacific program, both as a very young site and as the young end of the Pacific transect. This is a time-consuming site that cannot be well integrated with the later Gulf of California leg, but falls well into place early in the Pacific program. We recommend that it should be a major objective on Leg 54. We ask that DSDP should check the availability of this site with the Mexican Government as a matter of urgency.

Other Medium Age Pacific Sites

The OCP recommends that high priority be given to a multiple re-entry site in the North Pacific on crust with paleo-latitude greater than 30° on a well-defined Tertiary anomaly. This hole can be integrated with paleoenvironmental and possibly other programs. The main crustal interest in such a hole is paleomagnetism of the basement rocks. A proposal for this work will be presented at the next meeting after consulting with the paleoenvironmental panel and site survey management.

The OCP recommends that both PAC 5 and PAC 6 should be single bit sites.

Pacific Program to Leg 55

A possible scheme by which the recommendations above can be incorporated, and which allows for alternatives is set out below:

1. Leg 53. Prime Aim: drill fully cored single bit pilot hole offset 200 m from PAC 4 multiple re-entry site, followed by PAC 4 multiple re-entry site.
 Alternatives: if PAC 4 multiple re-entry finishes early, drill single bit holes at: other PAC 4 main site, junction of ridge crest with fracture zone in PAC 4, anomaly 5 west of Siqueiros spreading center.
2. Leg 54: Prime Aim: continue PAC-4 multiple re-entry drilling, or drill multiple re-entry hole at PAC 1 site, preceded by fully cored single bit site offset 200 m. Follow this with single bit penetration at PAC 5 and PAC 6.
 Alternatives: (to be used if PAC 1 cannot be drilled).
 Drill single bit holes at PAC 5 and PAC 6.
 Drill a multiple re-entry hole somewhere near 35°N , 147°W , to fulfill the paleomagnetic aims. This last site would need to be in an already surveyed area. Another possibility might be to use this leg for drilling on the Juan de Fuca Ridge.
3. Leg 55: The plan at present was for two multiple re-entry sites on this leg as well as 23 days steaming. A re-evaluation was requested. The panel agreed and recommended as follows:
 Prime Aim: multiple re-entry on Suiko Seamount, single bit sites at Tenchi Seamount and PAC 7 (KO).
 Alternative: Single bit sites at Suiko and Tenchi, multiple re-entry site at PAC 7 (KO).

Paleomagnetism

An analysis of paleomagnetic problems in connection with IPOD was presented.

1. An analysis of secular variation suggested that at paleolatitudes below 20° , significant (greater than 10%) error in assignment of polarity on the basis of inclination in the core might occur. It was pointed out that all but two of the Pacific sites had formed at paleolatitudes less than 20° , and suggested that further high latitude sites were necessary if significant paleomagnetic information was to be recovered.

2. The difficulty of interpreting anomalies was emphasized, and the need to know the distribution of intensity of magnetization with depth in the ocean crust. These served as a basis to emphasize that attempts at deep penetration in ocean crust should continue.

3. Interpretation of paleomagnetism of cores that are not fully oriented is much easier if the direction of recently acquired magnetization can be worked out. If magnetization is acquired during drilling, this makes this much more difficult to do. The OCP recommends that, to avoid this, Monel metal lower collar and core barrels be used, as was the case on earlier legs. Two collars and three core barrels would allow for losses. The extra cost is considered to be justified by the extra precision of measurement.

4. Azimuthal orientation of cores was mentioned as being very well worth working toward though only when recovery had been improved significantly over what it is at present.

5. Shipboard laboratory. OCP recommends that the long core spinner should be returned soon to DSDP for testing with a variety of materials to establish how well the equipment performs and what use it is likely to be on the ship. OCP recommends that the AC demagnetizer should be replaced with a Schoenstedt unit. The principal reason is the slow working speed of the present machine, which increases the requirement for shipboard paleomagnetic personnel. The cost of the new unit would be about \$8000.

6. OCP supports the holding of a meeting at the end of 1978 to discuss paleomagnetic properties of deep sea drilling project cores. Sponsorship as a GSA Penrose meeting is being sought.

Recommendations from the OCP:

1. That short descriptions of each site should be published in JOIDES Journal as each site survey is completed.

2. That information packages prepared by the site survey management for each site should be made available to chairmen of the relevant panels and to member institutions.

3. That condensed progress reports on site survey plans and accomplishments should be circulated to all panel members.

4. That in preliminary reports, core summary sheets should include amount of basement penetrated and percentage basement recovered in addition to the present information.

5. That ICD's should be published as soon as the material is ready, and that bypassing of earlier legs should be allowed in production of ICD's.

6. That ICD's should be placed on the GLOMAR CHALLENGER for use there.

Re-entry Cones

Re-entry is planned for the following sites on the following legs:

1. AT 2.3 on Legs 51, 52
2. PAC 4 on Leg 53
3. PAC 1 or high latitude paleomagnetic hole on Leg 54
4. Suiko Seamount or PAC 7 (KO) on Leg 55

Extra cones should be available on the ship in case a hole is lost for technical or geological reasons.

Joint Session with Site Survey Panel

A very instructive joint session was held. The communication gap between the two panels was the most striking fact to emerge, and argues for more direct presentation of each panel's problems to the other. Agreement was reached that some form of joint package should be prepared for each site, for information and for the benefit of the scientists on the leg.

1. Problems were found with the site survey at AT 2.3. After the OCP's views of the scientific problem at this site had been presented, the SSP agreed to examine the matter in detail, and choose a site to achieve these objectives.

2. A presentation was made of multi-channel lines across the Juan de Fuca Ridge, on which internal reflectors in the basement could be seen.

3. The Nauru Basin itself is anomalously shallow and probably has anomalously thick sediments. The basin east of the Gilberts is much more normal. One site survey to be conducted in each basin was agreed upon.

REPORT FROM THE OCEAN PALEOENVIRONMENT PANEL (OPP) (1-3 July 1976)

Cruise Staffing

General Recommendations: The OPP wishes to define the minimum scientific party for an appropriate description and analysis of the cores for each leg during which a substantial amount of sediment is expected to be recovered. Whenever berth space available on board the ship precludes the participation of an appropriate shipboard party the OPP recommends that a "shore board" party be assembled in order to complete the preliminary analysis of the cores as soon as they are brought back to the repositories. Final recommendations about the composition of the "shore board" parties should be made just after each cruise in order to adapt it to the problems uncovered during coring operations. General anticipated needs, however, can be determined in broad terms prior to the cruises. The OPP reaffirms its conviction that the cruise planning should be firmly established at least 6 months prior to a leg in order to ensure proper staffing recommendations.

Recommendations for Legs 51-52: The OPP recommends that the following specialities be included in the shipboard party:

- 1 paleontologist/nannofossils
- 1 organic geochemist (if 2a is selected) or a sedimentologist with strong interest in geochemistry
- 1 paleontologist/planktonic foraminifera
- 1 deep-sea carbonate sedimentologist.

A shore board party should consist of:

- 1 paleontologist/radiolarians
- 1 paleontologist/benthonic foraminifera

Clay mineralogy, isotope geochemistry, ostracod biostratigraphy are considered high priority shore based specialities.

Publication and Sampling Problems

1. The OPP "mini synthesis" of the DSDP stratigraphic results will be published shortly.
2. The "lists of fossils" provided by OPP should be included immediately in the shipboard handbook.
3. The OPP recommends:
 - a. "Range charts" for each fossil group (and good illustrations of new species) should be a mandatory inclusion of the Initial Reports.
 - b. A large representative sample should be taken from each sediment core and be reserved for paleoenvironment study. A set of OPP sponsored analyses will be performed on split portions of this sample in order to achieve good stratigraphic correlations based on different microfossil groups extracted from the same sample. Mineralogical and geochemical analysis could also be performed on that sample. Sample size should be a quarter of the core (5 cm in length). Minimum interval should be one sample per core in homogenous sediments and closer sampling in different lithologies, the decision being left to the discretion of the shipboard or shore board party.
 - c. A list of the shore-based analyses and laboratories or individual involved, should be published after each leg as a table at the end of the GEOTIMES article.
4. The OPP approves the present DSDP policy which stipulates that each article submitted for publication in the Initial Reports should be reviewed by two reviewers chosen by the author(s). If such a review is not judged adequate by DSDP editorial staff, two outside reviewers can be selected by DSDP. In such cases DSDP should inform the author(s) that his (their) manuscript is sent out for additional external review.

South Atlantic Drilling Plans (see Report of South Atlantic Working Group, pg. 35)

The South Atlantic Working Group of the OPP has selected areas and problems to be considered. The greatest interest is shown in the study of the mesozoic, concentrated in the Angola Basin and the Walvis Ridge areas (Figure 5). The following problems were selected as prime targets.

1. What was the history of salt formation in the South Atlantic? Did the salt on the African margin form in its present location or did it flow downslope after burial? These questions may be answered by sampling sediments outside of the salt area provided that layers representing pre-salt, salt-time equivalent, and post-salt deposits could be sampled. Depth of deposition and environmental conditions could be determined by means of faunal studies. In addition and prior to drilling some partial answers could be provided by 1) dredging seamounts near or within the diapir fields (paleodepth determinations) and 2) piston coring and dredging the walls of the Congo canyon where salt might outcrop.
2. What is the origin of the South Atlantic black shales? Do they indicate oxygen depletion in the bottom waters (through stagnation) or are they the result of a strong oxygen minimum zone in intermediate waters? This question may be answered by drilling at a site located in the part of the basin that was the deepest at the time of deposition of the black shales. The occurrence of well-oxygenated sediments at such a site (red clays) would indicate that the anoxic

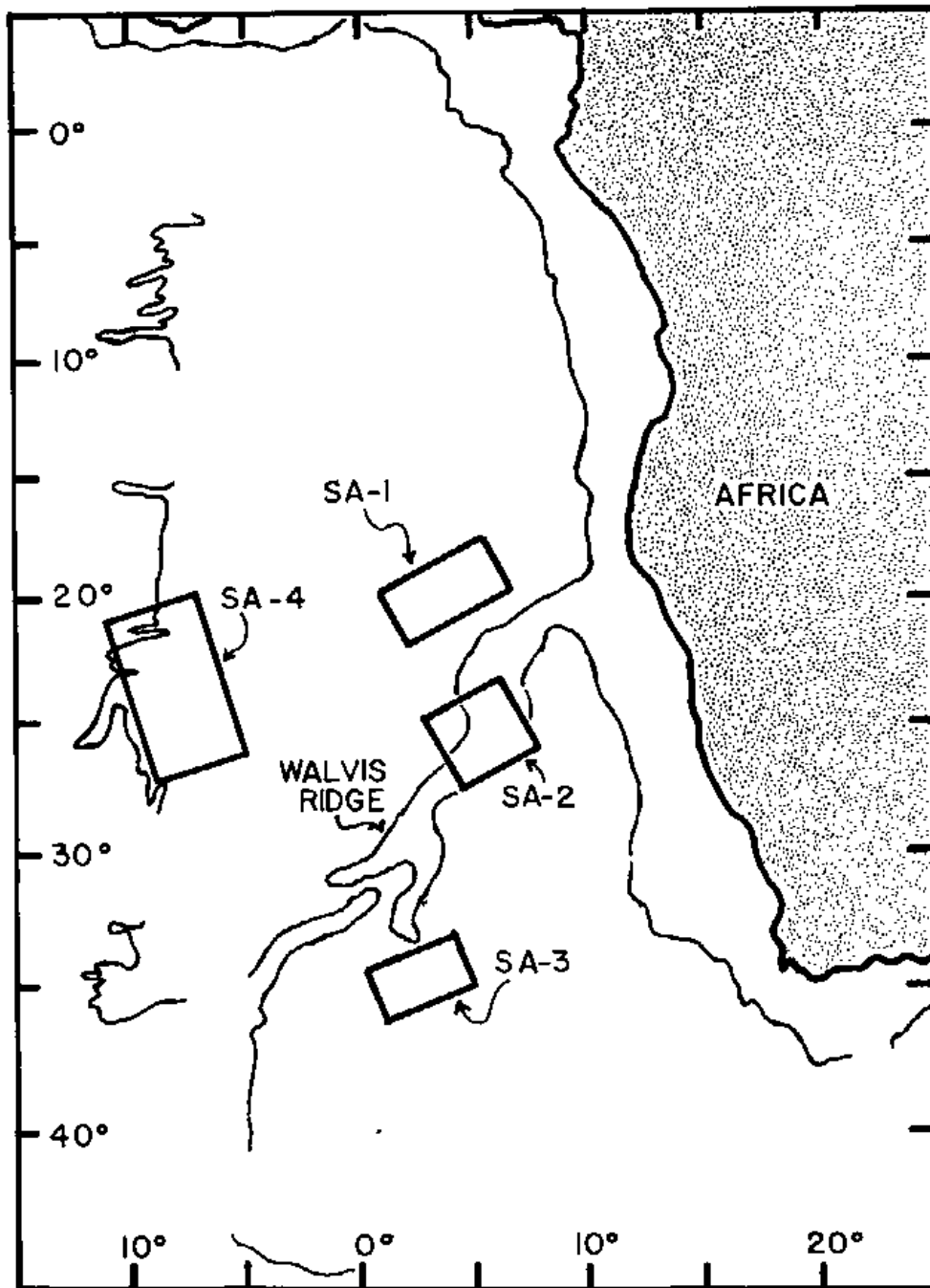


Figure 5. Tentative sites for the South Atlantic Ocean: Angola Basin, Walvis Ridge.

conditions were restricted to intermediate waters. On the contrary black shales found in the deepest part of the basin would indicate anoxic conditions down to the sea bottom. Such a site should be located in an area where the basement is at least as old as Turonian. It is likely to be located just seaward of the evaporite fields so that objectives 1) and 2) could be combined in a single area.

3. What was the tectonic evolution (subsidence, or uplift) of the Walvis Ridge? How did this evolution affect deep circulation and the CCD? This problem may be approached by two series of sites: one on the northern flank of the Walvis Ridge and one on the eastern flank of the Mid Atlantic Ridge. The first series should be located on the northwestern flank of the Walvis Ridge and stretch up to the shoalest possible areas in the hope that the ridge may have been emergent. This series should establish the history of carbonate deposition in the Angola Basin throughout most of the Cenozoic and late Mesozoic. The possibility of defining water depth evolution relative to the shallowest site exists. The second series would stretch from the Walvis Ridge to the vicinity of site 18 (Leg 3). By comparing the record of this series, where paleodepths can be reconstructed from the standard "backtracking" techniques, with that from the Walvis Ridge and from other sites on the southeastern flank of the Walvis Ridge, the depositional history of carbonates in Angola Basin relative to the Cape Basin can be established together with the subsidence history of the Walvis Ridge.

In addition to these prime areas, the OPP recommends that alternate sites with comparable objectives be selected in the Southwestern Atlantic.

For the Cenozoic history of the South Atlantic, the following paleoceanographic objectives are considered first priority:

1. The history of bottom water formation and circulation in the Southwestern Atlantic. This requires drilling in the Argentine and southernmost Brazil Basin.

2. The history of the Angola current, its gradient and the nature of the associate planktonic fauna. In addition to sites already drilled in the area (362 and 363) a series of three sites located on the northern flank of the Walvis Ridge should extend from near the African coast to at least 1000 km off shore. Such sites should be at sufficiently shallow depth to assure carbonate recovery but deep enough to avoid hiatuses associated with erosion on the Walvis Ridge. Some of these sites are expected to be the same as the ones required for the above described mesozoic objectives.

3. The Cenozoic history of bottom water circulation and carbonate dissolution in the Angola Basin. The problem could be approached at the same sites as the mesozoic problems and the subsidence evolution of the Walvis Ridge. In addition the OPP recommends that advantage be taken of three surveyed areas on the eastern flank of the Mid Atlantic Ridge at 8°S in order to study the history of carbonate dissolution/preservation at low latitudes in the northern basins of the South East Atlantic. Sites in the vicinity of 20° - 50° S would even be more desirable since they would provide information on the history of equatorial current fluctuations.

Pacific Drilling Plans

1. Mesozoic: the plans remain essentially the same as outlined in the minutes of the last OPP meeting. The Ocean Crust Panel has agreed to consider a joint effort in the Nauru Basin area (Mesozoic). The final site selection will be at the next OPP meeting. Site surveys are going to be conducted in 1977.

2. Cenozoic: The final site selection will be prepared by the Pacific Working Group. Specific recommendations will be prepared for the next Ocean Paleoenvironment Panel meeting. All necessary background information will be gathered to initiate a basic research program on the evolution of the planktonic communities in the North Pacific.

3. Gulf of California: Tj. van Andel will report about the Gulf of California proposed sites at the next Ocean Paleoenvironment Panel meeting.

REPORT FROM THE OCEAN PALEOENVIRONMENT PANEL (OPP) (9-11 December 1976)

The main stratigraphic and sedimentologic results of Leg 49 were reported. Most significant results are:

1. oldest sediments reached are Late Eocene-Early Eocene
2. highly siliceous sediments are present, beginning with Early-Middle Miocene,
3. ice-rafted material abundant beginning with latest Pliocene.

The panel proposed a shore based party to complete the initial description of the cores for inclusion in the Initial Reports.

The Stratigraphic Correlations Panel (SCP) will be contacted to suggest the following names for work on siliceous microfossils (after contact with co-chief scientists). Poore will act as liaison between OPP and Leg 49 shipboard and shore based party. He will organize (in connection with Lancelot who will make necessary contacts with DSDP) a sampling party for siliceous microfossils. The suggested deadline for the shore based report is September 1977.

The main results of Leg 50 were reported. The details will appear soon as a DSDP cruise summary and a GEOTIMES article. Technical aspects of deep penetration in hemipelagic sediments were discussed. The importance of high quality logging was emphasized. Necessary technical improvements for deeper penetration concern mainly new bit design, possibility of casing at great depth, reversed circulation. Re-entry operations went very smoothly and can be considered as routine.

Review of North Atlantic Paleoenvironment Results

It appeared important to determine what has been achieved by IPOD I in the North Atlantic for further planning. A report will be made to OPP on these achievements and will list the major questions that remain unanswered at the end of the first Atlantic phase of IPOD.

North Pacific Program

J. Ingle was asked to head a new working group to help finalize the proposal of a North Pacific OPP program. This working group will consist of: Ingle, Schrader, Lipps, and Berger. This proposal will be sent to Lancelot (with copies to all OPP members) by the end of January for presentation to next Planning Committee meeting. This document will essentially be derived from the Cenozoic part of the Riedel report.

The site proposal summary forms to be completed for each individual site recommended by OPP were distributed. Ingle will see that site forms are completed and forwarded to Lancelot by the end of January for presentation at next Planning Committee meeting.

Lancelot and Thierstein will prepare the OPP proposal for Mesozoic sites in the Pacific and will provide the necessary documentation. Copies of the proposal will be sent to OPP members.

Lancelot presented the proposed sites for the North Pacific. Advocates for each site were designated. The role of these advocates is to see that all information listed on site forms is obtained and that forms are completed.

West Pacific Program in Connection with AMP

The OPP discussed the location of sites proposed by AMP and examined recommendations by R. Larson to OCP regarding some of the AMP transect sites. OPP has a strong interest in sites both on the Pacific plate and in the inner basins associated with the evolution of the Kuroshio-Oyashio current system.

Japanese Transect: In addition to J0, the OPP has interest in sites in the vicinity of J2 on the west side of the trench to study Kuroshio-Oyashio interactions. Such a site should be located in an area where a good complete stratigraphic section could be obtained. If J2 is not adequate, then a paleoenvironment site should be defined in that area.

Kurile-Okhotsk Transect: The sites on the north side of the Kurile Basin would be the most interesting for OPP objectives. Thierstein recommended that the site on the Pacific plate should not be located on crust younger than anomaly M1. However if several sites could be drilled (on M4 for example) marginal gradients could be studied.

North Philippine Transect: Site NP3 might be directly interesting for OPP problems.

Ingle will attend next AMP meeting (San Francisco) and will discuss OPP recommendations. Specifically he will look at the J, K, and NP series of AMP sites to see if their present location would adequately cover OPP requirements. If not, he will propose additional paleoenvironment sites in these areas. Sites NPO and SP1 are endorsed by the OPP.

West Pacific Program in Connection with OCP

Paleoenvironment sites in the west central Pacific receive a strong endorsement from OPP. The site at 7°10'N, 104°45'E (Nauru Basin) is given the highest priority and is considered one of the prime OPP sites in that area (early Mesozoic world ocean). In addition the OPP strongly recommends that a site be located in the southeast corner of the Mariana Basin. Such a site located on crust possibly as old as late Triassic, has probably no chance of reaching basement but should allow sampling of early Jurassic sediments.

The OPP recommends that potential paleoenvironment sites be surveyed in the Mariana Basin together with surveys of Nauru Basin paleoenvironment sites during the HIG-R. Larson cruise of spring 1977.

The eastern Indian Ocean having the same general purpose as mesozoic Pacific sites should be drilled in the Argo Basin. In addition to this objective, such sites would allow the study of Indo-Pacific connection during Mesozoic and Cenozoic.

Site advocates for the above described sites are Lancelot and Thierstein. Site advocates should fill in site forms to the best of their knowledge of available data and send copies to Lancelot by the end of January 1977.

Site advocates for the North Pacific are reminded that because of possible changes in the program some of the OPP sites might be drilled as early as Leg 54 and should be ready for the next Planning Committee meeting in February 1977.

Gulf of California Report (Van Andel)

The Gulf of California working group (Joe Curray, Chairman) has asked for input from all panels. Van Andel and Ingle considered paleoenvironmental aspects and after discussion the OPP recommended that drilling within the Gulf proper should be maintained (as opposed to drilling at the mouth of the Gulf). Major paleoenvironment signals, however, can certainly be best studied to the west of Baja California in the California Current area. Sites within the Gulf should be primarily located on the basis of structural objectives (PMP) and safety considerations. OPP objectives will be dealt with as secondary considerations after the prime targets have been identified by PMP and Safety Panel.

The OPP member of the Gulf of California working group, will carry the information to the Working Group at its next meeting and will report to the OPP.

South Atlantic Program

Hsu presented a report of the South Atlantic working group (see page 35 of this issue of JOIDES JOURNAL). It was suggested that the working group expand the discussion of the paleoenvironment problems to be solved in the South Atlantic so that the precise hypotheses and means of testing them by drilling be clearly spelled out. Furthermore, the OPP recommends that one more site be added to the Walvis Ridge N-S transect in the vicinity of Site F (29°30.5'S, 3029'E), but at intermediate depths (toward the continental rise). The set of Walvis Ridge sites and the problems they address (e.g., history of CCD fluctuations and vertical structure of the water masses) should be closely tied to the SA-4 sites area (east flank of the M.A.R.; Figure 5). Taken together these sites should provide a much better understanding of CCD fluctuations, vertical structure of the water mass and subsidence history than either one of these areas taken separately.

The OPP further recommends that more work be done on the S. W. Atlantic sites. Again Lancelot pointed out that the proposal for these sites should clearly indicate the specific methodology proposed for solving the problem of the changes in the flow of bottom water in a basin and how such method can be applied to the S. W. Atlantic region. Examples of site locations were discussed in the lee of the current or away from the gateways in a direction parallel to that of the current so that sites would allow sampling of deposits associated with current fluctuations instead of crossing hiatuses.

The OPP forwards to the S.A.W.G. the following comments and recommendations:

- Target areas of S. E. Atlantic, as outlined in the report of the working group are approved.
- Objectives should be rewritten slightly to tie problems and specific means to solve them by drilling.
- Undocumented site locations should be documented as early as possible.
- Necessary surveys should be requested as soon as possible.
- The S. W. Atlantic problems and means of solution should be worked up in more detail.

Interaction with Other Panels

Passive Margin: Thiede discussed interactions with PMP and reported that the new methodology adopted by that panel will be the establishment of transects. This appears in good agreement with the OPP strategy of looking at areas where both vertical and horizontal gradients are particularly high. Such areas are often close to continental margins where major current systems are developed.

Ocean Crust: Hall reported on OCP's new thoughts about their site PAC-6. OCP prefers now a location where the crust would have been generated at a paleolatitude of greater than 30° and on a set of well-defined magnetic anomalies. Two areas of the Pacific qualify: the Gulf of Alaska and the central Pacific south of the equator. The latter location having the advantage of good weather conditions all year around. It was indicated that Sites PCS, 6 and 7 qualify very well as far as the OCP requirements are concerned, both in terms of magnetic data and paleolatitudes. The southern area is less interesting for the OPP because of lack of sediments, except when redeposited around archipelagos.

Long-Term Planning

The OPP was asked by the Planning Committee to work on:

1. Mid-range planning: prepare a proposal for a two-year extension beyond 1979, to be submitted to the Planning Committee in early February 1977; and
2. Long-range planning: prepare a "white paper" for the workshop of the Executive Committee: "Future of Ocean Drilling" to be held in March 1977.

Copies of a first draft of a paleoenvironment proposal written by Kennett were distributed early in the meeting for critical reading by OPP members. McManus (Planning Committee) and McKnight (NSF) emphasized the need for clear definition of new, sound and well-supported scientific objectives. The drilling plans should assume the availability of a "CHALLENGER-type" vessel (without risers). McKnight indicated that following recent actions taken by NSF and the National Science Board about extensions, NSF urgently needs information on future plans prepared by JOIDES. Any new proposal should provide strong justifications for future drilling.

The OPP, after discussion, generally felt that the proposal should very clearly state the broad problems that it would like to solve as well as the specific methodology proposed for solving them by drilling. The panel decided to write the OPP proposal along these lines and to keep the Kennett proposal as an appendix in view of the fact that it contains all the detailed information necessary for discussion of the Cenozoic objectives. The proposal will have three parts: a general introduction placing the paleoenvironmental problem in the context of earth sciences; a definition of problems to be solved; and a proposed methodology for the solution of these problems. The latter part will contain a list of the areas where such a methodology will be applied, which will be only attached to the two-year proposal while the rest of the proposal will be used directly as the "white paper". Lancelot will present a semi-final version at the Planning Committee meeting in February 1977.

The "Future of Ocean Drilling" (beyond the two-year extension) was discussed on a preliminary basis. Several options were considered:

1. Continue along the present lines
2. Take a break of several years
3. Divide the program into two different orientations:

- a. Organize and fund studies of cores
- b. Keep alive a permanent part-time drilling program based on proposals issued from the core studies.

The third option appeared to receive support from the majority of the panel members. It was requested that all panel members write their comments about these plans and make contact with as many earth scientists as possible in order to gather their feelings. This information should be sent to Lancelot prior to the workshop meeting in March 1977.

JOIDES Symposia

In addition to the symposium to be held at L-DGO (see page 6 of this issue), additional special symposia on DSDP results are being planned by other institutions (US and non-US). Among them are:

- Royal Society (Great Britain): Eastern Atlantic, Passive Margins, October 1977
- SCOR Working Group 53, South Atlantic (primarily DSDP results)
- West German Symposium (unspecified)
- Stratigraphic Correlations Panel: The SCP has planned two symposia on DSDP results for 1977, one at Geological Society of America meeting at Seattle in November 1977; another one at the North American Paleontological Convention at Kansas, August 1977.

In general, the OPP strongly endorses such symposia, both within the US and abroad, especially at a time when a broad support of the earth science community is sought for the continuation of the program. Serious concern, however, was expressed concerning the following aspects of the problem:

1. Purely JOIDES symposia, not related to any other scientific gathering, might fail to attract the scientists outside the "JOIDES family" and might do nothing to break the "closed shop" aspect of the program. These outsiders are indeed the ones that such symposia are trying to reach.
2. The publication of the papers presented has to be in a widely distributed reputable scientific journal.
3. JOIDES, as an organization, would quickly find itself scrambling for large sums of money to sponsor these meetings and would further have to take the responsibility for exercising good quality control on the publications. This appears to be a heavy task for the JOIDES panels and committees at this time.

To overcome what the OPP considers as serious drawbacks to the JOIDES symposia as presently envisaged, the OPP recommends that the following suggestions be considered.

1. JOIDES symposia should be jointly sponsored with national and international professional societies such as GSA, AGU, IUGG, etc. In this joint sponsorship the JOIDES committees and panels would be responsible for planning the themes and selecting the invited speakers, while the professional societies would be responsible for quality control and publication of the papers.
2. The JOIDES symposia should be held along with or in close proximity (in space and time) to scheduled national and international meetings of the co-sponsoring professional societies. This would assure more open meetings and would allow JOIDES to reach a larger audience, both during meetings and through publications.

It was suggested that a paleo-oceanography symposium based on DSDP/IPOD results be organized. The OPP considers that a meeting comparable to the "La Jolla Rock Festival" of the OCP would be very beneficial to our long-range planning. The OPP considered the possibility of having such a meeting ("Soft Rock Festival") held at the Seattle GSA meeting in November 1977. The practical problems faced by the past organization of the hard rock festival of La Jolla will be checked along with the feasibility of organizing a meeting on such short notice.

REPORT FROM THE SOUTH ATLANTIC WORKING GROUP (SAWG) (14 September 1976)

The results of the July Lamont meeting of the OPP were reported. The instruction to work out plans for sites to be drilled during three (instead of two) legs was asked so as to anticipate possible changes in cruise schedules and other eventualities. In addition, the following regions were to be emphasized:

- A. Transect Cape Basin - Walvis Ridge - Angola Basin
- B. Transect east side of Atlantic Ridge
- C. Angola Margin
- D. Argentine Basin

The French proposal of Region A was presented. The need for a series of holes across the Walvis Ridge was pointed out. After some discussions, three target areas of Region A (Figure 5) were defined and designated as SA-1 (Angola Basin), SA-2 (Walvis Ridge) and SA-3 (Cape Basin). It was anticipated that one long hole each was to be drilled into basement at about the 90 or 95 m.y. isochron in SA-1 area of the Angola Basin and in SA-3 area of Cape Basin. Three to five medium to deep holes were to be drilled on Walvis Ridge. A revised and amended version of the French proposal for Region A is to be sent to the OPP for discussion at its December meeting.

There is consensus on the first-priority of the Region B, but there was some difference in opinion whether the transect should be placed at 25° or 30°S or at 8° or 12°S. In view of the much better data to determine the position of isochrons, and of the smaller risk of crossing fracture zones during the transect, the majority favored the more southerly position. This target area is now designated as target area SA-4. Four or five short holes are to be drilled between isochrons 9 and 42 m.y. (or anomalies 5 and 13 plus). A draft-proposal is to be prepared of Region B for the December panel meeting.

There is considerable discussion on the merit of the Angola Margin site. It was recognized, however, that to reach the primary objective, a deep, multiple-re-entry hole should be scheduled, and would take probably the time of a whole cruise. The SAWG agreed that the Angola Margin target should be kept as a second priority objective, and be brought up for discussion during the December panel meeting.

A report on preliminary studies of the Argentine Basin was presented and the boundary conditions for the selection of target areas were defined. Three first-priority target areas in the northwestern Argentine Basin and Vema Channel region were indicated. A draft-proposal of Region D will be prepared for consideration at the December meeting.

The possibility of a Charcot survey in early 1978 for the Walvis Ridge region was reported which included the target area SA-2. A possible South African cruise to Walvis Ridge was also mentioned. There are considerable regional survey data for target areas SA-1 and SA-3, but detailed site surveys are needed for all proposed targets of Region A. Regional and site surveys are indispensable for Regions B (Target SA-4) and D.

REPORT FROM THE ORGANIC GEOCHEMISTRY PANEL (OGP) (7 November 1976)

Co-Chief Scientists and Organic Geochemical Program

To keep the co-chief scientists fully aware of the organic geochemical program, it was agreed that they will be sent statements from the respective sampling meetings. Statements will also be sent to the editorial representatives and shipboard geochemists. The co-chief scientists are to be made aware of the fact that at least one-eighth and usually one-fourth of every frozen core-interval is archived. Whenever possible the sampling meeting for a given leg will be held before the first post-cruise meeting. Whelan suggested that the "Geochemistry" section of the initial shipboard report be provided to investigators taking frozen samples.

Organization of DSDP-IPOD

The organization of DSDP-IPOD was outlined. Under the chief scientist, are S. White, in charge of Science Operations, and J. Usher, in charge of Science Services. The Science Operations office has three main functions: (1) development of the shipboard program; (2) implementation of instrumentation; and (3) coordination with Site Survey and Safety Panels. The Science Services office is responsible for all post cruise activities including the sample repository and the publication of the initial reports. The following points were noted:

1. The staff representative on each cruise is to be involved with all participants.
2. The sample program is developed at least two months before the cruise and organic geochemical input should be available at that time in order that the geochemistry program can be accomplished.
3. Agreement with regard to sample allocation is sought during the first science meeting on board ship.
4. The Science Operations office needs help in evaluating instruments; recommendations from the Panel must be in the form of action lists and not be buried in the minutes. It was suggested that Proponents be appointed to be responsible for individual legs.

Frozen Sample Repository

Problems facing DSDP frozen sample repository were discussed. The panel agreed that the curatorial staff should cut the core to 50-cm lengths or any lengths convenient for them at the time the cores are sampled by the panel. The Panel is concerned about thawing the samples prematurely and now recommends that their samples remain frozen for at least ten years. If any samples are to be transferred to refrigerated storage, the Panel requests that it be notified well in advance of the transfer. The Panel suggests that if adequate freezer space is not available at DSDP, that the project investigate the possibility of renting commercial freezer space for older sample material. EXXON agreed to run the gases in any cans in the freezer which were taken specifically for gas analysis. Any cans remaining in the freezer may be removed, and stored as decided by the curator. The Panel recommends that commercial freezer chests be purchased for the shipping of frozen samples. DSDP should continue to have the responsibility for shipping the samples. It was further recommended that an indicator be added to the shipment to tell whether or not the samples thawed during transit.

"The Role of Organic Geochemistry in DSDP/IPOD"

A preliminary draft of "The Role of Organic Geochemistry in DSDP/IPOD" was presented. The panel agreed that the document should be used for planning purposes and that copies should be sent to panel members for final revisions. Revised

documents are to be returned to the Chairman by 1 January 1977. It was emphasized that the Panel should have greater input into individual legs and that the Panel should increase its concern with regard to scientific matters. As an example the meeting of the SAWG was offered. Another example is the meetings in the United Kingdom of groups working with DSDP. Further, it was recommended that the next Panel meeting be extended to at least two and preferably three days at which time greater emphasis can be placed on scientific matters.

JOIDES/DSDP Technical Manual

The Panel was informed of the JOIDES/DSDP Technical Manual. The Panel expressed the opinion that for organic geochemical data in the Initial Reports, the manual's usefulness is questionable. Instead, it was suggested that an index of papers would be sufficient. In addition, those papers showing methods would be indicated.

Sea of Japan

An organic geochemical investigation in the Sea of Japan was proposed. It outlined the development of a four station transect south of the island of Honshu where it would be possible to test the effects of the current thermal regime on organic material in Cenozoic sediments. The location provides an excellent test of the possible relationships between temperature and tectonic provinces without crossing large land areas. This proposal is to be presented as a modification of the present plans for Legs 56 and 57. The Panel recognizes, however, that at this late date, it may be impossible to obtain an adequate site survey. The Panel was advised that in future proposals greater lead-time must be given. The Panel encouraged representatives to attend the AMP meeting in December at Menlo Park, California to propose this study.

Instrumentation

The Panel has expressed a need for a pressure core barrel; monies have been budgeted and a test is planned for Leg 56. DSDP requested a list of scientific objectives, and the Panel indicated that the device should be used for the study of the composition and properties of methane hydrates and for determining the *in situ* ratio of gases.

The *in situ* fluids sampler was discussed. In this device about 50 cc of interstitial water is collected in a 1/8"OD copper tubing. For inorganic geochemistry teflon coated tubing may be necessary. The device maintains gases at 600 psi. It was used successfully on Legs 47a and 47b; but it failed on Leg 50. For hydrocarbon gases an extraction device will have to be designed.

The pyrolysis-flame ionization instrument was discussed. The instrument provides information on (1) type of organic matter and its origin (2) maturation, and (3) safety. A hydrogen and oxygen index are measured; these measurements correlate with usual ratios based on elemental analyses. The black shales encountered in Legs 47 and 48 were determined to be of terrigenous origin and thermally immature. The genetic potential of the sampled rocks to produce hydrocarbons is determined and provides a measure useful for safety considerations. It was emphasized that safety is the primary consideration. The pyrolysis-flame ionization instrument along with gas analysis can provide useful information for safety considerations. Those who have been involved in shipboard operations utilizing this combination of instrument found them valuable. The pyrolysis-flame ionization instrument will be available in February at a cost of about \$20,000. The Panel recommends that DSDP seriously consider acquiring this instrument for use on the GLOMAR CHALLENGER.

A possible modification of the present Hewlett-Packard gas chromatograph was discussed. The addition of a capillary column, discussed by Speers, would permit the analysis of hydrocarbons both in the gas and gasoline range. The Panel did not endorse this modification.

Legs 47a, 47b, 48

Leg 47a. The gas analyses and the use of these measurements in conjunction with pyrolysis fluorescence was presented. The sediments did not have petroleum generating potential. Diagenesis was reflected in samples where the concentrations of homologous hydrocarbon gases were in phase. Reflected light studies indicated the presence of shales with high contents of terrestrial organic material.

Leg 47b. No gas was observed for 1700 meters, and that the exploration logging gas chromatograph was useless where methane was in low concentrations. It was suggested that sample requests of the shipboard geochemist should be very specific and wherever possible sample containers should accompany requests. In shorebased studies of these samples organic carbon values are slightly higher than values obtained on the ship. Percent sulfur follows percent organic carbon. For future work of all the geochemical procedures, gas analysis should still be given top priority. A suggestion that a blender might be useful for gas extraction was made along with the suggestion of trapping gas in double valved steel cylinders.

Leg 48. It had been quite difficult to obtain organic geochemical samples. Numerous instances of contamination including the exposure of plastic liners to the atmosphere, sprayed hydraulic fluid, pipe dope were noted.

The history of transportation of the samples from Legs 47a, 47b, and 48 was described. These samples were frozen at 2-4°C until the period from 2-14 August during which time they were at 14°C.

Letter to Shipboard Scientists

An example of the letter to be sent to shipboard organic geochemists and co-chief scientists was read. The Panel felt that the language in the shipboard manual regarding sampling should be tightened to insure that the shipboard organic geochemist can collect adequate samples. Other statements should be added concerning the following: (1) safety procedures as outlined in the manual should be followed, (2) the shipboard geochemist should attempt to make other shipboard scientists aware of the geochemistry program objectives and results, (3) contamination problems should be monitored closely, and (4) advice for future shipboard geochemists can be obtained from: Jean Whelan (716-548-1400, ext. 556), Bill Harrison (405-325-3031), and Chris Cornford (Germany: 02461 615150).

Interlaboratory Cooperation

Interlaboratory cooperation was discussed. It was noted that the review procedure has promoted communication. An extended meeting will also help provide a format for the exchange of information.

Initial Reports

The Panel was informed that contributions to the Initial Reports must be reviewed by at least one reviewer; the reviewer must be acknowledged in the text of the contribution.

Reports from Other Panels

Passive Margin. Several areas of potential interest to organic geochemistry were reported.

1. Gulf of California
2. Northwest Australian Shelf
3. Venezuelan Basin
4. South Atlantic Working Group of the OGP.

Three other areas to which the ship may return were also mentioned: Gulf of Aden, Norwegian Sea and Bay of Biscay.

Paleoenvironment Panel. The organic geochemistry and paleoenvironment panels have many common interests. Our Panel needs long-term goals in order to communicate effectively with other panels. The document "Future of Ocean Drilling" should provide some direction. An example of long-range planning was offered by proposing the problem of tracing the origin and importance of black shales in the South Atlantic; it was noted the two current models could possibly be distinguished by geochemical techniques. The first model considers that the shales developed in an oxygen deficient environment on the continental margin; the other model proposes a deep ocean environment. Transects from Angola to the Cape could sample the basinal areas containing the shales.

Other Business

The Panel appointed W. Harrison as the proponent for Legs 56, 57 and possibly 58, and B. Simoneit for Leg 63.

REPORT FROM THE PASSIVE MARGIN PANEL (PMP) (27-29 September 1976)

Actions of the PMP

The PMP voiced concern over the availability of CUSS samples and proprietary geophysical data to the scientific community. The PMP recommended a sub-group to review this proposal at GSA on 1 November.

The Organic Geochemistry Panel will be defining that Panel's sampling policy. The PMP stressed that if sampling is made for the OGP that:

1. the results must be available for the Initial Report,
2. the sampling and distribution policy must be defined, and
3. the co-chiefs should be presented with the relevant documentation.

These views will be conveyed to the OGP.

The PMP noted that data on clathrate distribution requested in Zurich had not yet been received.

The PMP recommends that the shipboard scientific data be freely available to scientists responsible for site surveys and that they be closely involved with the co-chiefs in the preparation of the Initial Reports.

The PMP wishes to state its reservations concerning the proposed constitution and formation of a Regional Studies Group as outlined in the Planning Committee minutes of 6-8 July 1976. The Panel considers that regional studies initiated,

current or planned by individual scientists or research groups, should be supported to best evaluate candidate margins for IPOD. For the purposes of proposed passive margin drilling, regional studies should be carried out for N.W. Australia - Timor, the South Atlantic Ocean, the east coast of North America. Such studies can be best coordinated by working groups of the PMP.

It was agreed to take the OCP white paper as a model and develop a philosophical approach to passive margin drilling based in part on the Orangeburg proposal. PMP members should mail their views to the chairman by 1 November.

The PMP recommends that the Ewing Symposium of 1978 be used as a vehicle to present a pre-publication synthesis of Atlantic Passive Margin geology and paleo-environment. The PMP further recommends that publication following the symposium be made through IPOD and the NSF and that such publication be subject to peer review. The Panel also requests participation of the appropriate subject panels in programming the symposium and responsibility for editing the volume.

A regional synthesis will be developed pertaining to the Gulf of California for presentation at the next PMP meeting.

It was agreed to form a N.W. Australian working group to consider the possibility of drilling in the N. W. Australian area especially between Timor and N. Australia, to develop a geological and geophysical program and make specific recommendations to the PMP before the December-January meetings. The mandate should also include S.W. Australia and the Tasman Sea.

The PMP agreed to form a South Atlantic Working Group to prepare proposals before the next PMP meeting.

The Panel agreed that the fundamental controls on geological processes influencing continental margin sedimentation remain the main objective.

Reports from Other Groups

A report was made on the Mauritius Workshop sponsored by IOC and attended by 27 experts. Four working groups were organized:

1. Marine sediments - interaction between sediments and water
2. Passive margins - sediments, vertical tectonics, ocean
3. Active margins - continent boundary, etc.
4. Lithosphere.

The Workshop proceedings will be distributed by IOC. The Group also considered the Geodynamics Working Group report on the geodynamics of the continents. Geodynamics--WG8 meetings have been held in Sao Paulo and Durham and reports are in circulation.

The formation of a geological and geophysical committee on continental margins within the U.S. was noted. Its first meeting will be held at GSA and one of its purposes is to develop and formulate the balance between USGS and Oceanographic Institute programs.

The "Ancient Continental Margins in the Alps" program of IGCP is an attempt to build actualistic models of geosynclines. The AAPG Research Conference to be held at Galveston (12-14 January) is on "Geophysical Investigations of Continental Slopes". The PMP noted research programs in continental margin sedimentation sponsored by the Office of Naval Research and the Bureau of Land Management.

Interpanel Communication

Please refer to the Report from the Planning Committee, Page 13 of this issue.

Regional Studies Proposal

The Planning Committee recommended the creation of Regional Study Groups to incorporate the present Site Survey Panel. This proposal provoked considerable discussion as to the relation of such a group to the main subject panels. The relevance of the Site Survey Panel was questioned. The PMP recommends that the ship-board scientific data be freely available to scientists responsible for site surveys and that they be closely involved with the co-chiefs in the preparation of the Initial Reports. The proposal for regional studies arose from funding difficulties associated with site survey management. A widely felt view was that science is best reviewed by the subject panels and not by the Site Survey Panel. Concern was expressed as to the ambiguous role of the Site Survey Panel. After considerable discussion related to future plans and the future of IPOD, the following motion was made. The PMP wishes to state its reservations concerning the proposed constitution and formation of a Regional Studies Group as outlined in the Planning Committee minutes of 6-8 July 1976. The Panel considers that regional studies initiated, current or planned by individual scientists or research groups should be supported to best evaluate candidate margins for IPOD. For the purposes of proposed passive margin drilling, regional studies should be carried out for N.W. Australia - Timor, the South Atlantic Ocean, the east coast of North America. Such studies can be best coordinated by Working Groups of the PMP.

Indian Ocean Sites

Possible candidate sites in the Indian Ocean are the micro-continents, Gulf of Aden, Red Sea, and Gulf of Oman. A proposed cruise by CHARCOT to the Indian Ocean was noted. French Petroleum and Republic of Germany also have lines. Problems include carbonates, the continent-ocean boundary, early margin sediments and evaporites.

Caribbean Sea

The Caribbean Working Group proposals were reviewed. Four areas were selected and in April-May 1976 were surveyed by CNEXO using 2800km of 24-fold 48-trace seismic sonobuoys and magnetics. Current status is as follows:

1. Barbados Ridge - CNEXO survey is complementary to the Shell line
2. Grenada Basin - CNEXO survey is complementary to Shell and French lines
3. Venezuela Basin - CNEXO survey is complementary to Texas Univ., French and L-DGO lines,
4. Columbia Basin - CNEXO survey is complementary to Shell and French lines.

South Atlantic Working Group

A report of the South Atlantic Working Group (SAWG) meeting held at Edinburgh can be found on page 35 of this issue of JOIDES JOURNAL. Disappointment was expressed that the comparative facies problem well exemplified in the South Atlantic was not being attacked though the annex proposal on continental margin sedimentation is to be included. The PMP regretted the view of the SAWG that South Atlantic margin drilling results did not bear on environmental problems. The

SAWG has proposed three legs (two are scheduled). The proposal for a transect to look at facies evolution was reported. The objectives and candidate margins for drilling in the South Atlantic (Figure 5) were reviewed:

1. Ivory Coast Ridge (Romanche Fracture Zone)- offers the opportunity to drill at the continent-ocean boundary,
2. North Angola margin - relevance of Site 364 which bottomed in deep water Albian limestones that are correlative with limestones lying on the salt beneath the shelf,
3. South Angola margin - of interest because the salt basin pinches out at Mossamedes and it is possible to reach syn-rift sediments, and
4. Easternmost Walvis Ridge - flat-lying sediments rest on syn-rift sediments.

The Organic Geochemistry Panel's interest in an organic geochemical model of the opening of an early ocean was emphasized. Organic geochemical facies analysis can give the physico-chemical conditions of deposition and the past geothermal flux.

General discussion followed on the problems of the syn- and post-rift environment of the Angola Basin and the possibility of fulfilling the Ocean Paleoenvironment Panel's objectives on the margin. Aseismic ridges give quantitative data on the deposition of midwater and oceanic facies for quantitative paleo-oceanography. Upwelling was relevant to both the Ocean Paleoenvironment Panel and the Passive Margin Panel. It was further noted that the Working Group's view was not that of the Ocean Paleoenvironment Panel who had assigned high priorities to the evaporite problem, black shales and the subsidence history of the Walvis Ridge.

In view of CNEXO cruise plans for 1977-78, it was important to define objectives soon. The PMP agreed to form a SAWG to prepare proposals before the next PMP meeting.

Future Passive Margin Drilling

General discussion centered around Table 1 of the Zurich meeting and the results of Legs 47a, 47b and 48. The need to avoid dispersal of effort was agreed by all.

In the North Atlantic, the problems of the continent-ocean boundary and quiet magnetic zone, carbonate platforms and facies changes were emphasized. A proposed reconsideration of the Voring Plateau and use of existing proposals was made. The east margin of North America, Gulf of Mexico, west margin of North America were mentioned as candidate areas. Attempts were made to reprioritise the Zurich problem list in terms of facies variation, unconformities and deep sea events and vertical tectonics. The PMP agreed that the fundamental controls on geological processes influencing continental margin sedimentation remain the main objective. Proposals received and discussed during the meeting were listed and prioritised as follows.

	IPOD-I (up to Leg 68)	IPOD-I (ext.)	IPOD-II (future)
Gulf of California	I	-	-
N.W. Australia-Timor	I	-	II
Indian Ocean microcontinents	III	II	-
Red Sea - Gulf of Aden	III	II	-
Caribbean (not a passive margin)	I	-	II
South Atlantic	I	-	II

	IPOD-I (up to Leg 68)	IPOD-I (ext.)	IPOD-II (future)
Norwegian Sea/Rockall	II	I	II
Northwest Africa	II	II	II
Eastern margin of North America	II	I	I
Biscay-Galicia	II	I	II
Mediterranean (not a passive margin)	II	II	II

The PMP agreed to review the organization of Table 1 (Zurich) for the next PMP meeting.

REPORT FROM THE SEDIMENTARY PETROLOGY AND PHYSICAL PROPERTIES PANEL (SPP) (16-17 September 1976)

Atterberg Limits

The Planning Committee has approved the program of sampling for Atterberg limits. Direct negotiation is being done with DSDP to ensure that the sampling plan is understood and implemented by shipboard scientists (particularly the individual primarily responsible for overseeing the physical properties program). SPP emphasizes that a sample for shore-lab water content determination must be taken with each Atterberg sample.

Riedel Plan - Legs 52 and 53

The SPP endorses adoption of the "Riedel Plan" (JOIDES JOURNAL 1975/3, p. 28-29) for setting up a shore party to describe sediments from OC legs. The Panel noted that the Planning Committee has approved this concept, but is concerned that no steps have yet been taken to implement it. From the IPOD schedule, it appears that Leg 52 or 53 may require a shore party. The Panel recommends that:

1. The Planning Committee and DSDP Chief Scientist establish a protocol for the recruitment and management of shore parties at their next meeting.
2. The Planning and Executive Committees issue a statement that officially constituted shore parties are as integral a part of IPOD as are shipboard scientific parties.
3. Shore parties be selected in the same way as shipboard parties, and receive equivalent DSDP support.
4. Every effort be made to return cores to DSDP repositories immediately after OC legs with inadequate sedimentologic staffing.

Lithologist

The panel is still concerned at the lack of a mechanism to ensure well-balanced teams of lithologists for CHALLENGER legs. We recommend that on future sediment-oriented legs it be mandatory that the lithologic party include one member experienced in the supervision and interpretation of physical properties measurements, and one member experienced in the assessment and interpretation of X-ray diffraction analyses. We urge IPOD member countries to include scientists with expertise in these areas in their nominations to the Planning Committee.

The Panel is pleased to see that a routine logging program is now a part of IPOD.

The possibility is being investigated of having a member of Schlumberger Research Labs. participate in an IPOD leg with a lithologist familiar with the use of logs to ensure that the Project is deriving the maximum possible benefit from the logging program. Consultation with mud logging researchers to ensure that the capability of the GLOMAR CHALLENGER is being fully exploited is planned.

Site Survey Piston Core

The Planning Committee has approved the transfer of a site survey piston core to the CHALLENGER for each site. We are concerned that the plan has not been implemented. We recommend that:

1. The head of the Site Selection Group be responsible for insisting that a piston core from each site be transferred to either the east or west coast repositories, and
2. The Chief Scientist of DSDP or his designated representative be responsible for getting the unopened cores on board the CHALLENGER for the appropriate legs.

X-ray Diffraction

G. Mueller has offered to run up to 100 X-ray diffraction samples per leg for Legs 51-56 at no cost to DSDP. The Panel recommends that:

1. A lithologist with XRD experience is available to ensure intelligent sample selection, that the Planning Committee approve the taking of 100 samples per leg for X-ray diffraction analysis in G. Mueller's laboratory, and
2. that a member of the DSDP data handling staff cooperate with G. Mueller's laboratory to ensure that the digitally recorded XRD information is incorporated in the DSDP prime data bank. In particular, users must be able to recover raw and smoothed diffractograms from the tapes. In the same context, the Panel requests information on the retrievability of digital XRD data collected at Riverside.

The Panel has no objection to, and even encourages, XRD analytical programs like those of Legs 47 and 48. It must be recognized, however, that each laboratory reduces and interprets its data in a unique and rarely complete fashion. Only by having a consistent and long-lived program like that proposed here can the "one shot" programs be correlated from leg to leg.

Routine Chemical Analyses

As far as routine chemical analyses are concerned, the Panel recommends that all chemical analyses of IPOD samples be accompanied by analyses of USGS rock standards. The analytical methodology and results of rock standard analyses must be published in sufficient detail to allow critical assessment of all analytical data.

Physical Properties Package for Shipboard Scientists

A review of the documentation prepared by G. Boyce was made. The only major criticism is the lack of a brief executive summary. The Panel is concerned that non-geotechnicists may be overwhelmed by the sheer bulk of the total package. A user's view of the package from Leg 49 scientific staff will be solicited.

Technical Manual

The Panel recommends that the technical manual, together with a comprehensive index (being prepared at DSDP) be issued as the final volume of the Phase I-III DSDP Initial Reports. We feel that such publication is the only way of ensuring availability of the manual, which is designed to facilitate the use of DSDP data and initial reports, to the scientific community. Funding for such a volume will be discussed with NSF. The Panel is encouraged by the reports of progress on manual chapters. The Panel requests that authors send first drafts of individual chapters to R. Heath by the times specified.

REPORT FROM THE SITE SURVEY PANEL (SSP) (2-4 October 1976)

Drill Site in the Site AT 2 Area (Figure 1)

The Ocean Crust Panel, in considering AT 2 sites, recommended site 2.3 as their prime target. This site is south of the multichannel line and was suggested because of weather considerations. A contingency survey was recently completed by Woods Hole and the SSP inspected the data to see if the goals of the original (A + A2) site could be met in this new area (AT 2.3). From an inspection of the reflection records there was some uncertainty in the identification of basement. A subgroup prepared the following report on this site.

Site 2.3 Atlantic. Proposed by Ocean Crust Panel.

- | | |
|------------------------|--|
| Site Objective: | -to obtain and log deep penetration of the crust at magnetic anomaly M0
-to understand the velocity structure of the interface between crustal layers 2 and 3 |
| Data Available to SSP: | -Woods Hole 30-kilojoule sparker lines with magnetics
-Lamont Line C-19 - single channel air gun reflection |
| Conclusions: | -The magnetic data define magnetic anomaly M0 sufficiently for site location.
-Line spacing is about 10 miles.
-Two diffraction levels appear from place to place on the reflection data. This introduces some uncertainty in picking a basement amounting to 200 ms to 300 ms. This is a suggestion that the uppermost diffracting surface may represent an envelope of diapirs.
-The lack of refraction and multichannel data precludes definition of target interfaces within the crust.
-The site is deficient in bathymetric control. |

Status of Surveys in the Japan Trench and North Philippine Sea

The data from these sites were presented. Also, see Report from the Active Margin Panel on page 15 of this issue. A multichannel line across the Japan Trench would be used to locate holes J1 at the toe of the slope and J2 higher up the slope. A site J8 on the upper slope was also identified. From a safety standpoint it was recommended that additional crossed lines be obtained at each of these sites. The Japan Development Corporation would be in a position to run at least some of these lines in November 1976. Dr. Nagumo was assigned as the SSP member responsible for the Japan Trench sites. Dr. Nasu is the chief proponent of the sites.

The data from the North Philippine Sea sites were presented. There was general agreement that the surveying here was in excellent shape and there was no problem defining sites. More work is planned here. Dr. Kobayashi is the chief proponent of these sites and Dr. Nagumo will be the SSP member responsible for assembling the site file.

Sea of Okhotsk (Figure 3)

The surveying at these sites was discussed. Further multichannel surveying by the USSR is planned to better define these sites and meet safety requirements (see Report from the Active Margin Panel, page 15). Dr. Langseth was identified as the SSP member responsible for these sites.

South Philippine Sea Transect (Figure 4)

These sites have been divided into an eastern series SP1-4 and a western series SP5-10. The eastern sites have been surveyed in a regional manner with more detailed work to be done in 1977. A survey has just been completed in the western area and the running of multichannel lines will be conducted this fall to tie all the sites together. It was reported that in 1977 the VALDIVIA will be able to run crossed lines through the candidate sites and Lamont will be undertaking detailed MG&G to tie up any loose ends. Drilling is scheduled for late 1977. Dr. Hussong is the SSP member responsible for this area.

Young Pacific Sites

Juan de Fuca: During the joint meeting with the OCP, Dr. John Norris of Gulf Research presented multichannel, gravity and magnetic data taken by Gulf across two areas of the Juan de Fuca Rise. One area was near 48°30'N and the other near 47°N. Some intriguing dipping deep reflections in the 47°N area were pointed out. These data were put on file at the IPOD data bank and the panel expressed its appreciation to Dr. Norris, Dr. Driver and Gulf for their cooperation and generosity. Dr. Lewis will compile a file on this site.

Siquieros: The results of the survey in this area were presented pointing out the location of the OBS array site which appeared to be several kms from a small fracture zone. The OCP had selected as a re-entry site a sediment pond on the edge of the survey area and not the OBS site. The SSP after some discussion decided that in terms of being able to correlate drill results with the very detailed OBS experiment, it would be far better to have the re-entry site at the OBS array and a single bit hole at the other sediment pond to establish the degree of lateral variations. The following written recommendation was conveyed to the Planning Committee.

PAC 4. The SSP recommends that the multiple re-entry hole be drilled at OBS array site rather than at a site 15 km away. This decision was made in spite of this site being closer to a suspected small fracture zone than the site recommended by the OCP. The SSP views that the detailed seismic data obtained at this site would be degraded by having the deep penetration hole elsewhere. In view of the generally poor recovery from the drill hole, meaningful comparisons can only be made with measurements of physical properties made down the hole. In order to test whether the fracture zone about 5 km from the site, has any effect on the results at the OBS site we recommend a series of holes in other sediment ponds further from this supposed fracture zone.

Galapagos. Heat flow results from the Galapagos spreading center suggest hydrothermal activity and that there might be some reason to study this area further as a prospective drill site. A proponent for this site is needed from the SSP membership.

Gulf of California. The OCP rated this as a high priority young site. The rise axis survey appears to be adequate and the passive margin sites near BAJA might be improved by some multichannel lines if this was feasible. Gulf is willing to do the survey in transit if Mexican permission can be obtained. Dr. Lewis will prepare a file on this site.

Passive Margin Panel

The activities of the PMP were reviewed. Items relevant to the SSP are listed below.

1. Involvement of site survey people in writing the initial reports was discussed. There is some feeling of insufficient feedback between the site survey results and drilling. This could be improved by comparing these results in the initial reports.
2. The PMP indicated it thought there was no need for a Regional Studies Program.
3. New sites were identified in the N.W. Australia-Timor area, S.W. Africa, Angola Basin and Walvis Ridge.
4. PMP areas of interest and priorities were identified. The SSP member assigned to each area is listed below.

SSP Member Responsible	Areas	Regional Studies Needed
Lewis	Gulf of California	
Watkins	N.W. Australia-Timor	*
	Indian Ocean Microcontinents	
	Red Sea/Gulf of Aden	
Falquist	Caribbean ⁰	
Driver/Renard	South Atlantic	*
Hays	N.W. Africa	
White	Norwegian Sea	
Langseth	East Coast of U.S.	*
Rabinowitz	Bicaya-Galizia	
Renard	Mediterranean ⁰	

⁰Not a passive margin.

Active Margin Panel (see Report from the Active Margin Panel, page 14)

The AMP activities relative to scientific objectives and status of areas were reviewed. Discussion of the Japan Trench, North Philippine Sea, South Philippine Sea and Okhotsk Sea areas have been described elsewhere. Sites not presently given a high priority but which may become important in the future are:

New Hebrides - SSP member: Renard
 Tonga-Fiji - SSP member: Hussong
 Peru-Chile - SSP member: Hussong.

The Middle America Trench will be surveyed by UTMSI and J. Watkins will prepare a file.

Survey Plans for 1976-1977

The French plans were summarized as follows.

1. An AT-12 post site survey with the METEOR - a detailed narrow beam echo sounder survey and acoustic navigation.
2. Vema Fracture Zone - detailed work with OBS, acoustic navigation and echo sounding
3. New Hebrides - 1 to 2 months of multichannel work
4. Southeast Atlantic - South Angola Margin - possibility; 3,000 km of multichannel survey.

The Japanese plans as outlined are:

1. Japan Trench in April-June 1977: on the HAKUITO-MARU, 20 days ship time.
on the BOSEI-MARU, 30 days ship time.
2. In the North Philippine Sea - on the HAKUITO-MARU, 30 days in 1977 with air gun profiling, OBS and sonobuoy refraction; on the BOSEI-MARU in October-November 1976.

The German plans are:

1. In 1977 the VALDIVIA will be in the South Philippine Sea to tie in the S.P. sites; she will also be in the Northwest Australian area, the Celebes Sea and Sulu Sea.
2. Toward the end of 1977, the VALDIVIA will be surveying off West Africa, and in the Moroccan Basin. The METEOR will also be working the Reykjanes Ridge and Norwegian Sea.

The recommended USA IPOD site survey for 1977 is listed below.

Region	Institution	Ship and Days	Major Objectives
South Philippine Transect E	HIG	KANA KEOKI 45	Detailed surveys at selected sites
South Philippine Transect W	L-DGO	VEMA 20	OBS & sonobuoy; de- tailed survey at selected sites
Nauru Basin	HIG	KANA KEOKI 30	OBS & crustal studies R. Larson's partici- pation
	L-DGO		
Mid-America	UTMSI	IDA GREEN 28	Multichannel OBS (IPOD) Detailed survey
Blake-Bahama Basin	U-DEL	EASTWARD 10	Magnetics, profiling
Blake-Bahama Basin	L-DGO	CONRAD 15	Multichannel

Survey Needs for 1978

The specific requirements for 1978 are not yet clear and are dependent on the outcome of some new sites that have been suggested. This item should be discussed further at the next SSP meeting. Some tentative areas that may require more surveying were identified as:

Juan de Fuca	Galapagos	Atlantic 2.3 (post-site survey)
Nauru Basin	Peru Trench	Venezuelan Basin

Caribbean Transect
Angola Basin

Vema Fracture Zone

Walvis Ridge

A status of surveying in the Atlantic and Pacific as assembled by Site Survey Management (SSM) follows the Report from SSP in this issue.

Regional Studies Program

The discussion of this topic included the following points.

1. In only some areas is the scientific data bank depleted. The PMP was reported to have rejected the idea of a regional studies program on the grounds that they were already operating in this mode and had ample long-range objectives and plans. It appeared that the AMP was also formulating long range plans and had little trouble identifying geoscience problems in which drilling could play a role. The ocean crust appeared to be one area where well formulated regional studies were lacking.

2. In terms of the geophysical studies supporting the drilling program it also became clear that in the PMP and AMP a great number of the site surveys are performed or supervised by a member of these panels. This has the effect of (1) minimizing the role of the SSP in support of these panels and (2) providing for a much greater interaction between the drilling objectives and the regional and site surveys. This is in marked contrast with the present situation in the OCP. Here nearly all the site surveys are conducted by SSP members who have little input to drilling objectives. Often the scientific objectives of the site surveyor may be considerably different from the objectives of the OCP, and his tools incapable of resolving features on the fine scale that is conceived by the OCP. An improvement of site survey techniques and tools and an input to the OCP in terms of drilling goals would be of great benefit to the crustal drilling program.

Site Survey White Paper

It was agreed that the title of the paper be "The Role of Geophysics in the IPOD Program", and a tentative list of contents was discussed.

Surveys in the Caribbean

Excellent data from the Caribbean were presented showing layering beneath a reflector B¹¹ which has already been drilled and was found to be basalt. There was great interest displayed in the possible causes of the Sub B¹¹ layering and the multichannel data are sufficient to define sites shallow enough to solve this problem. The planning of further regional studies of this area would greatly benefit from a knowledge of the origin of Sub B¹¹ layering. The following written recommendation was forwarded to the Planning Committee.

SSP Recommendations. This reports the results of an extension of multi-channel seismic reflection records in the Venezuela Basin by the SSP. These records were taken by Gulf Oil Co., Univ. Texas, L-DGO and unprocessed data were recently collected by IFP. Scientific objectives in the Caribbean are:

1. establish the age and composition of oceanic crust
2. establish the age, lithology, and origin of Sub B¹¹ reflecting horizons which have velocities of 4.5 - 5.5 km/sec
3. establish the nature and possible origin of clear seismic reflections well within a 6.0 km/sec and greater velocity layer.

This kind of knowledge is significant to understanding the initial opening of the Atlantic, the history of the Caribbean, the origin of marginal basins and borderlands, and the structure of presently converging plate margins. Proponents of drilling in the Caribbean include the Mediterranean seas sub-panel, PMP, AMP, and the SSP. The seismic data are excellent in defining layer B¹¹ and in showing its extent over the Venezuela Basin. They outline a rough (igneous?) and smooth (sedimentary?) character. In addition, well-defined sequences of reflection, which are flat, broadly arched, or monoclinical extend deep into the crust, in one case 3 seconds below B¹¹. These data prompted the Mediterranean seas sub-panel to recommend two potential areas for drilling which were then covered in an IFP multichannel survey. Site surveys are therefore adequate for selecting a drill site and for consideration by the PP&SP. Drilling may dictate additional surveys for a regional study. The SSP recommends the surveyed areas for location of potential drill sites of a multiple re-entry hole to penetrate layer B¹¹ as well as the sub B¹¹ sedimentary and igneous rocks. There is also an area for a potential single bit drill site into a thin sub B¹¹ reflective sequence. The area is well suited for contingency sites in the event of bad weather elsewhere.

Comparison of Drill Results with Site Surveys

This is an extensive topic and it was suggested that this might be the subject of an IPOD symposium that would be of great benefit to site survey and drillers.

Site Survey Management Summary of Status and Plans for Surveying in Anticipation of IPOD Drilling in the Pacific and Atlantic

<u>Pacific</u>		
<u>Region or Problem</u>	<u>Status</u>	<u>Prospects</u>
Pacific Transect (PT) Sites 1 & 2 (Baja Cal.)	U. of Wash. Survey 1975, MG&G, OBS, dredge, heat flow	Multichannel line by Gulfrex if permission is obtained
Site 3 (Juan de Fuca)	Detail data exist: HF, seismic Recent Canadian survey (1976)	Gulfrex mc line exists
Site 4 (Sequeros Fract. Z.)	Much data exist; SIO/IPOD survey 1976; L-DGO mc 1976	Analysis in progress; new process. tech; mc
Site 5 (Anomaly 10)	L-DGO MG&G, OBS & sonobuoy 1976 (June)	Analysis in progress; No new work planned.
Site 6 (Anomaly 32)	Little previous data; L-DGO MG&G line from PT 5 to 6	Hawaii to do MG&G, OBS survey October 1976
Galapagos (GA)	Much data exist; Seismic, deep tow, detail HF, dredging	Submersible dives in 1976 WHOI; detailed crustal needed
<u>Seamounts (SM)</u>		
1. Suiko Seamount	Japanese (Hakuko Maru 68-3)	USGS surveys this fall; no other plans
2. Tenchi Seamount	Bargar et al. (Marine Geol)	
Okhotsk Sea (O)		
O2	Detail survey MG&G; dredge USSR (1974)	Mc line - Ministry of Geol USSR (Fall 76)
O 1, 4 & 5	USSR/L-DGO Seismic profiler lines	Multichannel (Fall 76)
(Kuril Basin)		
Kuril Trench (K)	Mc Sept. 76 (USSR)	More work by USSR planned
K-O, 1, 3	Polygon, old Pacific (USSR) Sept.	
Japan Trench (J)	Mc & single channel (Japan) 1976	Cross lines at J-9?
J1, 2 & 9		
North Phil. (NP)	Japanese MG&G at all sites; sono-	Mc lines over Bonin
NP 1-5, 7	buoy (1976)	Arc & NP sites

Pacific (continued)

Region or Problem	Status	Prospects
South Phil. (SP)	HIG MG&G, OBS (76);	HIG Detail surveys '77
SP 1-4	L-DGO mc (Fall 76)	VALDIVIA mc crosslines
SP 4-8	SIO MG&G, refraction (1976)	L-DGO Detail MG&G surveys
Mid-America Trench	Comm. mc line available, well data	UTMSI (76-77) mc, OBS
M 1 & 2		MG&G
G 1-3	EXXON mc available (no coordinates, no time or depth on records)	UTMSI (76-77) mc, OBS
Caribbean Sea	Comm., UTMSI, L-DGO mc, Sonobuoy & refraction, L-DGO, much existing data	Additional mc lines
CAR1		L-DGO (?)
(Venezuelan Basin)		
Caribbean Sea		
CAR 2-6	IFP lines (1976)	No Plans
(Transect)		1977?
Vema Fracture Zone	L-DGO, Miami, Shirshov	French
VFZ 1-5	MG&G, OBS 1975, French	Detail bottom work
S.E. Atlantic	Some isolated MG&G	Mc - French?
(SEA)		
Walvis Ridge	Some surveys exist	No plans
WR	SHIRSHOV, L-DGO, S. African	
N.W. Atlantic Margin	USGS lines of mc	No plans - USGS work continues
NWA	DIGICON line	
Angolan Basin		Mc - French

Atlantic

Atlantic Transect

Latitudinal		
AT1	UTMSI Mc & sonobuoy	No add'l survey plans
	DIGICON line	Crustal studies?
AT 2,21	WHOI MG&G, OBS (1975)	No add'l survey plans
(old 2 & 2A)		Post drilling survey?
AT 22,23	WHOI Magnetic & seismic reflection (1976)	No add'l survey plans
Alt. to 2 & 2A		Post drilling survey?
AT 3-7	Various inst. complete (1975) Leg 45, 46 & 51	No further plans to survey
Longitudinal		
AT 8,9,11	DHI, BGR, MG&G	No further plans
(Reykjanes Ridge)	OBS (1976) Leg 49	
(Formerly 9,11,11A)		
AT 10-14	Various inst. complete (1976)	French-German survey 1976 AT-12?
N.W. Africa	BGR - Some comm. mc lines	No further plans
AFR 1	Complete (1975)	
Cape Bojador Leg 47A	(Leg 47A)	
AFR 2	Mc lines BGR	No further plans
Morocco Basin	Leg 50	
AFR (3)	Existing L-DGO SCP data	No further plans
Mazagan		
Galicia Bank	French Mc data	No further plans
1-3	Complete as 1976	
Bay of Biscay	French & British	No further plans
BIS (1-9)	Mc MG&G (complete)	

Atlantic (continued)

Rockall Bank ROC 1-8	British SCP lines Comm. mc (complete)	No further plans
Norwegian Sea NOR 1-6	BGR & French mc MG&G L-DGO, USSR	No further plans
Blake Bahama Basin (BBB)	IFP & L-DGO mc lines (1975-76)	Magnetic survey UDEL Mc survey L-DGO
Tonga-S.Fiji Transect T 1-11	Existing data only. No specific site surveys	No survey plans
New Hebrides NH 1-6	French & Australian profiles Seismic refraction 1976	France CNEXO (1977)
Mesozoic Pacific (Nauru) MP 1-3	Isolated magnetic, seismic re- flection & refraction	HIG OBS, seismic refr. 77; MG&G
Ontong Java (OJ)	Some seismic, MG&G data HIG ?	No plans
Peru Chile Trench (PC)	Mc lines (OSU, HIG) Refraction (HIG)	No plans Mc crosslines?
Paleoenvironments Old W. Pac.	?	?
N.E. Pac.	?	?

REPORT FROM THE SITE SURVEY PANEL (SSP) (9-10 December 1976)

Galapagos Sites

A brief discussion of Galapagos area sites was held. Dave Williams (ERDA) will be contacted about the possibility of his serving as a "proponent" for sites in this area with the responsibility of assembling the data existing in the region.

DSDP

The status of DSDP proposals for continuation of IPOD drilling beyond 1979 was reviewed. Continuation of the program will not be automatic and specific objectives must be carefully identified and documented. NSF funding beyond 1979 will be on a site-by-site basis. D.G. Moore stressed the need for improved communications; DSDP should be kept informed of changing objectives by both the subject panels and site "proponents". Detailed description of cores and core material is of great value to both the drilling engineers (physical properties) and the paleontologists at time of drilling. It was recommended that where feasible core material from site surveys should be sent to CHALLENGER for use of shipboard scientists. Site Survey Management will be responsible for taking of cores as part of site surveys (to be written into guidelines) and shipping the cores to CHALLENGER.

PAC-4 Multichannel Data

The recent multichannel data from the vicinity of PAC-4 Site (Siqueiros Fracture Zone) was presented with a request to approve processing of line (15k). Evidence for at least one shallow and one deeper reflector within the crustal section was presented. The SSP approved further processing of selected data on Lines 17, 18, 19 limited to a radius of about 50 m from the OBS site. L-DGO was encouraged to make vigorous attempts to design an improved deconvolution program to remove bubble pulses from the data before proceeding to further processing. The decision to approve further processing of the data was made only after much discussion of the possibility that the site will not be drilled. The OCP has recommended moving the sites much farther to the north. It was noted that the

original site has been the subject of intense seismic investigation using multi-channel, OBS observations, and sonobuoy refraction techniques. The SSP noted that the scientific rewards to the geophysical study of the crust (testing geophysical models) could be very great and that the subject of retaining the site should be presented to the OCP. The SSP agreed to the following points.

1. Invite a member or members of the OCP to convene with the SSP the next day to discuss the issue (C. Harrison did not meet with the SSP on Friday).
2. L. Dorman will collect all data and present to the OCP the case for keeping the proposed site near the existing seismic lines.
3. It was suggested that a summary of the data with a statement of the geophysical objectives be submitted to the Planning Committee at its February meeting.

Data Reports

The recent magnetic survey data was presented and discussed emphasizing uncertainties in identification of the anomalies in the PAC 5 area. Identification of Anomaly 13 (or 15) is uncertain; alternative interpretations lead to significantly different spreading rates. Again since it has been proposed to move this site 20° farther north, the site may not be drilled. This led to a general discussion of how to make DSDP supported surveys from undrilled areas available to the scientific community. The Site Survey Management will make recommendations at the next meeting. In the PAC 6 (Anomaly 32) area the navigation plot is completed; despite low 100 gamma magnetic anomaly, the correlation between tracks is excellent. Analysis of the data is continuing. The SSP will report status of PAC 5, 6 to OCP. The multichannel results in the Caribbean and New Hebrides arc areas were presented to the panel including an isopach map of post 8" sediments - minimum 0.2 sec. Track lines have been presented to D. Fahlquist for the SSP files. The wealth of single and multichannel data obtained by IFP in the vicinity of the New Hebrides arc was summarized. The area is presently of second priority in drilling plans. The French (IFP) are presently completing a formal proposal to the Planning Committee calling for a 6-hole transect. The details of the USGS study in the Emperor Seamount area are not yet available. However, usable data were obtained to locate drill sites. The SSP suggested that the "proponents" for these sites should be Jackson and Dalrymple. The logging results from Leg 48 were discussed. The results were exciting and tentative correlation of density and sonic logs with lithology were excellent. The SSP expressed the need to support the continuation of the logging program with vigor. This is the one geophysical tool where direct correlation between physical properties and lithology and chemistry can be made.

The Role of SSP and the Subject Panels

A discussion of the role of the SSP and its role vis-a-vis the subject panels ensued. This question has been recently put into sharp focus by the desire of the OCP to move Pacific sites, well studied geophysically, much farther to the north. C. Harrison (OCP) joined the SSP for the discussions on Friday morning. The following points were made during the discussion.

1. Communication and interaction with the OCP needs to be improved. To some extent the OCP views the SSP as primarily a service panel - not a subject panel. Efforts need to be made to inform the OCP of the evolution of geophysical models of the crust primarily through seismic studies; the SSP strongly supports the contention that testing these geophysical models is a valid scientific goal that should be given equal consideration in discussions of the scientific objectives of drilling.

2. The SSP noted that "oceanic crustal geophysics" is not represented *per se* by a subject panel. During the past history of IPOD the interests and scientific objectives of the geophysical community have been represented by geophysicists on the subject panels. This has worked well with the Passive and Active Margin Panels where both site survey considerations and broader geophysical objectives have been effectively presented.

3. It was suggested that in order to insure better communication with the OCP one or two members of the SSP should be formal members of the OCP. It was suggested that it is more effective to form working groups of scientists interested in specific site locations. Such groups would function as advocates of particular sites during planning, site survey, drilling and post drilling and would have a finite life; such groups would incorporate members of various panels. If an advocate system were adopted the role of the SSP would be to insure adequate site survey data was available, to see that Safety Panel requirements were met, and to provide expertise when needed.

4. A recurring theme was the role the SSP has assumed in the encouragement of the development of new techniques (e.g., OBS observations, downhole experiments). A second theme was the ability of geophysics to extend measurements from the immediate vicinity of the borehole to large distances away; geophysical methods have the capability of testing for lateral and vertical inhomogeneity of physical properties by extending measurements away from the borehole.

Three resolutions to be submitted to the Planning Committee were unanimously adopted by the SSP.

1. The SSP recommends that a major objective of deep ocean drilling be the testing of geophysical models of the oceanic crust. The models should be tested by comparison with recovered petrological samples and by comparison with downhole logging and geophysical experiments. The SSP recommends that the crustal drilling program address these problems by having the SSP work more closely with the OCP and by a redefinition of the mandates of the SSP to include geophysical problem definition. The SSP recommends that at least one marine seismologist be added to the OCP.

2. The SSP agrees in principal with the recommendations of the Planning Committee made at their October 1976 meeting. One change and one addition are suggested. The Planning Committee recommendation would then read as follows:

It is suggested that the SSP be reorganized along the following lines.

- a. The Panel membership should represent all data holders (member institutions of JOIDES plus selected other holders of extensive data bases).
- b. The total Panel is to meet less frequently¹ to establish priorities, identify need of site surveys, and to appoint members to subject panels.
- c. Small working groups (2 to 5 members) 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.
- d. 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.

- e. Each subgroup shall report annually to the total SSP.
- f. Reports are to be made to the Planning Committee, 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.
- g. ²If 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.

¹ is the change; ² is the addition.

3. The SSP proposes that it be renamed the Ocean Geophysics and Site Survey Panel and that it be reconstituted to combine its function with those of the Downhole Measurements Panel. The aim of the recommendations is to better integrate geophysical objectives and techniques into the IPOD drilling program.

Lastly, the SSP recommends the inclusion of downhole magnetic measurements as part of the downhole logging program. The Panel further recommends that DSDP carry out evaluation of existing tools and their compatibility with the present drilling operation.

REPORT FROM THE AD HOC GROUP OF THE JOIDES SITE SURVEY PANEL (September 1976)

The important items discussed at this meeting are incorporated into the Report from the Site Survey Panel and Site Survey Management. However, one additional item is included on the next page which in tabular form summarizes the site survey requirements and priorities for 1977-1978.

REPORT FROM SITE SURVEY MANAGEMENT (SSM)

Data Bank

The following data were logged into the Data Bank during August 1976:

- Atlantic: 2 & 2A: Residual magnetic intensity - from NAVOCEANO
Northern Keathley sequence, magnetic anomalies-from USGS
Continuous seismic reflection, magnetics, bathymetry
Part I - from WHOI
(Microfilm) Descriptive report, navigational abstract,
bathymetry plots, fathograms, PDR, magnetometer ana-
logs, magnetometer printout - from NGDC
- 3 & 3A: Navigation, free air gravity anomaly, magnetic anomaly,
bathymetry-from WHOI
- 12 & 13: Navigation points, depth, magnetic listings-from U.MIAMI
Seismic reflection-WHOI
Magnetic, bathymetric, seismic profiles-from NORDA
- 15: Multichannel seismic reflection - from U.TEXAS MSI
- Pacific: 14: Seismic reflection - from HIG
- JA-1: Profiler, coring, magnetics, profiler, multichannel -
from Geol. Survey of Japan (HONZA)
- 16: Topography, acoustic basement, magnetic anomalies, sono-
buoy, navigation track - USSR (RV MENDELEEV)

IPOD OBS

A complete OBS data set from the May leg aboard RV COLUMBUS ISELIN has been completed and forwarded to the Bedford Institute.

SITE SURVEY REQUIREMENTS & PRIORITIES FOR 1977-78

AREA	PRIORITY	UNDERWAY	MULTI- CHANNEL	SEISMIC REFRACTION SURFBUOY	OBS	COMMENTS	DRILL SCHEDULE
JUAN DE FUCA RIDGE	B	3	1 (CROSS LINES)	1	2	DETAILED HEATFLOW & DEEP TOP RECOMMENDED ASSEMBLY ROLLO OF DATA FOR SSP PACV-2M	
GALAPAGOS	B	-	-	-	-	REFRACTION AT SPECIFIC SITES OBTAINING SPEC. S.S. FROM REC. SUR. REFRACTION AT SPECIFIC SITES	Dec. 77-Jan. 78
S. PHIL. SEA T' SECT. EAST	A	1 (detailed)	1 (CROSS LINES)	-	1	DETAILED RT. INVESTIG. POSSIB. OF ALT. SITE CENTR. PAC. BASIN	Feb. 78
S. PHIL. SEA T' SECT. WEST	A	1 "	1 (CROSS LINES)	-	1	FAIR WEATHER SITE	Mar. 78
MAURO BASIN	A	1 "	2	1	1	IF SURV. ACCELERATION COULD DRILL ON FIRST PAC. LEG	Nov.-Dec. 78
ONTUNG-JAVA	B	-	-	-	-	ALT. FOR N.A. TR. GOALS	
MIDAMERICA TRENCH	A	1	1	1	1	SSP TO DISCUSS PRIORITY BASED ON REV. OF EXISTING DATA	
PERU-CHILE TRENCH	B	2 (detailed)	1 (CROSS LINES)	-	2	INTERESTED SCIENTIST(S) SHOULD BECOME PROPOSAL(S)	
VENEZUELA BASIN	B	2	2	1	3	AGENCY SITE, COMPLEMENTS MOROC. BASIN SITES	
CARIBBEAN TRANSECT	C	2	2	1	3	ACCELER. KILLING IF POLITICAL PERMISSION CAN BE ARR. WITH MEX.	Sep.-Oct. 78
BLAKE-BANANA BASIN	B	1 (selected)	1	-	-		
GULF OF CALIFORNIA (PAC 1 & 2)	A	3	1*	-	-		
GULF OF CALIF. (GUANMAS)	D	-	-	-	-		

SITE PRIORITIES:

- A. High priority - scheduled
- B. High priority - not scheduled
- C. Interesting area
- D. Deferred

TASK PRIORITIES:

- 1. Highest - must fund
- 2. Good - attempt to fund
- 3. Low
- Deferred

Initial OBS playbacks from the July cruise aboard RV CONRAD have been made for evaluation. Final playback of those data should be completed in September. Plans are also proceeding for an International OBS Workshop to follow the Fall meeting of the AGU. A letter (Appendix IV) from LeRoy Dorman was mailed in late August to a list of potential participants. Limited travel support will be provided by SSM L-DGO.

REPORT FROM SITE SURVEY MANAGEMENT (October 1976)

Site Survey Program

- 1976: Pacific Site 6 - HIG: Dr. Donald Hussong completed his survey of this area aboard RV KANA KEOKI on 28 October. No details are available at this time.
 Pacific Site 14 - L-DGO: Personnel have left L-DGO to commence a multi-channel seismic site survey of the Philippine Transect aboard RV CONRAD.
 1977: The final program plan is in preparation at L-DGO and should reach DSDP during November.

Data Bank

The following data were logged in during the month of October:

- WHOI - USNS LYNCH survey of sites Atl. 2.2 and 2.3 (soundings in corrected meters, film positives of recordings in the vicinity of MD, line printer listing of all soundings, final navigation, magnetics, 35mm neg. of reflection profiler records, seismic profiling with 30 kj sparker 5-sec sweep master recording, navigation, and data on magnetic tape).
- HIG - RV KANA KEOKI survey of site Pac 14 (sonobuoy and OBS locations, preliminary velocity-depth model, final navigation plot, final bathymetry in corrected meters, preliminary sediment isopach; supplied by Hussong for use by Hayes on CONRAD 20-06).
- Gulf (GEMCO) - Juan de Fuca Ridge, Pac 3 (single channel seismic profile C-3, multichannel C-3, shot point location maps, processed profile VB-5 with gravity and magnetics, velocity for line VB-5).
- NOAA - eastern margin U.S. (CDP lines 1 to 3 on blackline display time sections (ozalid), semblance plots - velocity analysis, navigation charts).

IPOD OBS

Work aboard KANA KEOKI (HIG) at Pacific site 6 has been completed with three successful deployments and recoveries. One unit, which had surfaced on schedule was lost after collision with the ship. Preliminary reports indicate good data on all of the three recovered units. Preliminary copies of data taken aboard RV CONRAD at Pacific site 4 have been prepared for Ludwig. Final playbacks are being delayed by problems in the high frequency chart recorder. This work will be completed as soon as repairs are made.

REPORT FROM THE STRATIGRAPHIC CORRELATIONS PANEL (SCP) (2-3 July 1976)

Working Groups

It was the Panel's decision that for the present no subdivision of the SCP is necessary. However, as the SCP gains experience, natural divisions of interest may require particular attention to form such special working groups.

Sample Distribution Difficulties

Difficulties in sample distribution were discussed. The delays from the core labs were questioned. Assurances of diminishing backlogs were given. All requests from both core repositories were in the process of completion at the time of this meeting. Enough personnel exist to meet the demands of individuals for samples.

Stratigraphic Reference Centers

Please refer to the report of the SCP ad-hoc committee on page 61 of this issue.

Recommendations for Action from the SCP

A system of shoreboard extensions of shipboard activities be established for the analysis of paleontologically and stratigraphically significant materials from those cruise legs whose primary purpose is to sample crustal materials and on which there is insufficient space available for biostratigraphers/paleoenvironmentalists is recommended. (If the "shore board" procedure is implemented, it will require that samples be made available to "shore board" study groups very soon after completion of a leg.).

To assure quality control the SCP recommends that every manuscript submitted for publication in the Initial Reports be accompanied by evidence of at least two reviews whose authors are acknowledged in the report. The scientific editor or chief scientist may at their discretion request additional reviews upon notification of the author. The decision about final acceptance of the manuscript rests with the editor.

The SCP recommends to the editor that datum or zone successions used in a manuscript be related to a time-stratigraphic framework by referral to an included chart, cited publication, or by definition of usage.

The first priority for drilling the Moroccan Basin site be given to obtaining the lower portion of this section, which is expected to include the Lower Cretaceous and Jurassic interval. Second, the SCP urges that a strong effort be made to continuously core the upper part of the Cretaceous and as much of the Cenozoic as is present in order to recover the hemipelagic facies representing the transition from oceanic into marginal and shallower facies stratigraphic zonations. These have primary value because of classical stratigraphical relationships eastward into the Tethys region.

The selection of the stratigraphic paleontologist to accompany those legs designed to sample crustal rocks should be a generalist capable of coordinating the work of the "shore board" party under the direction of this panel.

Because of frequent late changes in scheduling by JOIDES there have been serious staffing problems for paleontologists. The SCP strongly urges more dependable long-term planning (see Report from the Planning Committee, page 10 of this issue).

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

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

SCP Objectives by Leg

<u>Leg</u>	<u>Locality</u>	<u>Site</u>	<u>Purpose</u>	<u>Recommendations</u>
52	W.N. Atlantic	2(2,3) 3&4	E. Cretaceous L. Cret.-E. Tert. euxinic facies	a. Turonian to Coniacian b. Cret.-Tert. boundary c. Mid & Upper Miocene
53	E. Pacific Rise	PAC4	Thin Neogene section	None
54	N.E. Pacific	PAC5&6 (as far N. as Murray FZ possibly	Maastrichtian Recent	a. To move as far north as possible, near the experimental MOHOLE to core intervals of inter latitudinal faunal gradations.
55	Emperor Seamounts	PAC7 (site survey incomplt)	To drill seamount seaward side of Japan Trench	a. Continuous coring through carbonate sequence b. Mid and Upper Miocene near Trench
56	Kuril Basin Sea of Japan	---	To penetrate the Paleozoic (Permian)	a. Neogene high-latitude section b. Continuous coring of super- jacent basement beds.
57	Shikoka Basin	---	Principally a Tert. Section	Specific site information requested by SCP before setting priorities.
58	Marianas Basin	---	Same as above	Same as above

The SCP is very interested in the program for drilling the Western Pacific but cannot give priorities for specific section requirements until plans are more definite. It is requested that site survey data pertaining to probable stratigraphic sequence to be encountered be sent to SCP chairman as soon as available.

Recommendations to the Planning Committee

Recommendations to the Planning Committee of SCP interests in biostratigraphy and paleomagnetic stratigraphy for the 2-year IPOD I extension are as follows:

1. The development of that part of the passive margin drilling program (see PMP minutes 76/81, p. 13-15) 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.

2. This program will require continuous coring in the thicker sedimentary prisms of the rise in order to provide the longest continuously cored sections possible.

3. A minimum of three (3) transects will be required:

- a. in the southern paleolatitudes
- b. in the tropical paleolatitudes
- c. 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 and increasing need by commercial interests for control in older parts of the section.

4. 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 of Premoli-Silva, 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. Three major events have been suggested, one Cretaceous, the 38 m.y. event and the Messinian event.

5. Paleomagnetic considerations for the two-year extension; drilling long, continuous sections in areas characterized by old, relatively rapidly accumulated, fossiliferous sediments will provide an opportunity to:

- a. compile a complementary sediment-based magnetochronology, extending into the Mesozoic
- b. 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
- c. 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
- d. achieve additional insight into the inter-relationship between paleo-climate, paleo-oceanographic field polarity and intensity and faunal events.

After recognition that SCP is one of the youngest panels, its members expressed concern for means by which it could be more effective in carrying out its mandate.

1. First a system of Liaison officers (one per leg) was appointed for each of the forthcoming legs to watch over the interests of SCP. They are:

Leg 52 - Riedel	Leg 53 - Berggren	Leg 54 - Douglas
Leg 55 - Bukry	Leg 56 - Saito	Leg 57 - Berggren
Leg 58 - Sohl		

The Liaison officer shall:

- a. act as consultant to the Chief Scientist regarding staffing of shore board and shipboard stratigraphers
- b. inform the Chief Scientist of SCP needs and priorities (special objectives in coring)
- c. keep SCP informed of Leg progress from the early stage site survey to publication of the Initial Report, and
- d. to work with the OSDP staff representative on product quality on the contributions to the Initial Reports (i.e., improving plate and chart quality and uniformity).

Two suggestions for sharpening SCP's direction and purpose had been proposed and circulated by panel members.

1. Discussion of Hughes/Riedel memo on Confidence Limits of Paleontologic and Stratigraphic Data resulted in the formation of a working group: Hughes, Riedel and Saunders, to decide upon a test interval and for the locality investigation of stratigraphic procedures and differing levels of resolution originating from different methods of data description. The working group is to report on their findings at the next panel meeting.

2. A report will be made from the two working groups to update existing shipboard correlation charts and to investigate the integration of zonations

based on separate microfossil groups with particular attention paid to some of the more neglected groups.

Symposia

Two symposia possibilities for syntheses of DSDP results have been investigated. The first symposia will be presented at the meetings of the North American Paleontological Convention in August at Lawrence, Kansas. The second is proposed for the annual meeting of the Geological Society of America in Seattle in November. Papers to be presented will emphasize biostratigraphic principles and procedures that were derived from the study of deep-sea materials. The purpose of these symposia arises from the need to demonstrate how the materials from DSDP and IPOD have influenced basic ideas of correlation and classificatory schema derived from more complete sections and data than had been available from more discontinuous land sections.

T. Saito was designated to organize the symposia, a working group was established, and preliminary arrangements made with meeting organizers.

Other Business

P. Cepek presented the panel with lists of monographs and reprints available in the shipboard library with a request that the panel members suggest pertinent papers not represented in the file.

In agreement with the OPP, the SCP recommends that a system of shore board extensions of shipboard activities be established for the analysis of paleontologically and stratigraphically significant materials from those cruise legs whose primary purpose is to sample crustal materials and on which there is insufficient space available for biostratigraphers/paleoenvironmentalists.

REPORT FROM THE AD HOC GROUP (SCP) TO DISCUSS DSDP PALEONTOLOGICAL REFERENCE CENTERS (4 October 1976)

The principal aim of the reference centers was agreed upon to be:

There is a very real need to have properly documented reference collections available for published (DSDP microfossil) faunas and floras in the way that one tries to do for type localities erected at surface locations.
(It is desirable to) designate certain centers where collections would be available for study.

After the reference centers are well established and have had a chance to become widely known, it will be useful to determine the degree of user interest. However, the extent of utilization of the collections during the early period of their existence should not be allowed to become a main determinant of their continuation. Their existence is justified principally on the basis that they are secure repositories of material that provides a fundamentally important standard of reference in microfossil and biostratigraphic research. The collections will continue to be available long after the bulk of DSDP core material has been used up by researchers. Therefore samples for the reference centers should be taken before it is too late, and we solicit the Planning Committee's concurrence in the view that, in cases of possible future conflict, sample requirements for these reference collections should take precedence over sampling for micropaleontological research studies in the category of "subsequent investigations" (i.e., investigations subsequent to those required for the Initial Report volumes). However,

non-destructive measurements shall take precedence over destructive sampling techniques (see Report from the Executive Committee on page 4 of this issue).

In order to determine the sediment volume required for the five copies of the several different kinds of microfossil preparations, Riedel will take the first 20 samples from the Pacific part of the list of biostratigraphically important levels prepared by Saunders. Saunders will then treat the foraminiferal portions of these samples, to test for adequacy of yield.

By the next meeting of the SCP (December 1976), the results of the above test will be known. This ad hoc group will commence taking the 400-500 samples from Legs 1-6 cores for the reference collections. This will provide an opportunity to evaluate the effects of "honeycombing" of the cores by previous samplers, on the adequacy of the material for reference collection purposes. It will also help determine to what extent later sampling for the reference collections can be left to technicians. Treatment of those samples, which will probably take about 6-9 months, will reveal any difficulties involved in the handling of large numbers of samples, splitting them, etc.

After the phase described in the previous paragraph, our experience will be sufficient to permit us to proceed efficiently with the next and final phase - that of handling the remainder of the cores (an estimated 4,000-5,000 samples). During the final phase, it is planned to handle some recent legs concurrently with some older legs and intervals in jeopardy because of extensive sampling, with the objective of making available a selection of material of more current interest. In order that recent legs can be handled, it is requested that DSDP routinely provide the reference centers with Initial Core Descriptions.

Taking into account the proportions of samples to be treated for each fossil group, the breadth of interest in each group, and the relative amount of complexity in preparing the different kinds of microfossils, we propose that initially one center will prepare the foraminiferal samples (Basel), one will prepare calcareous nannofossil slides and sediment smear slides (Smithsonian), and the third center to be designated (perhaps 9-12 months from now) will prepare the radiolarians and diatoms. In general, the fossils in the collections will be kept as strewn slides. When the fourth and fifth centers are identified, the workload will be readjusted. Rare, larger fossils encountered during our routine preparations will be returned to the DSDP curator.

We will explore with the DSDP Information Handling group the possibility of their providing the reference centers with listings of their samples arranged according to age, geographic region, etc.

Initially, at least, the reference centers will absorb the costs of supplies used in this work (foraminiferal slides, for example, may cost as much as \$1,000 or \$2,000 a year). However, it might be convenient for DSDP to provide their usual printed slide labels.

All aspects of the process of setting up the reference collections will be kept under constant review by the DSDP curator, in consultation with the person actively responsible in each participating center. We would expect to be able to provide the Planning Committee with a critical progress report in about six months.

SITE REPORTS (Figure 6)

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

Leg 49

Drilled sites 407 (49-11), 408 (49-11A) and 409 (49-9) were reported in JOIDES JOURNAL, September 1976/6.

Co-chief Scientists J. Cann and B. Luyendyk report:

Site 410 (49-10) Lat. $45^{\circ}30.51'N$; Long. $29^{\circ}28.56'W$; Water Depth: 2984m

Site 410 was located on anomaly 5 (10 my) and was cored continuously through 340m of sediment ending in basalt at 387.5m subbottom. The hole was abandoned because the core barrel became jammed. Total recovery was 232.15m (60%); basalt recovered totalled 11.40m (24%). The oldest sediment is an indurated foram limestone, believed to be Upper Miocene, occurring in basalt-limestone breccia. The breccia grades downward into a basalt lava.

The youngest unit was 38m of Pleistocene marly ooze overlying 207m of Pleistocene and Upper Miocene nanno ooze. The final 95m of sediment consisted of an Upper Miocene nanno chalk.

Hole 410A offset 110m 20 degrees from previous hole in 2987m of water. The hole was washed down through sediment to basalt at 330m subbottom. The hole was then cored to 382m with 47% recovery of which 18.55m was basalt (36% recovery). Basalt is homogenous aphyric pillow lava. Hole was abandoned when drill string jammed again.

Site 411 (49-12B) Lat. $36^{\circ}45.97'N$; Long. $33^{\circ}23.30'W$; Water Depth 1935m

Site 411 is located on the west terrace in the rift valley of the Mid-Atlantic Ridge crest. Site is in a 0.5mi wide basin mapped by multibeam sonar and deep tow.

The site is located on the old side of Jaramillo and is youngest site drilled by DSDP at 1 my. The Basin was searched for a spud-in site by probing with drill string on a 500 ft grid using beacon offsets. Eleventh probe found 74m of sediment and spud-in was completed.

Hole 411 was washed 74m to basalt, then cored continuously for 45.5m to 119.5m subbottom. Total recovery was only 4m (8.7%); the section is fresh. A dense, aphyric and plagioclase and olivine phyric basalt with alternating flows and rubble zones was recovered. Partial caving of the hole necessitated abandonment.

Hole 411A was offset 50 ft and 3 cores were cut between mudline and 37m. A Pleistocene foram sand was encountered with very unstable hole conditions. Site was abandoned.

Site 412 Lat. $36^{\circ}33.74'N$; Long. $33^{\circ}09.96'W$; Water Depth: 2619m. (49-12a)

Site 412 was located about a mile south of the north wall of fracture zone B in the FAMOUS area.

Site 412 drilled two holes. The first had 171.5m penetration, with 11.5m into basalt when the experimental bit failed. Hole 412A had 294m penetration with 131m into basalt; 23.1m of basalt was recovered. The sediments are 163m of white

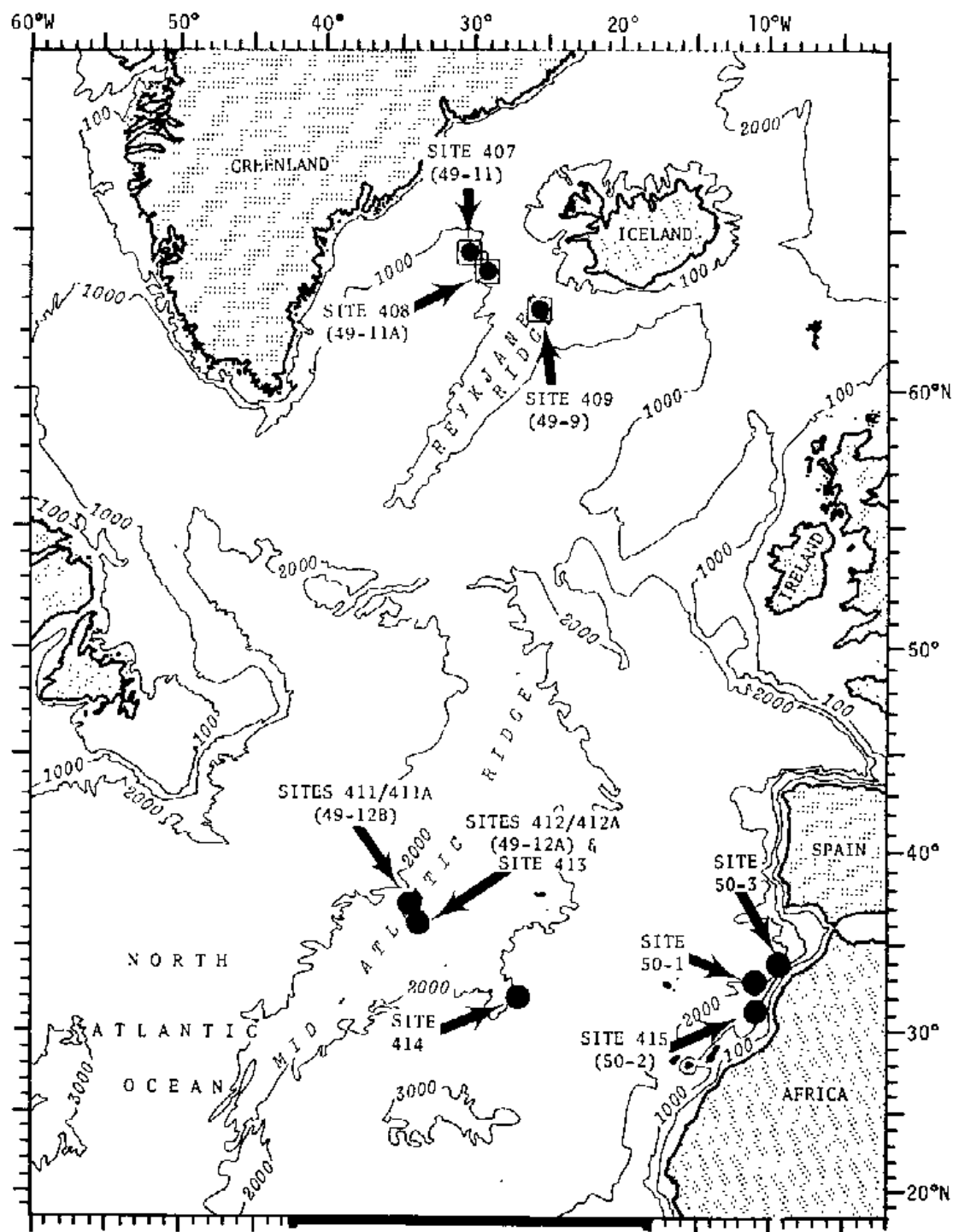


Figure 6. Drilled sites for Legs 49 and 50 (■ previously reported sites; ● new sites).

to yellow nannofossil ooze and chalk of Pleistocene age. The lowest few meters are oxidized. The age is the same as the magnetic anomaly to the north.

Basement is phyric basalt flows intercalated with limestone showing dips up to 30° on bedding planes. Basalt is either vesicular or coarse grained, indicating thick flows. Upper basalts are olivine, plagioclase and clinopyroxene phyric. Lower basalts are olivine and plagioclase phyric. Slickenside sets recovered from intercalated limestone show normal, reverse and strike slip movement.

Site 413 Lat. 36°32.6'N; Long. 33°10.5'W; Water Depth: 2608m.

Site 413 was drilled on the south side of Fracture Zone B in the FAMOUS area, 1.3 mi south of Site 412.

Because reflection profiling showed similar sedimentary section to Site 412, the hole was washed to basement at 110m subbottom, with 3.0m recovery. Recovered rock is olivine-rich basalt with abundant olivine micro phenocrysts and fresh olivine in variolites. Basalt is as cobbles, rarely oriented, often surrounded by a weathered rim. It may form part of a talus pile beneath a fault scarp to the south.

First basement core contained basaltic-foraminiferal sand of Pleistocene age; perhaps in situ, or perhaps drill cuttings. Deteriorating weather forced departure.

Leg 50

The GLOMAR CHALLENGER departed Funchal, Madeira Island on 10 September 1976 to drill in the Moroccan Basin. A 12-14 day extension was granted for drilling in the area in order that the major scientific objectives could be attempted (see JOIDES JOURNAL, September, 1976/6). During Leg 50 two sites (415 and 416) were drilled penetrating 1079.5m and 1624m subbottom, respectively. The GLOMAR CHALLENGER was expected to arrive in San Juan, Puerto Rico on 23 November 1976.

Co-chief Scientists Y. Lancelot and E. Winterer report:

Site 415 (50-2) Lat. 31°01.47'N; Long. 11°40.03'W; Water Depth: 2817m.

Site 415, a pilot hole, was drilled to guide casing placement. Five cores were taken between seafloor at 2817m and total subbottom depth of 283m. Core 1, 0-7.5m, consists of Quaternary marl. Core 2, 74-83.5m consists of marl with the Pliocene/Miocene boundary probably within the core. Core 3, 137.5-147m contains alternating Middle Miocene marl and nanno ooze. Core 4, 207-216.5m contains alternating Early Miocene marl and nanno ooze changing below to nanno chalk. Core 5, 273.5-283m contains Early Miocene nanno chalk and siliceous debris-bearing marl.

Schlumberger Sonic and Density logs show excellent correlation with laboratory measurements on core samples. Comparison of Neogene section with that at Site 370, about 220 km north northeast, shows very similar stratigraphy except for a higher carbonate content at Site 415 as expected from shallower depth.

Site 415 (50-2) Lat. 31°01.07'N; Long. 11°39.01'W; Water Depth: 2807m.

The combined coring and Schlumberger log data from three holes at Site 415 (one pilot hole, one principal hole, and an accidental hole resulting from a missed re-entry) yields the following sections: 0-32 m, Pleistocene foram nanno marl; 32-74m Pliocene foram and nanno marl; 74-306m Miocene nanno marl and nanno chalk,

increasing in biogenous debris in the Early Miocene; 306 to about 400m; Early Eocene mudstone and conglomerate; from about 400-491m Paleocene mudstone, marlstone and nanno chalk; 491-576m Middle Cretaceous mudstone; 576-710m Early Cenomanian marlstone and limestone, with one sample of latest Cenomanian at 650m; 710-883m Late Cenomanian calcareous shale and marlstone; 883 to about 956m Cenomanian calcareous shale; 956-1079.5m Late Albian calcareous claystone, mudstone and shale, with a redeposited shallow-water calcarenite layer at the base.

The Middle Cretaceous rocks are in a scrambled stratigraphic order and show evidence of slumping or sliding. They record mainly calm, moderately deep water environments, below or close to the CCD located on the continental rise and onto which shelf and upper slope materials were injected by down slope currents from time to time. The sediments also were subjected to mass movements that produced a six-hundred meter thick sequence of slump and slide sheets. Mild folding, perhaps above one or more decollement surfaces deformed these beds and those beneath prior to Early Paleocene times. The major hiatus between the Cenomanian and Paleocene is identified at the red or D-1 reflector. The orange reflector probably was never reached at the total depth of 1079.5m.

The Early Eocene strata which fill in and smooth the older fold topography include quartz-bearing muds and coarse gravel, as well as greatly dissolved marlstone and limestone at the base. Above the probable hiatus between the Middle Eocene and Lower Miocene strata, the sediments record increasing pelagic environments well above the CCD, and a markedly increased fertility of the surface waters. The presence of persistent detrital quartz and glauconite and redeposited shallow-water coquina beds record the continuing advection of debris from shallow water environments, at least partly by turbidity currents. The brown reflector, at approximately 200m depth, is associated with coarse shell, sand layers. The dramatic shift in the position of the CCD relative to the site across the Eocene-Miocene hiatus in turn signals a regional shallowing of the sea floor related to an uplift in the Canary Islands.

Site 416A (50-1) Lat. 32°50.18'N; Long. 10°48.06'W; Water Depth: 4203m.

Combining data from Sites 416A and 370 (Leg 41), the stratigraphic succession to a depth of 1586m is: 0-1m, Quaternary foraminiferal ooze; 1-300m Late Pliocene to Early Miocene nannofossil marl, and a turbidite sequence of sand, diatom-rich nannofossil marlstone and mudstone; 300-450m Oligocene and Late Eocene turbidite sequence of sand, diatom-rich nannofossil marlstone and mudstone. A hiatus encompassing much of the Upper Eocene and Lower Oligocene is suspected, but spot coring prevents proof; 450-645m, Middle Eocene to Late Paleocene calcareous mudstone, with a few sandstone and conglomerate layers, porcellanite nodules; 645-660m, Paleocene nannofossil marlstone and nannofossil-bearing claystone and claystone, with turbidite sandstones in lower part; 882-1475m, Hauterivian and Valanginian distal turbidite cycles of quartzose sandstone, siltstone, marlstone and mudstone, with redeposited shallow water benthic foraminifers and terrestrial plant debris, including clear grains of amber; 1475-1586m, Berriasian and Tithonian distal turbidite cycles of quartzose sandstone, siltstone and calcareous mudstone, including beds of calpionellid limestone.

Accumulation rates were about 20m per my in the Berriasian, increasing gradually to 130m per my in the Late Valanginian and Hauterivian, decreasing to 10m per/my in the Barremian to Cenomanian. The Jurassic/Cretaceous boundary is at 1570m.

Site 416A (50-1) Lat. 32°50.18'N; Long. 10°48.06'W; Water Depth: 4203m.

Results from Site 416 and 370 are combined for reconstruction of the upper 1624m section of Moroccan Basin as follows:

0-100m: Pleistocene to Late Miocene predominantly pelagic nanno ooze and marl deposited at a rate of 12m/my.

100-457m: Mid-Miocene to Mid-Eocene sparsely sampled turbidites and hemipelagic facies deposited at a rate of 12 to 50 m/my. Alternation of diatom-rich nanno marl and graded beds of calcareous/siliceous sandstone, siltstone and marlstone. Base of unit correlates with reflector at 0.485 sec that is well identified on downhole logs.

457-642m: Mid to Early Eocene turbidites of mudstone, siltstone, sandstone and occasional gravel with minor procellanite deposited at rate of about 20m/my. Base of unit correlates with red or D-1 reflector at 0.66 sec that is also well identified on logs.

642-661m: Paleocene nanno bearing claystone to marlstone deposited at rate of one meter per my. Base of unit correlates with major hiatus at Cretaceous/Tertiary boundary from Albian to Paleocene which is also identified on logs.

661-880m: Albian to Barremian shale and mudstone predominantly hemipelagic with rare turbidite sequences. Rate of accumulation about 10 m/my. Base of unit might correspond with reflector at 0.87 sec where major change in sediment nature and organic geochemistry character is observed.

880-1430m: Hauterivian to Lower Valanginian monotonous series of turbidites deposited at rate of 125m/my. During Hauterivian decreasing to 40m/my in Late Valangian. Sediment predominantly terrigenous sandstone, siltstone and mudstone with occasional redeposited calcareous bioclastic shelf and slope derived elements. Major terrigenous phase corresponds with Early Cretaceous orogeny in western high atlas.

1430-1624m (total depth): Lower Valanginian to Tithonian distal terrigenous turbidites intercalated with redeposited calcarenites and micrites with abundant calpionellids, deposited at rate of 20 m/my. Total depth probably in vicinity of blue reflector at 1.43 sec.

SCIENTIFIC OBJECTIVES: LEGS 51 and 52

Complete summaries of the scientific objectives are given in the Scientific Prospectus Reports prepared by DSDP.

Legs 51 and 52 complete the 1976/1977 phase of IPOD drilling with a study of older western Atlantic Ocean crust. The combined objectives for the two legs call for a deep, multiple re-entry hole at Site AT 2.3 and several nearby single-bit holes, one at Site AT 2.1 (the original Site 2A) and time permitting at Sites 3, 2, and 4 (Figure 1). The multiple re-entry site has been shifted five degrees south from its original location because of potential adverse weather conditions.

The primary operational objective for Leg 51 is multiple re-entry drilling at Site AT 2.3. Site AT 2.3 is located near 25°N, 68°W in about 5500m water depth. The location is at the southern end of the Bermuda Rise, a 2000km long topographic feature dominating the central western Atlantic Ocean. Because the origin of the Rise is unknown, there is a possibility that it is not underlain by typical oceanic crust. Therefore, a drill site near the end of the Rise will minimize any influence to the crust from the causative agent for this feature. If the drilling is technically successful, Leg 52 is mandated to continue drilling in the same hole. A program of logging will be accomplished during Leg 51.

The primary scientific objective of Leg 51 will be the examination of a maximum section of older oceanic crust. The site is located on anomaly M-0 which has an inferred, approximate age of 109my. A major objective will be a comparison of the character of older crust and its younger equivalents, which have been sampled during Legs 34, 37, 45, 46, and 49. The principal comparative parameters of interest will be the mineralogy, petrography, character of magnetic mineralogy, density, sound velocity, porosity, and composition, especially the content of H_2O and CO_2 . Additionally, the chemical composition, including minor elements, will be examined to compare it with younger crust. Special attention will be paid to vein mineralogy and other evidences of alteration to elucidate the nature of the aging process of oceanic crust - whether through progressive low-grade metamorphism or through more episodic alteration episodes. The expected deep penetration will add the important dimension of geological time to this study.

The site has been located so as to examine oceanic crust formed during a period when the Atlantic Ocean was euxinic. An objective will be to find out what consequence - if any - results from the eruption of basaltic magmas into stagnant, organic muds. Possibly highly reduced alteration mineral suites developed. The CCD is expected to have been relatively deep in the middle Cretaceous.

The investigation of physical properties will emphasize those which might be expected to vary with time, such as density, sound velocity, porosity, and magnetic character. We anticipate recovering samples of seismic layer 2B at shallow depths. The expected 18 degrees north paleolatitude is low for optimal paleo-inclinations; but every effort will be made to establish polarity units, as has been done during previous legs.

A secondary objective of the leg will be to investigate the thick Cretaceous-Tertiary sediment section above the crust. Site AT 2.3 is located about 600mi south of DSDP Site 105, 450 mi south of Site 387, 450 mi SSW of Site 386, and 300mi east of Site 101. These sites found dominantly sub-lysocline clay-rich sections in the Tertiary and Late Cretaceous, grading downward to more carbonate-rich middle and lower Cretaceous strata. Features of special interest at these earlier sites include sedimentary hiatuses in the Paleogene and late Cretaceous, mineralogically interesting Paleogene and upper Cretaceous clays with abundant zeolites and local metalliferous mineralization, and a variably organic "euxinic" middle Cretaceous section. The thickness of sediment to be cored is not completely predictable, both because of rugged basement topography and because of failure of the site survey records to reveal an incontrovertible basement reflection. However, at least 500m and more likely 700m, can be expected on the basis of the available survey records and the thicknesses found at the other sites.

Paleontologically, we anticipate dominantly nannofossils throughout, with foraminifera becoming prominent toward the basal part of the section. Poor preservation of Paleogene and upper Cretaceous radiolaria is expected.

Site AT 2.3 is located 420 nautical miles north-northeast of Puerto Rico, requiring about 41 hours of cruise time to reach the site. Present plans call for the drilling of one or more pilot holes, and then setting a re-entry cone and casing for a deep multiple re-entry hole nearby (using the same beacon). The entire sedimentary section will be cored. A program of logging (sound velocity, density, porosity, electrical conductivity, and temperature) will be undertaken, with the first log likely at the continuously cored pilot hole. We plan to take precise temperature measurements of the water in the bottom of the hole following each basement re-entry, in the hope of obtaining an approximate thermal gradient for the crust, such as was done during Leg 37.

SHIPBOARD SCIENTIFIC STAFFING: LEGS 51 and 52

Leg 51.

T. Donnelly	Co-chief Scientists	USA	SUNY, Binghamton
J. Francheteau		France	Centre Oceanologique de Bretagne
M. Salisbury	Physical Properties & Staff Representative	USA	Scripps Inst. Oceanog.
K. Kelts	Sedimentologist	Switzerland	Geol. Inst. Zurich
S. Swift	Sedimentologist	USA	Oregon State University
P. Borella	Sedimentologist	USA	University of Washington
V. Bleil	Paleomagnetist	FGR	Inst. fur Geophysik
B. Smith	Paleomagnetist	France	Lab. de Geomagnetism
T. Juteau	Igneous Petrologist	France	Univ. Louis Pasteur
V. Rusinov	Igneous Petrologist	USSR	Inst. Geology, Moscow
J. Sinton	Igneous Petrologist	USA	Smithsonian Institution
T. Vi	Igneous Petrologist	Japan	Kobe University
W. Orr	Paleontologist(Forams)	USA	University of Oregon
S. Gartner	Paleontologist(Nannos)	USA	Texas A&M University

Leg 52.

W. B. Bryan	Co-chief Scientists	USA	Woods Hole Ocean. Inst.
P. T. Robinson		USA	U. of Calif., Riverside
S. White	Sedimentologist and Staff Representative	USA	Scripps Inst. Oceanog.
G. Byerly	Igneous Petrologist	USA	Smithsonian Institution
D. Swanson	Igneous Petrologist	USA	U. S. Geological Survey
N. Pertsev	Igneous Petrologist	USSR	Menlo Park, California
R. Emmermann	Igneous Petrologist	FGR	Inst. Geology, Moscow
L. Ricou	Igneous Petrologist	France	Inst. Petrog. & Geochem. der Univ. Karlsruhe
S. Levi	Paleomagnetist	USA	Lab. Geol. Historique Orsay
G. Miles	Paleontologist(Forams)	USA	University of Minnesota
W. Siesser	Paleontologist(Nannos)	So. Africa	University of Oregon
Y. Homano	Physical Properties	Japan	University of Cape Town
R. Stephen	Geophysicist	U.K.	University of Tokyo
			University of Cambridge

JOIDES/BSDP PUBLICATIONS

Drilling Along the Mid-Atlantic Ridge - Leg 45 Scientists: Geotimes, April 1976, Vol. 21, No. 4, p. 20-23.

Drilling into the Ocean Crust - Leg 46 Scientists: Geotimes, September 1976, Vol. 21, No. 9, p. 21-23.

Drilling into Passive Continental Margins - Leg 47 Scientists: Geotimes, October 1976, Vol. 21, No. 10, p. 21-24.

Initial Core Descriptions for Leg 46

Initial Reports of the Deep Sea Drilling Project, Vol. XXXV, XXXVIII.

FUTURE PUBLICATIONS

The Ocean Crust Panel intends to publish a modified version of their synopsis outlining the drilling objectives of this Panel. This will appear in EOS.

Initial Reports of the Deep Sea Drilling Project, Volumes XXXVI and XXXVII are expected to be distributed shortly after the beginning of 1977.

The Initial Core Descriptions for Legs 44 and 45 are expected to be distributed in the very near future.

9th DSDP TECHNICAL REPORT IS PUBLISHED BY NTIS

Nine informative technical reports covering all engineering achievements of the world renowned Deep Sea Drilling Project are now available through National Technical Information Services, a branch of the U.S. Department of Commerce.

Technical Report No. 9 is the latest and it deals with soils studies at great depths in the Atlantic Ocean. It is titled, "Soils Study Continental Margin Sites and Bearing Capacity Study of Seafloor Soils, Middle Atlantic Ridge".

The foundation studies were made to evaluate foundation capacities of deep ocean sediments for drilling oceanic margins while utilizing riser systems and to evaluate capacities of increasingly heavy re-entry and casing strings for drilling oceanic basins and margins.

This latest report may be purchased from National Technical Information Services, 5259 Port Royal Road, Springfield, Virginia 22151 for \$5.50 or \$2.25 microfiche. Order number is PB257027. A brief review of the eight previously published reports follows.

- No. 8: Operations Resumes, Legs 34 through 44A, \$11.75, microfiche \$2.25. Order number is PB253036.
- No. 7: Operations Resumes, Legs 26 through 33, \$5.00, microfiche \$1.45. Order number is 231954.
- No. 6: Core Bits, \$5.00, microfiche \$1.45; Order number is 232159.
- No. 5: Operational Resumes, Legs 19 through 25, \$5.45, microfiche \$0.95. Order number is PB212399.
- No. 4: Drill String, Drill Pipe, Bumper Subs, Drill Collars & Coring Equipment, \$6.00 microfiche \$0.95. Order PB212133.
- No. 3: Dynamic Positioning, \$6.75, microfiche \$0.95. Order PB211680.
- No. 2: Re-entry, \$9.00, microfiche \$0.95. Order PB211411.
- No. 1: Operations Resumes, Legs 1 through 18, \$6.75, microfiche \$0.95. Order number is PB211056.

DSDP technical reports are on sale only at National Technical Information Services.

NEWS ITEM

Bettye Cummins has left the Deep Sea Drilling Project and plans to move to northern California. Best wishes are extended to Bettye from her many JOIDES friends. Carol Taunton has assumed Bettye's responsibilities and we welcome her on board.

SAMPLE DISTRIBUTION POLICY - DSDP/IPOD (Revised 28 September 1976)

Distribution of Deep Sea Drilling samples for investigation will be undertaken in order to (1) provide supplementary data to support GLOMAR CHALLENGER scientists in achieving the scientific objectives of their particular cruise, and in addition to serve as a mechanism for contributions to the Initial Reports; (2) provide individual investigators with materials to conduct detailed studies beyond the scope of the Initial Reports; and (3) provide the reference centers where paleontologic materials are stored with samples for reference and comparison purposes.

The National Science Foundation has established a Sample Distribution Panel to advise on the distribution of core materials. 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. Funding for the proposed research must be secured separately by the investigator. It cannot be provided through the Deep Sea Drilling Project.

The Deep Sea Drilling Project's Curator is responsible for distributing the samples and controlling their quality, as well as preserving and conserving core material. He also is responsible for maintaining a record of all samples that have been distributed, shipboard and subsequent, indicating the recipient, and the nature of the proposed investigation. This information is made available to all investigators of DSDP materials as well as other interested researchers on request.

The distribution of samples is made directly from one of the two existing repositories, Lamont-Doherty Geological Observatory and Scripps Institution of Oceanography, by the Curator or his designated representative.

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

Any investigator who wishes to contribute a paper to a given 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 Scientist 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.

Any publication of results other than in the Initial Reports within twelve (12) months of the completion of the cruise must be approved and authored by the whole shipboard party and, where appropriate, shore-based 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.

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

A. 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, state time required to complete and submit results for publication, 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.

B. (1) 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 parts of the cores which appear to be in particularly high demand; requests for such parts 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.

(2) 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 NSF Sample Distribution Panel.

C. 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 (Item A). 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.

D. Investigators receiving samples are responsible for:

- (1) publishing significant results; however contributions shall not be submitted for publication prior to 12 months following the termination of the appropriate leg;
- (2) acknowledging, in publications, that samples were supplied through the assistance of the U.S. National Science Foundation and others as appropriate;
- (3) submitting five (5) copies (for distribution to the Curator's file, the DSDP Repositories, the GLOMAR CHALLENGER's Library, and the National Science Foundation) of all reprints of published results to the Curator, Deep Sea Drilling Project (A-012), Scripps Institution of Oceanography, University of California at San Diego, La Jolla, California 92093 USA;
- (4) returning, in good condition, the remainders of samples after termination of research, if requested by the Curator.

E. Cores are made available at repositories for investigators to examine and to specify exact samples in such instances as may be necessary for the scientific purposes of the sampling, subject to the limitations of B (1 and 2) and D, above, with specific permission of the Curator or his delegate.

F. Shipboard-produced smear slides of sediments and thin sections of indurated sediments, igneous and metamorphic rocks, will be returned to the appropriate repository at the end of each cruise or at the 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.

G. 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.

3. Other Records

Magnetics, seismic reflection, downhole logging, and bathymetric data collected by the GLOMAR CHALLENGER will also be 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.

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