JOIDES PCOM MEETING
20-24 January 1986
Scripps Institution of Oceanography
La Jolla, CA

AGENDA

Commencing 08:30

1. Welcome, Introduction, Adoption of Agenda

2. Minutes of the PCOM meeting, 8-10 October 1985 (Rhode Island)

3. Report of EXCOM meeting, 7-8 January 1986 (Hawaii)

4. NSF Report

5. JOI Inc. Report
    a. FY 87 Budget - status report

6. Science Operator Report
    a. Report of Leg 105 (M. Arthur)
    b. Report of Leg 106 (J. Honnorez and engineering)

7. Wireline Logging Services Operator Report

8. Annual Reports from Panel Chairmen
    a. LITHP
    b. SOHP
    c. TECP
    d. ARP
    e. SOP
    f. IOP
    g. WPAC
    h. CEPAC
    i. DMP
    j. SSP
    k. IHP
    l. PPSP
    m. TEDCOM

9. Short-term Planning
    a. Leg 109 (MARK 2 or back-up)
    b. Leg 111 (504B or EPR)
    c. Leg 112 (Peru Margin)
    d. Legs 113/114 (Weddell Sea and Atlantic Sub-Antarctic)

10. Medium-term Planning (Indian Ocean 1987/88)
    a. (SWIR, Fossil Ridges/Mascarene, Red Sea, Neogene Package)
    b. Kerguelen and Antarctic Margin (Prydz Bay)
    c. Eastern Indian Ocean drilling

11. Long-term Planning (Pacific Ocean 1989-)
    a. West Pacific
    b. Other Pacific drilling

12. Review of JOIDES Scientific Advisory Structure

13. Panel Membership; PCOM Liaisons

14. Engineering Developments and Priorities

15. COSOD 2

16. Any Other Business
    a. Rotation of JOIDES Office

NOTE: An evening session will be held to discuss logging services on Monday, Jan. 20.

****** Because of the full agenda, PCOM members and liaisons should make plans to stay through Friday afternoon.**

JOIDES PLANNING COMMITTEE MEETING
ALTON JONES CAMPUS, UNIVERSITY OF RHODE ISLAND
WEST KINGSTON, RHODE ISLAND
OCTOBER 8 - 10, 1985

MINUTES

PCOM Members:

R. Larson (Chairman) - University of Rhode Island
H. Beiersdorf - Federal Republic of Germany
J-P. Cadet - France
S. Gartner - Texas A&M University
C. Harrison (for J. Honnorez) - University of Miami
D. Hayes - Lamont-Doherty Geological Observatory
(R. Anderson replaced D. Hayes on 10 October)
D. Hussong - University of Hawaii
M. Kastner - Scripps Institution of Oceanography
S. Levi - Oregon State University
R. McDuff - University of Washington
P. Robinson - Canada
T. Shipley - University of Texas
A. Taira - Japan
D. Ross (for R. von Herzen) - Woods Hole Oceanographic Institution

Liaisons:

R. Anderson - ODP/L-DGO (Wireline Logging Services)
G. Brass - National Science Foundation
J. Clotworthy - Joint Oceanographic Institutions, Inc.
L. Garrison - ODP/TAMU (Science Operator)

Guests:

O. Eldholm - University of Oslo (Leg 104 Co-chief)

JOIDES Office:

M. Burdett
D. Keith
A. Mayer

JOIDES Planning Committee
Alton Jones Campus
University of Rhode Island
8-10 October 1985

ACTION ITEMS

Page	Item	Responsibility
5	Third World Participation: Development of contacts with IOC, CCOP, SCOR etc. to convey plans for drilling in Indian and Pacific Oceans.	JOIDES Office
16	Letter to W. Riedel indicating PCOM support for paleoreference centers.	PCOM Chairman
17	Estimates of various publications options.	ODP/TAMU
18	Referral of Technology and Engineering Workshop priorities to thematic, regional and DMP panels for comment by Panel Chairmen at the January meeting.	PCOM Chairman
19	Maintaining contact with Leg 108 Co-chiefs concerning logging activities.	PCOM Chairman/ L-DGO
24	Review of cost estimates for a crew transfer during the Kerguelen leg.	
25	Obtain advice from thematic panels concerning themes to be addressed in WPAC area.	PCOM Chairman
26	Review of Databank Review Panel recommendations concerning budgets, costs etc. for the ODP Databank	SSP

JOIDES PLANNING COMMITTEE
ALTON JONES CAMPUS, UNIVERSITY OF RHODE ISLAND
WEST KINGSTON, RHODE ISLAND
8-10 OCTOBER 1985

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558 Introduction and Welcoming Remarks

R. Larson, Planning Committee Chairman, convened the 8 - 10 October meeting which was held at the Alton Jones Campus of the University of Rhode Island. Meeting participants were welcomed to Rhode Island by J. Knauss (JOIDES Executive Committee Chairman). In his welcoming address, Knauss commented on the overall success of the program, beginning with the smooth transition from the Deep Sea Drilling Project (DSDP) at SIO to the Ocean Drilling Program (ODP) at TAMU. Knauss pointed out that a number of aspects of the program have been completed in accordance to the program plan (e.g. the conversion process of the JOIDES RESOLUTION). Knauss further noted that in addition to these successes there are financial problems that can only be solved by increasing the number of members in JOIDES and that the staffing of regional and thematic panels is still incomplete. Presently, the ODP has 4 of the 6 members needed to make the program financially sound and there is optimism for an additional member by 1 January 1986. Further, there is confidence for one or two more members during 1986. In closing his remarks, Knauss stressed that the ODP is a high visibility program within the international geologic community and because of this position it will be subjected to intense examination and peer review.

At this time, R. Larson introduced and welcomed the following new members to the Planning Committee:

T. Shipley (replaced R. Buffler) - University of Texas
S. Levi (replaced H. Schrader) - Oregon State University
P. Robinson (replaced J. Malpas) - Canada

Larson also welcomed and introduced the following temporary replacements for PCOM members:

D. Ross (substituting for R. von Herzen) - Woods Hole Oceanographic Institution
C. Harrison (substituting for J. Honnorez) - University of Miami

During the closing of the introductory remarks, A. Taira noted that Japan became a full member of the PCOM as of 1 October.

559 ADOPTION OF THE MEETING AGENDA

The agenda was amended to include additional discussion of Leg 106 planning and an updated site report for Leg 112 under Short Term Planning, to include the appointment of panel chairman for the Atlantic Regional Panel (ARP) under Panel Chairman Appointments and to include a presentation of the ODP Organization in Canada under Any Other Business. Finally, under Short-term Planning, Leg 111 - selection of co-chiefs was amended to read Leg 111 - recommendation of co-chiefs.

It was moved by H. Beiersdorf (Fed. Rep. of Germany) that the agenda be accepted with the proposed changes. The motion was seconded by M. Kastner (SIO).

Vote: 14 for, 0 against, 0 abstain

560 MINUTES OF THE PCOM MEETING , 25 - 27 JUNE 1985 (HANNOVER)

It was moved by D. Hussong (Univ. of Hawaii) that these minutes be accepted by the PCOM. The motion was seconded by J-P. Cadet (France).

Vote: 14 for, 0 against, 0 abstain

561 EXECUTIVE COMMITTEE REPORT

R. Larson (PCOM liaison) reported on the results of the 16 - 17 September 1985 meeting of the JOIDES Executive Committee which was held in Bonn-Bad Godesberg, Fed. Rep. of Germany.

International Membership:

The European Science Foundation (ESF) has raised approximately $1.5M from nine countries in a bid for membership. However, the ESF/Australia consortium cannot join ODP at this time because Australia was unable to raise the additional $1.0M needed to fulfill the required $2.5 M needed for membership. The Australians have not given up hope and are examining other sources of funding. On the other hand, the ESF formally asked the EXCOM to consider an "Associate " membership at the $1.5M level. The EXCOM rejected this proposition and informally asked the ESF to consider a full $2.5M membership without Australia using a "creative financing " arrangement. The ESF rejected this possibility but will attempt to raise the $2.5 M by itself. Further, the ESF will continue to be invited to future EXCOM meetings as special guests.

The United Kingdom (UK) has been unable to raise the full membership by 1 October 1985 and did not attend the meeting. However, G. Gross (NSF) reported that the UK is optimistic that a Memorandum of Understanding (MOU) can be signed that will be effective 1 October. Larson noted that this event would probably post-date 1 October by several weeks or months.

The Union of Soviet Socialist Republics (USSR) was represented at this meeting by Valery Krasheninnikov, who reported that the USSR desires to join the ODP but could not personally guarantee a signed MOU in the immediate future. In order to facilitate Soviet membership in ODP, EXCOM passed the following two motions:

<u>EXCOM Motion</u>: Referring to the motion agreed upon on 5 June 1985, the JOIDES Executive Committee welcomes the attendance of Dr.

V. Krasheninnikov at its present meeting. Recognizing the many contributions of scientists from the USSR to the success of the International Phase of Ocean Drilling (IPOD) and their significant presence in the world community of marine geologists and geophysicists, the JOIDES Executive Committee invites the USSR Academy of Sciences, as the body primarily responsible for IPOD participation, to join the Ocean Drilling Program by signing a Memorandum of Understanding (MOU) with the U.S. National Science Foundation and thereby joining JOIDES.

Vote: 14 for, 0 against, 0 abstain

EXCOM Motion: The JOIDES Executive Committe welcomes the interest of USSR scientists in the Ocean Drilling Program. We encourage applications to the ODP operator, Texas A&M University (TAMU), from qualified Soviet scientists in order to permit their consideration for membership of the shipboard scientific party.

Vote: 14 for, 0 against, 0 abstain

Present Finances

J. Baker (JOI, Inc.) reported that the draft program plan has NSF-National Science Board approval at the $32.5M level.

Proceedings of the ODP (Publications)

The highlights of reports from the PCOM Publications Subcommittee and the Information Handling Panel (IHP) were presented to the EXCOM.

After hearing these, the EXCOM requested information on the comparisons of costs between editing and publishing with a commercial publisher and those associated with the "in house" (TAMU) option presently proposed. Larson pointed out that he could not provide this information and therefore, the EXCOM asked that D. Appleman (IHP Chairman) be invited to the next EXCOM meeting to discuss various options.

EXCOM further asked the PCOM to discuss the publications report with special attention to 1) initiating preparation of Part A's as soon as possible and 2) considering the question of not publishing Part B but releasing the shipboard scientists to outside journal publication as soon as their Part A manuscripts are approved. An EXCOM subcommittee, formed to consider ESF membership, informally asked that PCOM consider having a commercial publisher produce a Journal of Ocean Drilling in lieu of Part B. Manuscripts to this journal could be submitted at anytime after Part A manuscripts were approved so that articles would appear in print as quickly as possible. However, under this option, leg coherence would be lost. In addition, ODP would guarantee to buy a minimum number of copies and the publisher, in the future, might reprint articles or produce synthesis volumes.

The EXCOM further suggested that bids for these options be sought from commercial publishers in ODP-member countries.

Panel Staffing

The EXCOM requested that the PCOM wait until January 1986 to restaff the panels. Further, they asked that panel members not be added in order to achieve some ad hoc level (nominally 14) but that vacancies be filled only in areas of missing expertise. EXCOM indicated that the PCOM is free to draw on the entire world community, including non-ODP countries, to accomplish panel staffing.

Third World Participation

This issue was raised by the EXCOM Chairman on pragmatic (getting permission to drill within the 200 mile limit of potential coastal countries) and humanitarian (increasing the information exchange between ODP and Third World scientists) grounds. EXCOM acknowledged the pragmatic need but generally felt that anything beyond that would have to await a better financial situation.

The EXCOM Chairman stated that any advice the PCOM could give would be welcomed and appreciated.

Discussion:

During discussion, P. Robinson (Canada) indicated that the interaction between Canadian and Third World scientists has been funded by the International Development Research Center (IDRC) in Ottawa, which has developed a number of contacts in India, Asia and Africa. Further, the IDRC might very useful and interested in the establishment of a program to allow for Third World participation. H. Beiersdorf (FRG) further suggested that at a recent IOC workshop in Sri Lanka, Third World scientists expressed an interest in participating in ODP but stated that funding is lacking. Therefore, IOC should also be informed of JOIDES'intentions. D. Hayes (L-DGO) also supported the previous suggestions and suggested that JOIDES contact CCOP and the East-West Center in Honolulu for additional contacts in the Third World. J.Clotworthy (JOI) informed PCOM that JOI is preparing a proposal to support Third World scientists and that the Association of Geoscientists for International Development (AGID) might be another organization to approach.

The discussion was closed by the following motion which was proposed by Biersdorf (FRG) and seconded by Taira (Japan):

PCOM Motion: PCOM requests that the JOIDES Office establish an information transfer service to AGID, IOC, CCOP and SCOR for the purpose of conveying future plans of the ODP for operations in the Indian and Pacific Oceans. Further, advice should be obtained from these organizations concerning the procedures needed in order to include individual Third World scientists in the ODP.

Vote: 14 for, 0 against, 0 abstain

562 NATIONAL SCIENCE FOUNDATION REPORT

G. Brass (NSF) reported on the following changes at the NSF. As of 1 September 1985, Sandra Toye was promoted from the head of the Ocean Centers and Facilities Section (OCFS) to the post of Controller of the office of Budget Audit and Control in NSF. The vacancy left by the promotion was filled by Dr. Donald Heinrichs, previously the Program Manager of the Division of Submarine Geology and Geophysics. Further, R. Buffler (Univ. of Texas) has been appointed to the post of Associate Program Director of the ODP and W.Merrell (TAMU) has been nominated to the post of Assistant Director of Astronomy, Atmospheric, Earth and Ocean Sciences (AAEO) at the NSF. Merrell's nomination is presently awaiting confirmation in the U.S.Senate. Finally R. Wall, head of the Ocean Sciences Research Section at NSF is leaving to join the Institute of Marine Science in Maine.

Budget

The National Science Board (NSB) has reviewed the program plan of the ODP and granted funding for the program to cover the next 3 years at projected levels of support which total $108M. Further the NSF is authorized to exceed this amount by 10% without referring to the NSB for approval. The figures presented to the NSB were as follows:

FY 86: $32.5M

FY 87: $36.0M which includes approximately $1.0M for inflation and program costs, approximately $1.0M transferred from DSDP, an estimated increase of $1.0M from the contributions of non-US members and approximately $1.0 M in real growth from the NSF contribution.

FY 88: $39.5M which includes approximately $1.0M for inflation, approximately $1.0M for real growth, approximately $1.0M from final DSDP operations and an estimated $0.5M inflation increase from the contributions of non-US members.

The NSF Budget is presently at the US Congress and is stalled there in the overall U.S. budgetary procedures. Further, the ODP needs 5 international members or Congress will eventually request a re-evaluation of the program.

Environmental Impact Statement

A draft Environmental Impact Statement was prepared in July 1985 and issued to EXCOM and PCOM as well as to the 16 signatories of the Antarctic Treaty at their 7 - 18 October meeting. The final draft will be ready by mid-November, recirculated for additional comment and the final copies issued by 1 January 1986. The document will then be submitted to the Environmental Protection Agency (EPA) for approval.

563 JOINT OCEANOGRAPHIC INSTITUTIONS REPORT

J. Clotworthy (JOI Inc.) reported that the program plan for FY 86 has been approved and copies mailed to both EXCOM and PCOM members. JOI is presently working on the FY 87 program plan using the target figures provided by NSF and estimates from the ODP subcontractors.

Discussion:

D. Hayes asked JOI to comment on the changes that were suggested, at the Hannover PCOM, to the program plan for FY 86 and requested that a 1-2 page document be prepared which addresses these changes. JOI indicated that they and the subcontractors responded in full to the EXCOM Budget Subcommittee recommendations. Further, a summary had been prepared and distributed to the EXCOM at their Bonn meeting in September and copies of this document were included in the PCOM meeting package for this meeting. Clotworthy pointed out that the response by JOI resulted in a number of changes to the original document, including budget amendments, although the substance of the plan is the substantially the same.

Clotworthy further reported that organization of the Performance Evaluation Committee continues and that the first site visit is scheduled for L-DGO in late October. The Committee will then tour the JOIDES RESOLUTION at the St. John's portcall and conclude its evaluations at TAMU. At this point, the committee has had to find a replacement for its industry representive and M. Horn (Cities Services) has agreed to replace P. Vail (Exxon). Further, in seeking non-US representation on the committee, J. Francheteau has been nominated from France and K. Hinz, from Germany, has agreed to serve.

Discussion:

P. Robinson suggested that an additional member of the committee could be possibly be nominated from the Canadian community.

564 SCIENCE OPERATOR REPORT

Leg 104 (Norwegian Sea)

The Science Operator Report opened with a presentation by O. Eldholm (Co-chief) of preliminary cruise results from the Norwegian Sea.

The primary objectives of Leg 104 were to sample the dipping seismic reflector sequences believed to be associated with late stage continental rifting or early seafloor spreading and which are found under sections of the Norwegian continental margin. Drilling was projected to penetrate the dipping reflectors and into material which forms an acoustically opaque basement that is delineated by a sharp contact known as Horizon K. Lastly, Leg 104 was designed to study the paleoenvironment during Cenozoic times.

In order to accomplish these goals, a three site transect with one deep section (Site 642, 1.2 km) and two shallow sections (Site 643, 550m and Site 644, 250 m) was drilled across the Voring Plateau.

Site 642

In beginning his report Eldholm noted that due to time contraints involved during the cruise, the two site approach of drilling the dipping reflectors and reflector K objectives that was approved by the PCOM was not done and the Co-chiefs decided that the objectives of the two sites could be achieved with one deep site. This plan was approved by the PCOM at their Hannover meeting just after the beginning of Leg 104.

Operations at Site 642 drilled initially through an upper strata containing glacial sediments that exhibited distinct glacial-interglacial cycles, ice rafted debris and volcanic ash layers and that is suggested to have had subaerial and subaqueous origins. Below this sequence, which is marked by a distinct change in sediment lithology and ties into a regional reflector of Miocene age, the dipping reflector sequence was found to consist of a cyclic unit of flow basalts that alternated with layers of volcaniclastic sediments. At the base of this sequence, Reflector K (Eocene age) separated the overlying volcanic and glacial material from underlying basaltic material. Reflector K was found to be a 8 - 10 m thick unit of volcaniclastic sediments that immediately covered a lower volcanic series of either continental or oceanic origin. The material in this sequence was characterized as consisting of trachytic basalt, possibly associated with late stage continental rifting.

Site 643

At Site 643, sixty-two cores sampled pelagic and hemipelagic sediments that were underlain by basalt and which are postulated to have come from a tilted fault block on oceanic crust.

Site 644

Operations at Site 644 drilled 250 m and resulted in 13 cores that contained Mid-Pliocene to Pleistocene glacial/ interglacial cycles that occasionally contained biogenic gases.

In summarizing the preliminary results, Eldholm indicated that the primary objectives were achieved, that these cores contain the best record of high latitude Cenozoic sediments ever collected and the combination of results from the three sites will provide a good means to reconstruct the paleoceanographic history of the region.

Eldholm (in consultation with J. Thiede, Co-chief 104) had the following recommendations/observations concerning shipboard operations:

1) Better integration of the external experiments, the Vertical Seismic Profiler (VSP) and the logging program, into the science program. The Co-chiefs suggested that the VSP experiments should be proposed to and accepted by PCOM before inclusion in a leg program and that the use of non-standard logging tools should be determined at the pre-cruise meeting.

2) Revision of the logging time estimates as the present estimates are a minimal estimation for logging.

3) That the scientists performing the external experiments be familar with the geolgy of the area and the scientific objectives of the cruise.

4) Better communication between the ship and shore to avoid lobbying efforts by proponents of external experiments.

5) Improve the accuracy and methods of monitoring "in situ" gas. Presently, it is difficult to make gas determinations before extrusion from the cores. This allows for trace amounts to disappear.

Discussion:

During discussion, Garrison (TAMU) indicated that that recommendations have been received from K. Kvenvolden for improving the geochemistry lab and that a workshop this month in College Station will address the problem of gas detection.

Leg 105 (Baffin Bay and Labrador Sea)

L. Garrison reported that Leg 105 left St. John's, Canada on 28 August 1985 after an extended portcall due to repairs to the heave compensator. A NSF/JOI sponsored film crew was placed onboard to film a documentary of shipboard operations.

The RESOLUTION began operations in Baffin Bay at Site BB-3B, accompanied by the ice picket boat CHESTER, and encountered shallow level boulders in 4 holes which temporarily terminated operations while the site was relocated. The ice management program worked well as RESOLUTION pulled out/reentered drill holes twice for icebergs.

At Hole 645E (Site BB-3B), a re-entry cone was set and drilling proceeded to 1147 m before time constraints ended operations. Cores exhibited terrigeneous sediments predominantly void of nannoplankton. However, sedimentation rates indicate that deposition has occurred at approximately 50 m/m.y. The magnetostratigraphy was good to 900 m. Drilling results further suggest that at 1100 m an erosional unconformity, R2 (Miocene age), was formed by a strong southward flowing current. Drilling was terminated on schedule and the co-chiefs decided not to drill to reflector R3.

The CHESTER stayed with RESOLUTION during the trip to LA- 5 and during the transit, when Hurricane Gloria was encountered. The CHESTER was released at LA- 5 (Site 646A), APC coring recovery was 88% and at Site 645B APC coring resulted in 55 - 88% sample recovery. After finishing LA- 5, RESOLUTION steamed to LA-9.

At the conclusion of the cruise, RESOLUTION is scheduled to arrive in St. John's on 27 October 1985 and at that time the guidebase will be put onboard for Leg 106. An open day is scheduled for 29 October 1985 to be hosted by the Canadian goverment's Minister of Mines.

Leg 106 (MARK-1)

Staffing for Leg 106 is completed and deliveries and guidebase fabrication are on schedule. Two guidebases have been built and were ready for transport on 7 October. The first guidebase will be bolted together in the moonpool of RESOLUTION in an operation that is scheduled to take 2 - 3 hrs. The TV winch has been tested as has the Mesotech sonar system.

The Navidrill Core Barrel (NCB) that was tested on Leg 104 had mixed success as problems occurred with spinning up the motor to a proper rpm without affecting the weight distribution on the diamond core head. This problem needs additional R & D work that has been delayed at this time. However, this wireline coring tool was an experiment not directly related to the other mud motors that will be used on Leg 106. These have been successfully tested on land to determine if all components are workable.

Leg 107 (Tyrrhenian Sea)

Staffing for Leg 107 is not complete at this time, however, completion is expected in the near future. The Co-chief precruise meeting has occurred and operations planned. Clearances to operate in Italian waters have been requested through the

U.S.State Department.Further, a safety review of the Leg 107 drill sites will be conducted on 23 - 24 October. Garrison noted that three berths on RESOLUTION are being reserved for TV/film crews and a congressional visit.

Leg 108 (Equatorial Transect-NW Africa)

The Science Operator has met with the co-chiefs concerning operational plans for the leg but no invitations for staffing have been sent. It appears that clearances to operate in coastal waters could be a problem with 3 sites in the Exclusive Economic Zone (EEZ) off Morocco and the disputed ex-Spanish Sahara. A fourth site is in the Cape Verde EEZ and a fifth in that of Guinea Bissau.

A safety review of the Leg 108 drill sites will occur at the same time as the Leg 107 sites.

Leg 109 (MARK-2)

Garrison reported that the Co-chiefs are Bryan and Juteau and thatstaffing is in hand for the leg.

Leg 110 (Barbados)

Garrison reported on the strategies proposed for drilling the decollement zone of Barbados.

The priority hole (Site LAF-1) will be drilled to sample temperature, pressure and pore fluid content at the highly disturbed decollement level. To acomplish this goal, discussions have been held with C. Moore (Co-chief) and G. Foss (ODP/TAMU). Foss proposes that three holes be drilled into and through the decollement with the first hole, a single bit hole, drilled with an XCB corer for temp., pressure and logging. Based on the results of this hole, a re-entry cone should the be set with 20 in. casing to a depth of 420 m. Below which, 16 in. casing should be set and rotary cored as deep as possible, afterwhich 9 in. casing should be set and permeability tests using the Strato-packer conducted below the 9 in. casing. Permability tests should then be conducted in the cased hole in the decollement zone. The third hole is an upper permeability hole above the decollement using the Lynes or TAM packer.

The time estimates for these operations are:

28 days LAF-1
14 days LAF-2
9 days LAF-3
----
51 days

then transit to Bridgetown, Barbados.

Discussion:

During discussion, Garrison pointed out that drill-in casing (as previously discussed at other PCOMs) is still in the general scheme and is an alternative to casing off the decollement zone. However, the latching assembly of the old drill-in casing array will have to be redesigned to mount at the bottom of the casing string.

Leg 111 (Hole 504B)

The Science Operator indicated that the drilling system used on Leg 106, cannot be used on Leg 111 because its diameter is too large for the existing hole. TAMU engineers have indicated that, with the new type drill bits, drilling rates should increase by 10-20% over those of DSDP using conventional drilling but with heavy drill collars. However,the issue of whether this increase in drilling rate will yield a corresponding increase in per cent recovery cannot be answered at the present time. In closing, Garrison asked advice from the PCOM concerning co-chief nominations since the previous nominations were made before Leg 111 drilling plans changed.

Leg 112 (Peru Margin)

Invitations were issued to D. Hussong and E. Suess to be the co-chiefs on Leg 112. Suess has accepted but due to other commitments, Hussong has had to decline the invitation had to refuse.

Ship Schedule

SEDCO has requested that the ship's schedule be balanced as equally as possible for the odd and even numbered cruises in order that the two SEDCO crews will have equal amounts of sea time. This also translates, for SEDCO payroll purposes, into equal pay for the two crews. Under the SEDCO system, the crew that spends less than half time at sea reimburses SEDCO which in turn increases the amount of sea pay paid to the crew which has spent more than half time at sea . For 1986, the schedule was adjusted by TAMU to accomodate this request (Appendix A). The adjustment in the schedule has resulted in the addition of a transit leg- Leg 111T. This has affected some cruise legs in that 2-3 days have been subtracted from drilling days and others have been increased by that amount. This results in Legs 108 & 109 remaining unchanged, an increase of 3 & 2 days (respectively) for Legs 107 & 111 and decrease of 3 days for Legs 110 & 112. This results in the odd number cruises equaling 166 days and the even number cruises equaling 167 days.

Discussion:

It was the general sentiment of the PCOM that SEDCO has become less flexible over time in accepting the ODP ship schedule and perhaps SEDCO should be more flexible, possibly amending its payroll policy, as scientific objectives for some of the proposed programs may disrupt the balance in days-at-sea. In particular this policy might affect the special legs (e.g. the Antarctic and Kerguelen legs) which may be longer than the regular ODP legs. The Science Operator indicated that SEDCO would like to keep ODP cruises to a maximum of 60 days. However if the PCOM requests a 70 day leg, TAMU will negotiate until a compromise is reached. On the other hand, SEDCO may agree to a 70 day leg as long as there are not too many and if a 60 day leg occurs on an odd numbered leg then a 60 day leg should be given to an even numbered leg during the 12 - 14 month period in order to balance the schedule. The PCOM asked what is the cost of the days-at-sea balance to ODP/TAMU. The Science Operator responded that there are no direct costs to ODP, however, it is in the best interest of the program to keep the balance in order to keep morale high and the loss of competent shipboard people to a minimum. It was strongly emphasized by several PCOM members that the basic penalty under this system is the loss of drilling days for science on the special cruises. There was further suggestion that the lost drilling days may be recovered by limiting the number of public relations days. The discussion was ended by the following motion, proposed by Robinson and seconded by Kastner:

PCOM Motion: The Planning Committee recognizes the concerns of SEDCO in balancing the length of the odd and even legs over a 1-2 year period and will include this consideration in its planning of future legs. It must be recognized that, because the planning of lengths of legs is guided primarily by their scientific objectives, this may not always be possible.

Vote: 14 for, 0 against, 0 abstain

In closing the issue, the PCOM asked that a running balance be kept by TAMU and the PCOM notified of this account in order to aid in planning.

565 WIRELINE LOGGING SERVICES OPERATOR REPORT

R. Anderson (Director-Wireline Logging Services, L-DGO) reported on the excitement within the Borehole Research Group (BRG) over the development of a method to determine aluminum concentrations during logging using the NGT. This increases the BRG's ability to conduct downhole geochemistry and to do clay typing via logging information. Software development to refine this operation is continuing and input is now needed from the geochemical community.

The BRG is presently been examining the problem of excess pore pressure as it relates to hole stability problems by examining the clathrates and pore pressures in DSDP Hole 570.

Results from Leg 104 and Leg 105 (see Appendix B, note that these results were excerpted from the written report submitted at the JOIDES EXCOM meeting in Bonn.)

Wireline Packer Development

Anderson reported that the wireline packer cannot be delivered for Leg 110 because AMOCO has terminated tool development and cutback on staffing. However, AMOCO will release the plans of the system to ODP and M. Zoback has been authorized to act as an agent in finding a company to build the packer. At this time, PSI (in Calif.) and TAM have been approached and if a favorable response is not received, a general Request for Proposals (RFP) may be issued.

Logging Time in the Borehole

Anderson indicated that the Borehole Research Group has had difficulty in getting time to conduct logging in the borehole using the standard suite of tools and requested advice from PCOM on defining which tools should comprise the standard logging suite. In addition, Anderson indicated that a standard suite should include nuclear,sonic and electric logs and suggested that for holes greater than 400m, the best tools available in each of these three categories be used.

Discussion:

The PCOM indicated that a major problem was that the logging program is continually changing and that a defined standard logging program is needed. The PCOM also identified a lack of education concerning what the various logging tools can achieve and a lack of communication between L-DGO and co-chief scientists which could be solved by including a logging representative into the pre-cruise planning process. Anderson suggested that the educating of the ODP community could be done through workshops similar to the Technology and Engineering Workshop held at College Station and which could be conducted for the PCOM at its January 1986 meeting. Discussion of the issue was closed by the following motion, which was proposed by P. Robinson and seconded by M. Kastner:

PCOM Motion: The Planning Committee reiterates its requirement to have a standard logging package run in each hole deeper than 400 m and defines standard logging as a suite of sonic, electrical resistivity and active nuclear tools to be run within a reasonable time period.

Vote: 14 for, 0 against, 0 abstain

Status of the L-DGO Logging Person on RESOLUTION

Anderson indicated that at the Hawaii PCOM, the L-DGO logging person was not considered to be a member of the scientific staff although the position has been a part of the science party at the discretion of previous co-chief scientists. Anderson emphasized the importance for the loggers to be considered part of the science party as problems could occur with TAMU concerning staffing on RESOLUTION. Anderson further indicated that the L-DGO logger represents L-DGO in the same fashion as the TAMU science representative represents TAMU. The Science Operator responded that the issue does not concern titles or the number of berths but is a question of who invites scientific input into the post cruise volumes.

Discussion:

A number of PCOM members asked what would be the problem if the L-DGO logging person who goes to sea, makes significant contributions to the cruise is labelled as a member of the scientific party. TAMU responded that it disagrees with a technician being labelled as a member of the science party while at sea. Other PCOM members indicated that again the issue is one of pre-cruise communication that could be solved by the integration of the logging program into the science program. L-DGO again responded by stating that the L-DGO logger is a scientist and should be labelled as such. The discussion was closed by the following motion, proposed by Robinson and seconded by Hayes (L-DGO). However before voting was conducted, TAMU requested veto power over selections as they are responsible for cruise participant selection. The discussion was closed by a motion proposed by Robinson and seconded by Hayes.

PCOM Motion: This is an amendment to PCOM motion #500. The PCOM recommends that the Wireline Logging Services Contractor should make nominations to the Science Operator for the Shipboard Logger (personnel from within the logging subcontract) to be included as part of the Scientific Party of each leg.

Vote: 14 for, 0 against, 0 abstain

Anderson closed the Wireline Logging Services Operator Report by stating that D. Fornari has resigned his position as Operations Manager with the Borehole Research Group. Anderson then circulated a job description of the post among PCOM members.

566 REPORTS FROM PANELS

For Executive Summaries of the Minutes of the Panels, please see the appropriate appendix.

Atlantic Regional Panel (see Appendix C)-informal report by R. Larson

Central and Eastern Pacific Panel (see Appendix D)

Southern Oceans Panel (see Appendix E)

Indian Ocean Panel (see Appendix F)

Western Pacific Regional Panel (see Appendix G)

Sediments and Ocean History Panel (see Appendix H)

Lithosphere Panel (see Appendix I)

Tectonics Panel (see Appendix J)-informal report by A. Taira

Information Handling Panel (see Appendix K)

After hearing the Information Handling Panel report the following motion was proposed by S. Gartner and seconded by D. Ross (WHOI):

PCOM Motion: The PCOM wishes to thank William Riedel for his many contributions over the years as Chief Curator of the Deep Sea Drilling Project (DSDP). Further, the PCOM recommends that Riedel retain his role in the development of the Micropaleo Reference Centers, including establishment of the remaining centers and planning for the preparation of the final fossil groups.

Vote: 14 for, 0 against, 0 abstain

567 REPORT OF THE SUBCOMMITTEE FOR REVIEW OF ODP PUBLICATIONS (see Appendix L)

S. Gartner (Subcommittee Chairman) reported to the PCOM.

It was the general consensus of the membership, that the PCOM reiterate its position on the planned publication of Parts A & B as stated by the Subcommitee. This is dependent on the outcome of a review of costs of the alternative publication processes for Part B (including the possibility of replacing Part B by an ODP Journal) which should be undertaken as soon as possible by the Science Operator. The PCOM then discussed the proposed ODP Journal as to its status as "grey literature" and determined that the Journal could only be termed such by the quality of the papers which could be controlled by a peer-review process. PCOM agreed that the publication of the Part A volumes should occur as soon as possible and that Part B should be published within a maximum period of 3 years after a leg is completed. A further decision on Part B was made in the following motion, proposed by Kastner and seconded by Hayes:

PCOM Motion: The PCOM reiterates its original publication policy (Parts A & B: Proceedings of the ODP). A further financial review should be undertaken of the option of producing Part B in Journal form.

Vote 13 for, 1 opposed, 0 abstain

In closing, M. Kastner alerted the PCOM to concern about the quality of the DSDP Initial Reports index being produced under contract to the Project. It was agreed that the issue should be resolved by DSDP, in consultation with NSF. Meanwhile, the IHP should be asked to formulate an indexing policy in order to avoid future problems with ODP volumes. The PCOM agreed to formulate an indexing policy possibly during the January meeting.

568 REPORT OF THE TECHNOLOGY AND ENGINEERING WORKSHOP

R. Larson reported on the workshop.

The engineering workshop was conducted by the ODP's Engineering and Operations Group in September at College Station. The purpose of the workshop was to inform members of the ODP community of the activities at TAMU and to get input from the science community in setting short-term goals for future projects. Attendees were asked to prioritize a list of projects for future development and the results fell into 2 groups:

Group 1-Higher priority

bit development
heave compensator compatibility for piston coring
hard rock spud system
high temperature drilling/coring adaptations

Group 2- Medium Priority

lockable flapper (float valve)
drill-incasing (compatible with re-entry)
pressure core barrels (in situ samplers)
string string dynamics
upgrade hydralic bit release
core liner improvements

During discussion, Dr. Garrison (in referring to the above listings) indicated that engineering development is preceeding in accordance with PCOM established priorities and is not affected by the workshop straw poll.

The Science Operator further suggested that TEDCOM be reformed to better interface with the JOIDES community and that the expansion of communications between the ODP engineers and JOIDES should not be viewed to be in conflict with TEDCOM. The PCOM Chairman indicated that the request for revising TEDCOM can addressed at the January meeting when J. Jarry (TEDCOM Panel Chairman) will be present.

It was also the consensus of the PCOM that the above listing should be circulated to all the panels for evaluation and comment.

569 SHORT-TERM PLANNING

Legs 106/109 (MARK 1 & 2)

It was the recommendation of the PCOM at the Hannover meeting that both guidebases be committed for use on Legs 106 and 109. Also, the PCOM recommended that the LITHP develop a back-up plan for Leg 109. LITHP, as reported by PCOM liaison- R. McDuff, has in response recommended that all options for Leg 109 be kept open until results are obtained from Leg 106. LITHP has further recommended that both guidebases be used in the Atlantic objectives only if needed and to get one good hole. Therefore if the first guidebase is successful, the second should not be deployed in the Atlantic but should be used for East Pacific drilling as Leg 111.

PCOM Consensus: If the first guidebase is successful in beginning bare rock drilling, then it should be used for the remainder of Leg 106. However, if the first guidebase is not successful due to factors which can be corrected at sea then the second guidebase should be deployed provided that there is a reasonable amount of drilling time available. Further, if Leg 106 guidebase deployment fails completely, then the Leg would default to drill the Kane Fracture Zone (nodal basin).

LITHP has stated that excellent site survey work in the MARK area has defined ideal sites for Legs 106 and 109. However, discussion by LITHP members raised the issues of off-axis drilling to examine age related changes rather than drilling a fracture zone and whether or not the nodal basin seems a high risk target given the lack of knowledge of sediment thickness. LITHP indicated that the decision to drill the nodal basin site vs. other fracture zone sites must be left as a judgement call for the co-chiefs but they urged that a reexamination of the site survey data be made to determine if any inferences of sediment thicknesses can be made. The LITHP recommended that final decisions on Leg 109 back-ups (if needed) be delayed until the January 1986 LITHP meeting which is before the January 1986 PCOM meeting, although it was re-affirmed that DSDP Hole 395 should be logged during Leg 109. It was the general consensus of the PCOM to take the LITHP advice to defer decisions on Leg 109 back-ups until January 1986.

PCOM Consensus: The PCOM recommends that the decision as to where to conduct operations in the Kane Fracture Zone be left to the co-chiefs in the case that the default options are necessary.

The PCOM then discussed whether a single bit hole next to the guidebase should be drilled, using the Navidrill, to collect a basalt "mudline" core since the upper 50 m of the section would totally disrupted by drilling operations. Discussion was closed by the following motion as proposed by Hussong (Univ. of Hawaii) and seconded by Robinson:

PCOM Motion: The PCOM requests that, as part of the engineering tests on Leg 106, an attempt be made to spud into bare rock with the Navidrill, without the guidebase.

Vote: 14 for, 0 against, 0 abstain

Leg 107

For the Atlantic Regional Panel recommendations for the order of priorities in the Tyrrhenian Sea (Leg 107) see Appendix C. It was noted by the Science Operator that staffing is 2/3 complete and the science party will include 2 - 3 Italian scientists to meet clearance requirements but no other ESF scientists.

After hearing these priorities, the PCOM came to the following consensus:

PCOM Consensus: The plan for Leg 107 is accepted with the following modifications, the PCOM recommends that Site 5B be continuously cored, that Site 7A be logged and that no logging be conducted at Site 2.

Leg 108

For the recommendations of ARP concerning Leg 108 drilling, see Appendix C. For Leg 108, the co-chief scientists (Ruddiman & Sarnthein) have divided the drilling priorities into three packages of the Sarnthein paleowind proposal, the Ruddiman Sierra Leone proposal and a package of 2 sites containing EQ 9 and EQ 7. They further propose to spend 30.5 days transiting to and within the Sarnthein area, 14.0 days in the Ruddiman area and any remaining time will be spent at the other 2 sites and transit to port. These sites will have double APC coring and 1 hole will be cored with XCB to the proposed total depth. No logging is proposed as all are shallow (<400m) sites. After discussing the inclusion of logging in order to enhance the acoustic stratigraphy of the continental margin, the following was agreed:

PCOM Consensus: The PCOM asks that the co-chiefs on Leg 108 reconsider their decision to conduct no logging on Leg 108 and L-DGO is asked to maintain contact with the co-chiefs. However, the PCOM does not place logging as a requirement for Leg 108.

Leg 110

For an in-depth review of Leg 110 drilling plans see the letter from C. Moore (Appendix M).

The current plan for Leg 110 is to drill 2- 3 holes at Site LAF - 1. The first hole would be a single bit hole to basement as a jet-in soil test. The site would be APC cored until refusal for pressure, temperature and pore fluid content. A second hole would be a deep hole drilled to conduct permeability tests using a hybrid/TAM packer. The third hole would be a shallow hole to conduct permeability tests on the upper sections of the hole. The alternative to the second hole is to use drill-in casing to case the decollement and to rotary core into basement. For these operations, a hybrid Lynes packer and drill-in casing will have to be developed. At this time, the PCOM Chairman read a letter from K. Becker concerning the proposed packer modification (Appendix N). The alternate plan, if the decollement cannot be penetrated is to drill a series of single bit holes across the accretion wedge down to the decollement zone in order to measure changes in structural style, the hydrogeology and deformation characteristics.

The Wireline Logging Services Contractor recommended that the PCOM appoint a 3 - 4 person working group of Packer scientists to work with L-DGO in the development of the packers. The PCOM appointed K. Becker, R. Anderson and an ODP engineer as a subcommitee with D. Hussong (Chairman) to evaluate packer development including potential hybrid packers, especially for Leg 110.

The PCOM considered the issue of drilling a reference hole in an undisturbed section of ocean floor near the subduction zone on Leg 110 site in order measure physical properties. It was emphasized that this hole could establish overpressure sites and monitor porewater porosity and other physical properties.The PCOM reaffirmed its Hannover decision in the following consensus:

<u>PCOM Consensus</u>: The PCOM agrees that a reference hole for Leg 110 should be quickly drilled and washed to basement and this hole will be logged as a reference section.

PCOM also considered a back-up plan for Leg 110 should complete penetration of the decollement zone prove impossible. It was agreed that operations will be limited to structural and hydrogeologic questions associated with the progressive growth of an accretionary prism (as recommended by the Co-chiefs, ARP and TECP).

<u>PCOM Consensus</u>: The PCOM agrees that drilling the decollement zone is the prime objective of the leg and endorses the proposals for a back-up hydrogeology program.

Leg 111

Recommendations of Co-chiefs:

CEPAC	LITHP
Hyndman & Sinton	Becker
Mottl and Kinoshita	Bougault

(with Zoback)
Robinson & Langseth Emmerman
Kinoshita
Natland

It was the consensus of the PCOM that 2 geophysicists (with expertise in downhole instrumentation) and 2 petrologists be nominated to TAMU. However no specific names were recommended. The PCOM further agreed that Becker should be discouraged from participating in Legs 109 and 110 if he is in consideration for Leg 111.

Leg 112 Site Survey Report

D. Hussong (Site Survey Co-chief) reported that the site survey was completed in April and 1500 km of 24 channel multichannel seismic (MCS) data along with Seamarc imagery was collected from the Yaquina and Lima basins along the Peru margin.

The Seamarc records and coring and dredging information show that the margin is characterized by normal faulting in the trench axis,evidence for diapirism on the shelf and sediment outcrops on the upper slopes. The forearc area was found further to consist of lenses of dolomite that are underlain by metamorphosed continental rocks.

Presently, there are three objectives for this area, 1) to investigate the tectonics and structure of the region by examining the vertical history of the margin 2) to examine the history of truncation along the margin and 3) to study the upwelling history, the paleoceanography and the diagenetic processes associated with the vertical tectonics of margin basins. To accomplish these objectives in the southern survey area, 3 sites are proposed with 1 hole at a seaward site with rotary drilling to 500 m through the sediment lenses and 2 holes along the upper slopes to examine vertical tectonism and sample Paleogene sediments. For the northern survey area 4 sites are proposed with 2 holes near the tip of continental material, 1 in the trench axis to sample landward dipping reflectors and 1 along the upper margin. A proposal is being assembled at this time and drill time estimates are 56 days.

Paleoceanography sites near Southern Chile

The Southern Oceans Panel and the Sediments and Ocean History worked to prioritize the proposed sites and they were found to be of less priority than those already in their respective programs.

570 LONG TERM PLANNING

1987-1988: Southern Oceans/ Indian Ocean

Weddell Sea - Atlantic Sub-Antarctic transect

In opening remarks it was stated that plans for the Weddell Sea are well established and that the next step in plannng is the selection of co-chief scientists. The PCOM Chairman indicated, at this time, that SOP has made recommendations and that he will canvas SOHP and ARP for suggestions.

The PCOM then discussed the start date, which is originally scheduled for 1 January 1987. The SOP has indicated that it recommends an earlier start date (preferrably 15 December 1986) because of weather and ice problems and suggests that the best weather period is during November/December. TAMU responded by saying that if these changes are accepted then cruise plans will have to be modified with the reduction of time for previous legs. It was further suggested that there is no way to predict exactly when the best weather window will occur and emphasized that the start date should remain unchanged.

It was the consensus of PCOM that the 1 January 1987 start date remain unchanged.

Atlantic Sub-Antarctic Transect Sites: Adequacy of Site Surveys

The NSF expects that the site surveys for the Atlantic Sub-Antarcticsites are adequate enough for the proposed program. However, the NSF pointed out that without the addition of a 5th member into JOIDES, serious problems may arise with US Science funding of these and other site survey proposals.

H. Biersdorf indicated to the PCOM that the POLARSTERN will conduct site surveys in the Weddell Sea/ Bransfield Strait areas in November of1985 and this site survey has been well coordinated with SOP.

SOP requested that a member of the logging group be present at their next meeting in order to estimate logging times in conjunction with drilling times. The PCOM agreed with this request and suggested that L-DGO act on this request as soon as possible.

The Science Operator presented the following time schedule for drilling:
60 days-Weddell Sea leg
5 days-Portcall at Port Stanley, Falkland Is.
48 days-Sub-Antarctic leg

In discussing Port Stanley and Capetown portcalls, TAMU indicated that after communications with Peter Barker it was determined that there are no problems anticipated with Port Stanley, although the fuel situation is uncertain . In contrast, the civil unrest associated with South African politics in combination with the sensitivities of several non-US JOIDES members towards this situation suggest that this port should be avoided.

Further, a refueling stop in this region could be conducted at Reunion Is. but this will add 3 - 4 days to the Sub-Antarctic leg. In closing discussion, Biersdorf suggested that the POLARSTERN could possibly be used to refuel RESOLUTION, however, coordination of this activity should occur as soon as possible.

The need for an ice-breaker or ice-strengthen escort vessel for RESOLUTION was discussed. TAMU expressed concern at the cost of an ice-breaker but agreed that an escort vessel capable of moving growlers from near the drillship was desirable. TAMU's preference was for a commercial escort ship rather than rely on goodwill and conflicting schedules of other ships likely to be in the area at that time.

Southern Indian Ocean

The Science Operator indicated that after discussions with the operators of the MARION DUFRESNE, it has become apparent that operations schedule of the DUFRESNE may strongly influence the schedule for RESOLUTION, if it is to act as a resupply vessel during the Kerguelen campaign. Further, if the crew transfer at Kerguelen is done by ship the estimated cost (with 2 SEDCO crews at sea, ODP sea pay, the cost of M. DUFRESNE and ship costs) will approach the $800 K mark. The alternative to this program is to spend 18 days of time transiting the ship back to Reunion Island to complete the crew change and then to steam back to the work area.

During discussion of the crew change at Kerguelen, the objectives of the Kerguelen program were reviewed and NSF informed PCOM that they should examine the ODP budget for areas where reductions worth $800 K could be made, if PCOM agreed to the proposal to use the M. DUFRESNE. During additional discussion, it was suggested and supported by several PCOM members that the 18 transiting days could be recovered by extending the cruise by that amount. The discussion was closed by a motion by Hussong and seconded by Harrison (Univ. of Miami):

PCOM Motion: After reviewing the costs of the transfer, the PCOM found, pending a final cost estimate, them to be too expensive and advises that the ship schedule be arranged around a normal port stop with no support vessel.

Vote: 13 for, 1 against, 0 abstain

The PCOM further suggested that the 18 drilling days could be deferred into the Western Pacific program. This round of discussion was closed by a motion by Kastner and seconded by Harrison:

PCOM Motion: At the January 1986 meeting, the PCOM will examine (in detail) the total length of time for the Kerguelen Science program and will ask proponents to justify drill site locations.

Vote: 13 for, 0 against, 1 abstain

The Science Operator was asked to refine the cost estimates for the crew transfer during the Kerguelen leg and present these at the January meeting.

Indian Ocean (Remainder)

PCOM Consensus: The PCOM reaffirmed its commitment to single legs (nominally approx. 2 months) for the Red Sea and a Neogene package. Detailed planning for these legs will take place in January.

PCOM Consensus: It was also the concensus of the PCOM, after reviewing the prioritizations and recommendations of the TECP, LITHP, SOHP, IOP and SOP panels, to fill the May/June 1987 time period of the schedule, developed during the June Hannover, meeting with drilling on the SW Indian Ocean Ridge (SWIR) and on the fossil ridges of the Mascarene Basin. The PCOM closed discussion on the matter by agreeing that no additional science should be planned for this two month time period.

1988-1989 Western Pacific

After reviewing the recommendations of CEPAC and WPAC, it was agreed that the thematic problems for the Western Pacific be reduced to a limited number of objectives in order to aid in the allocation of ship time. It was further concluded the boundary between the CEPAC and WPAC was unclear and needed to be defined. This definition was achieved in a motion by Robinson and seconded by Biersdorf:

PCOM Motion: For the purposes of planning, the Western Pacific area will be defined as the area within the purview of the West Pacific Panel (as established in the JOIDES Science Advisory Structure terms of reference) extending eastward to 20 miles to the seaward side of the trench complexes.

Vote: 14 for, 0 against, 0 abstain

The following motion was proposed by Robinson and seconded by Hussong:

PCOM Motion: The PCOM sees a minimum of 1 yr of drilling for the Western Pacific out of a 3 yr program in the Pacific basin. Additional time in the region must be justified by developing focussed and concentrated objectives/themes for the region.

Vote: 4 for, 7 against, 2 abstain
(1 absent)

Discussion of the motion revealed that the several of the PCOM were against specifying a determinate amount of time for West Pacific drilling until the thematic panels have had their input. It was the consensus of the PCOM that the panels be asked for guidance in establishing operations in the West Pacific and that they report their recommendations at the January PCOM meeting.

571 JOIDES SCIENCE ADVISORY STRUCTURE

Discussion of long-term drilling plans for the West Pacific revealed concern among PCOM members at the effectiveness of the current Panel structure in developing scientifically well-balanced programs. Some concern was also expressed at the apparent predominance of the regional panels. It was agreed tha PCOM should review the Science Advisory Structure at its January 1986 meeting.

572 PANEL CHAIRMAN APPOINTMENTS

The issue of whether the $1000 available for use by the panel chairman was a sufficient amount to cover operating expenses. It was pointed at this time that some U.S. JOIDES institutions wished to take overhead expenses out of this amount. The PCOM expressed its feeling in the following consensus:

PCOM Consensus: The $1000 allotment is sufficient to conduct activities that are associated with the panel chairmanships and that JOI,Inc. will attach a condition to these funds stating that it will only accept billings from these institutions if the overhead requirement is waived.

It was also the consensus of PCOM that resigning panel chairmen will remain with their panels as continuity for 1 year.

Western Pacific Regional Panel

B. Taylor has been nominated by WPAC and has agreed to serve. PCOM approved the nomination.

Central and Eastern Pacific Regional Panel

D. Rea has been nominated by CEPAC and has agreed to serve. PCOM approved the nomination.

Indian Ocean Panel

R. Schlich and W. Prell were nominated by IOP and have agreed to serve. PCOM approved R.Schlich as Chairman.

Atlantic Regional Panel

B. Tucholke and J. Austin were nominated by ARP, but only Austin agreed to serve. The PCOM approved the nomination of J. Austin as Chairman.

573 PCOM LIAISON APPOINTMENTS

ARP- T. Shipley added.
CEPAC- T. Shipley added.
IOP- R. Larson in place of J. Honnorez
TECP- S. Levi added.
SOP- H. Beiersdorf (switched from CEPAC).

The PCOM made the following contingencies: Robinson will go to LITHP, if Honnorez leaves PCOM, and Robinson will leave SSP after the January 1986 meeting.

574 FUTURE MEETINGS

1986 January 20 - 24 La Jolla, California
(to include Panel Chairmen)

May 19 - 21 Palisades, N.Y.
D. Hayes has suggested this new date as an alternate more convienient date and the PCOM Chairman has agreed to this change.

August 11 - 15 Corner Brook, Newfoundland, Canada

575 ANY OTHER BUSINESS

Databank Review Panel:

It was felt by several PCOM members that the response of the PCOM to the Databank Review Panel (as reported in the meeting minutes) was left unclear. In an effort to put forth a definitive statement and to clarify its position, D. Hayes proposed the following motion that was seconded by Kastner:

PCOM Motion: The PCOM agreed in principle with the recommendations ofthe Review Panel. We further note that the Review Panel Report includes specific recommendations regarding a modest increase to the originally proposed ODP Data Bank budget. PCOM has referred this budgetary issue to the JOIDES Site Survey Panel, its designated oversight panel for the Databank, and requests that the advice of the SSP, regarding any small ODP Data Bank budget adjustments, be transmitted directly to JOI management for appropriate action.

Vote 13 for, 0 against, 1 abstain

It was noted by the PCOM Chairman that this responsibility has been accomplished by USSAC and that Fred Duennebier (Univ. of Hawaii) has been appointed to the Site Survey Panel.

January Meeting Agenda

In addition to receiving reports from Panel Chairmen and including sessions on engineering (with special references to Leg 106), logging and a review of the JOIDES Scientific Advisory Structure it was agreed to include items on riser drilling plans and, at the request of NSF, plans for COSOD-2.

APPENDIX A

OCEAN DRILLING PROGRAM

OPERATIONS SCHEDULE

1986

	DEPARTS		ARRIVES AT		IN
LEG	LOCATION	DATE	DESTINATION	DATE	PORT
107	Malaga, Spain	1 Jan 1986	Marseilles, France	18 Feb	Feb 18-22
108	Marseilles, France	23 Feb	Dakar, Senegal	21 April	April 21-25
109	Dakar, Senegal	26 April	Barbados,	22 June	June 22-26
110	Barbados	27 June	Barbados	17 Aug	Aug 17-18
111T	Barbados	19 Aug	Panama	26 Aug	Aug 26-30
111	Panama, Panama	31 Aug	Callao, Peru	24 Oct	Oct 24-28
112	Callao, Peru	29 Oct	Punta Arenas, Chile	27 Dec	Dec 27-31

10/1/85
LEG

APPENDIX B

REPORT TO EXCOM, BONN SEPT. 25, 1985
WIRELINE LOGGING CONTRACTOR
BOREHOLE RESEARCH GROUP
LAMONT-DOHERTY GEOLOGICAL OBSERVATORY

Since the Washington meeting, legs 103 and 104 have been completed, and logging operations are dodging icebergs on leg 105. Several interesting scientific findings came out of the logging program completed on leg 103. Four wells were logged with Schlumberger suites and the Lamont multichannel sonic logging tool. Hole conditions were poor, and bridging was a common problem. The in-pipe logging program is becomming an increasingly important addition to the logging services. Potasium, Uranium and Thorium, as well as porosity were recorded through pipe in hole 641C, identifying lithological changes similar to those cored in hole 641A from changes in Uranium content of the formation. Two "basement" finds were of particular interest on the leg. Serpentinite was logged and cored at the bottom of hole 637, with density of 2.3 g/cm and velocity of 3.4 km/s recorded. In contrast,'basement' at 639D was dolomite with density of 2.7 g/cm and velocity of 7 km/s. Excellent seismic stratigraphic ties were obtained from impedance logs at each hole.

Leg 104 logged 335 m of an XPC hole 642D and 755 m of basalt cored at hole 642E. The most striking result was the log response of virtually every sonde put down the hole to the layered flow basalts. Cyclicity on a scale of 10-30 m was produced by the alternating hard flows and weathered rubble of the flow centers and edges. Both major and minor eruptive events can be easily seen on the logs (figure 1). This contrasts sharply with the 30-50 meter thick cyclicity recorded from fractures and joints found in the site 504B basaltic dikes. The borehole televiewer was successfully deployed, but inadequate time was allowed by the co-chiefs for a proper survey of the wellbore. Instead, a repid ascent of the hole was made to look for stress induced wellbore breakouts.

The mysterious basaltic reflector K which was the target of the drilling effort turned out to be a major lithological boundary with a 15 m thick layer of very low K, U ,Th, very high electrical resistivity, density of 2.8 g/cm, negligible porosity, and fast sonic velocity overlying a zone of very high radioactive content (25 API units versus basaltic norm of <10), very low resistivity, density (drop from 2.8 to 2.1 g/cm3), low sonic velocity, and a high percentage of hydroxyl minerals. The layers appear to be unusually thick flow and rubble zones compared to the other 128 cycles recorded in the log. Major impedance contrasts across these boundaries are obvious, but their thickness makes them strong reflectors to the long wavelength seismic energy attempting to pass through them.

The ship is at sea for leg 105, with the first results just coming in. The pilot hole in Baffin Bay was lost to logging because of proximity to an iceberg. The wireline heave compensator is in place and ready for use. A field test on the transit leg from Norway to Canada dropped wireline motion to 5 inches in 8 feet of vertical heave recorded at the rig floor. The new Gamma Ray Spectrometry Tool is aboard and operational. The Terralog analysis software is aboard and operational. Now we wait for hole.

APPENDIX C

Executive Summary
Atlantic Regional Panel Meeting
Villefranche-sur-Mer, France, 18-20 September 1985
by Lucien Montadert, ARP Chairman
and Roger Larson, ARP-PCOM Liaison

Leg 107, Tyrrhenian Sea

The ARP recommends the following order of priorities for Leg 107 in the Tyrrhenian Sea:

Site Description	Estimated Drilling Time	Logging
Site 2, Plio.-Pleist. ref. section, re drill DSDP 132, no logging	4.0 d	0.0 d
Site 1b, (alt. 1a), Post and Syn rift sequence near upper Sardinian margin	6.0 d	1.5 d
Site 3a (alt. 3a', then 4), Post and Syn rift sequences in west Vavilov Basin on oceanic crust	10.0 d	1.5 d
Site 5b, Oldest basal hyloclastic sediments and nature of basement, Central Vavilov Basin (wash Plio-Pliest. if good section at Site 2)	7.5 d	1.5 d
Site 7a, Age and nature of basement central Marsili Basin	7.5 d	1.5 d

Designated backup sites are:

Site 5a, Lherzolite(??) ridge, Vavilov, no logging proposed

Site 6, Tilted block, base of slope, Marsili Basin

Site 8, Base of Marsili Volcano

At both Sites 5b and 7a, ARP supports a scientific rationale calling for penetration of both the oldest observable sedimentary sequences and basement in order to estimate minimum oceanic (?) basement ages in both the Vavilov and Marsili basins.

At Sites 1b (1a) and 3a (3a'/4), ARP recommends penetration to the base of the postulated syn rift sequences discerned on both regional and site-specific MCS profiles.

(over)

Leg 108, N.W. Africa

ARP has examined again the Leg 108 proposed sites and their recently revised drilling estimates. Estimated times seem unrealistically short, and all eleven sites may not be achieved. Better times are needed in order to prioritize the sites in an order which will satisfy as many scientific objectives as possible. ARP recommends:

1. All sites be double-cored to maximize resolution and recovery, even if fewer sites can be occupied.

2. Logging not be done at any sites.

3. Better estimates of drilling times be provided by ODP..

4. Sites be occupied in order of priority, rather than in order of geographic proximity, as much as feasible.

5. Cochiefs should provide a prioritized ranking of all eleven sites to ARP and SOHP.

Leg 110, Barbados

ARP reaffirms its previous position that ODP proceed with Barbados Leg 110, Sites LAF 1-6, regardless of the availability of advanced technology such as wireline packer or drill-in casing. ARP believes that the first priority objective is to penetrate the decollment to oceanic crust, but the value of the Leg as proposed does not hinge on this target. ARP strongly advocates the scientific objectives of Sites LAF 1-6 proposed by MASCLE and MOORE, also by Tectonics Panel and Caribbean Working Group, that embody a partial transect across the Lesser Antilles forearc to investigate the changes in physical properties and deformation rates and mechanisms in the progressive growth of an accretionary prism. ARP recommends immediate review of all proposed sites by Safety Panel and that all HPC cores on Leg 110 be oriented.

Subantarctic Atlantic Leg

The ARP, after reviewing the subantarctic drilling plan submitted by SOHP to JOIDES, and while acknowledging its importance in providing potentially necessary "extra" time for Weddell Sea drilling, recommends that this drilling be considered within the broader perspective of South Atlantic drilling targets.

END

SUMMARY OF CEPAC MEETING
25-26 September 1985

1. CEPAC is concerned that publications are being delayed and that no firm contingency plan has been developed should there continue to be an income shortfall.

2. The panel requests that: Before 504B is occupied a strong effort be made to double HPC the sediment section. This section, which was poorly recovered in early HPC work, would provide a complete carbonate fine-scale paleoclimatologic and paleoceanographic history of the Cenozoic.

   Co-chief recommendations for the 504B leg are: Sinton and Hyndman; Robinson and Langseth or Anderson; Mottl and Kinoshita or Zoback

3. Don Hussong presented the new data collected this spring in the Peru trench. The drilling will be all single bit holes and no casing should be required. A total of 60 days of high priority drilling has been defined. We then discussed the Hays proposal for three holes along the Chilean margin. We felt that the objectives outlined by Hays are important but are not ready for drilling at this time. The surveys are not complete enough for good site selection. Further, the panel believes that as a one shot attempt at high latitude paleontology, this area may not be the best place, and it is certainly poorly known. Therefore:

   We recommend that as much time as possible be devoted to the Peru leg, and if more time is available it should be used to complete the second Peru paleo-upwelling set of holes. We strongly feel that the Peru leg objectives will be jeopordized if drilling time is reduced.

4. We then continued with our general discussion of the Pacific. Yves Lancelot reviewed the Old Pacific problems. Dave Rea and Paul Johnson reviewed the INPAC results. Dave Scholl reviewed the major topics of the NORPAC workshop held just before our meeting. With this background we then proceeded to list the major problems in the central and eastern Pacific. The order is based on simple evaluation of the merit of the science for each theme with each member giving a numerical score from 1 (high) to 4 (low) to each problem. The list and rankings are both subject to revision as the themes become more defined. As the total points show, there is as yet no strong groupings.

   The panel feels this review is somewhat premature but believe it is a necessary start to illustrate the range and depth of drilling related science in the Pacific. We strongly feel that the time allocated in the first round of drilling is very inadequate. We request that PCOM consider the science objectives outlined and find a method to increase the Pacific drilling time.

5. The panel recommends that Dave Rea take on the responsibilities of chairmanship of CEPAC. We continue to have a shortcoming on our panel with respect to Cenozoic micropaleontology and biostratigraphy. We again request appointment of someone like Nick Pisias, Joe Morley or Gretta Keller to our panel.

SOUTHERN OCEANS PANEL MEETING
Woods Hole, September 19-20, 1985

EXECUTIVE SUMMARY OF MAIN POINTS

SE PACIFIC PROPOSAL (HAYS)

* SOP considers objectives worthy but should be considered within framework of later South Pacific drilling. Has lower ranking than Weddell Sea and south Atlantic Subantarctic drilling.

WEDDELL SEA DRILLING

Logging:

* Realistic logging times should be considered with drilling estimates. It should then be decided where to place logging efforts in consultation with the co-chiefs.
* Current schedule by SOP lists only logging for W-4. Of the remaining sites, W-6, W-7, and W-8 could benefit most by logging.
* SOP wishes to have a member of the logging group present at the next meeting.

Drilling Priorities:

* Objectives of W-10 (Bransfield Strait) were again reaffirmed. But drilling should not jeopardize the three South Orkney sites (W-6; W-7; W-8). W-10 remains an alternate site to be drilled at beginning or end of leg.
* W-6 should be moved to Jane Basin.
* W-4A priority retained.

Other:

* SOP recommends that TAMU contact Navy to provide ice cover information for Weddell Sea.
* SOP does not believe it necessary to endorse particular ports at this time (i.e. Cape Town; Port Stanley; Punta Arenas, etc.), but requests that PCOM place prime consideration upon ensuring that scientific objectives are met.

SUBANTARCTIC DRILLING

Site Surveys:

* SOP feels strongly that pending site surveys for the subantarctic transect be carried out without further delay.

Drilling Priorities:

* SOP recognizes that in a "worst case scenario" for Weddell Sea drilling, the highest priority during the following subantarctic leg would be in completing Weddell Sea objectives.
* SOP rankings of subantarctic sites are similar to those of SOHP. Final rankings will be decided after site surveys are completed.

EAST ANTARCTIC MARGIN-PRYDZ BAY DRILLING

* Excellent Australian MCS lines are now available. Sites K1, K2, and K3 can easily be located on these dipping reflector sequences. Scientific prospects excellent but much drilling required. K4 is problematic because of slumping and requires further attention.

NORTH KERGUELEN DRILLING

* The following plan was agreed upon: Drill KH-1 to 900 m into top of reflector I1, then move to KH-3 (perhaps select a slightly thinner section than the present site) and do exploratory drilling to about 300-400 m to top of I1. Attempt re-entry, wash down and continue drilling to basement; KH-4 remains as alternate basement site. KH-5 o.k. as is. SOP likes the site S8B and will keep it as alternate site. S8B requires site survey but has a relatively thin pelagic section and could therefore be surveyed by the RESOLUTION.

SOUTHERN KERGUELEN

* Objectives at this time are to direct and influence the site surveys and ascertain that existing and new data are merged for the final selection of sites. SOP recommends that R. Schlich (France) and J. Falvey (Australia) be strongly encouraged to collaborate on this task. Both of them or their representatives should participate in the next SOP meeting.

OTHER SOUTH INDIAN OCEAN OBJECTIVES

* Melville Fracture Zone. SOP strongly supports drilling in this feature but recommends a thorough SeaBeam survey.

SOUTH ATLANTIC WORKSHOP

* SOP would like to co-sponsor this workshop. Suggests that it be held following drilling of the Subantarctic leg.

SOUTH PACIFIC WORKSHOP

* Co-sponsored by CEPAC and SOP.
* To be held in Gainesville, Florida in April, 1986.

CO-CHIEF NOMINATIONS FROM SOP

* Weddell Sea leg - J. Kennett and D. Fuetterer
* Subantarctic leg - J. LaBrecque and P. Ciesielski

LIAISON

* Better liaison needed between LITHP and SOP.

APPENDIX F

IOP Meeting: 21-23 August 1985, Bermuda

SUMMARY

IOP has continued to revise its priorities and recommendations ~~for a drilling~~ program in the Indian Ocean in response to receipt of new and revised proposals, and in response to the tentative schedule put forth by PCOM in June 1985. Our recommendations are summarized as follows, arranged in what we perceive as the best logistical schedule for a 21-month program including Kerguelen and Red Sea. In order to hit the optimum weather windows for both northern Arabian Sea and the Kerguelen Plateau area, two 3/4-length legs are proposed to start the Indian Ocean campaign.

Leg	Month	Program	Port
			Capetown
#115	May '87	SWIR-Melville Fz: lithosphere, upper mantle ∿ 1 mo. Fossil Ridge, Mascarene B., basement sampling ∿ ½ mo.	
	June		Seychelles
#116		Mascarene Pl.: L-M-C-M hot spot and carbonate dissol. > ½ mo. Davie R: biostrat. & paleoceanog. < ½ mo.	
	July	Gulf of Aden: hominid site, Neogene package < ½ mo.	Djibouti
#117	Aug. Sept.	Red Sea	Djibouti
#118	Oct. Nov.	Neogene Package - Oman margin, Owen R., distal Indus Fan	La Reunion
#119	Dec. Jan. '88	Kerguelen-1, north Kerguelen plus SW end of SEIR transect	Kerguelen
#120	Feb. Mar.	Kerguelen-2, north Kerguelen, Antarctic margin, and remainder SEIR transect	Freemantle
#121	Apr. May	Broken R. and southern part of Ninetyeast R.: hot spot trace & paleoceanography	Diego Garcia?
#122	June July	L-M-C-M (Laccadive-Maldive-Chagos-Mascarene) 2/ hot spot trace, paleoceanography, carbonate dissolution Start Central Indian Basin	Colombo
#123	Aug. Sept.	Finish Ninetyeast R. and Central Indian Basin, intra plate deformation & distal Bengal Fan	Padang, Sumatra, or Jakarta
#124	Oct. Nov.	N.W. Australia: Exmouth Plat. & Argo Abyssal Plain	Freemantle or Darwin
#125	Dec. Jan. '89	S.E. Australia (Otway Basin) continental margin & Tasman Rise. 2/ Could be done later with SW Pacific work	Melbourne

1/ First program out for time constraints: full Laccadive-Maldive-Chagos-Mascarene.

2/ Second program out: S.E. Australia margin.

3/ Project names underlined are explained briefly in Appendix B.

MINUTES

ATTENDEES:

Panel Members	Guests	Members Missing
Cochran	Larson (PCOM)	Duncan
Curray	Brenner (SSP)	Prell
Falvey	Weissel (TECP)	Sclater
Gradstein	Kidd (TAMU)	Tauxe
Schlich		
von Rad		

REPORTS:

XCOM and PCOM — Larson

ODP is still short of foreign members. It appears unlikely that the U.K. will be able to join. Japan is coming in this year, and E.S.F. and Australia are still negotiating. In order to operate a full program without robbing U.S. science, two new members should be located. Some talks have continued with the U.S.S.R., and preliminary communications have been established with China. Without additional members, some parts of the program and activities will continue to be cut, mainly from the science and operations budgets.

At their June Meeting, PCOM accomplished two significant things: first, establishment of a rather firm 1986 schedule; and second, establishment of a tentative subsequent schedule. Our proposal for the Indian Ocean was a major item of discussion for this subsequent schedule. Unfortunately, the eighteen months previously suggested for Indian Ocean dwindled to sixteen months, with PCOM endorsement of the Atlantic Sub-Antarctic Drilling Leg prior to entry into the Indian Ocean, tentatively in about May 1987. Highest priority items to PCOM from our recommendations were Kerguelen, Red Sea, and the Neogene Package. Specific assignments were given to panels for further development of these programs and legs, as follows:

- The mix or selection of Davie Ridge, Southwest Indian Ridge, Somali Basin, and/or Makran, assigned to SOHP, LITHP, TECP, and IOP for refinement and recommendations.
- Red Sea, assigned to Red Sea Working Group.
- Neogene Package, assigned to SOHP for primary responsibility.
- Kerguelen I and II, assigned to IOP, SOP, TECP, LITHP, and SOHP.
- Broken Ridge, Ninetyeast Ridge, and Intraplate Deformation-Bengal Fan, assigned to IOP.
- Argo/Exmouth, assigned to IOP and SOHP.

These assignments were discussed. Some disappointment was expressed that the Neogene Package, conceived and put together by IOP, was assigned to SOHP for refinement. The SOHP Minutes of July, however, suggested that the responsibility should be given back to IOP, a responsibility which we accept.

PCOM is especially interested in our recommendations and those of the other panels for the first leg priorities and recommendations among Davie Ridge, SWIR, Somali Basin, and Makran.

MINUTES OF THE WESTERN PACIFIC PANEL

14 - 16 AUGUST, 1985

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

Members Present:

Eli A. Silver	UCSC	Chair
Brian Taylor	HIG	
Jim Natland	SIO	
Margaret Leinen	URI	Lith Liason
Kazu Nakamura	U. Tokyo	TECP Liason
Jim Ingle	Stanford	
Reinhard Hesse	McGill U.	
Jacques Recy	ORSTOM	
Claude Rangin	IFP	
Hans Schluter	BGR	
Marcus Langseth	LDGO	
Asahiko Taira	ORI	PCOM Liason
Audrey Meyer	TAMU (Rapporteur)	ODP Liason
Absent:	Kagami	
Visitors:	(None)	

Executive Summary of WPP Meeting in Santa Cruz
August 14-16, 1985

The panel prepared a list of 20 potential drilling legs, based on all the proposals that we have received up to the start of the meeting. Each leg is focused on a scientific topic, but many represent amalgamations of several proposals and many sites. Voting was done as follows: Each voting member (11 total) had 3-3's, 3-2's, and 3-1's to distribute among the 20 potential legs. Members were not allowed to vote on proposals for which they were co-authors. To help alleviate the situation in which several members were excluded from voting on a given proposal, we divided the total vote from each leg by 11 minus the number of excluded voters for that leg. The results, presented below, fairly represents the feelings of the panel as a whole on the drilling priorities in the western Pacific region.

Leg name	Total Vote	Normalized Vote	Rank
Japan Sea	22	2.0	1
Bonin Transect	20	2.0	1
South China Sea	16	1.78	3
Banda-Sulu	16	1.78	3
Nankai Toe	18	1.64	5
Vanuatu Transect	15	1.5	6
Okinawa-Ryukyu	16	1.45	7
Lau-Tonga Transect	14	1.27	8
Zenisu Ridge Area	9	0.9	9
Sunda	8	0.8	10
Solomon Arc	8	0.73	11
Kurile-Japan Trench	7	0.64	12
Serpentine Diapirs	5	0.5	13
Northern Marianas	5	0.5	13
Valu Fa	5	0.45	15
Taiwan-Manila	5	0.45	15
Coral Sea	3	0.27	17
Sagami Trough	3	0.27	17
W Pac Downhole Expt	3	0.27	17
Lord Howe/Norfolk/etc	0	0	20

DRAFT MINUTES OF THE

SEDIMENTS AND OCEAN HISTORY PANEL

(meeting at Lamont-Doherty Geological Observatory, July 25-26, 1985)

PRESENT

M. Arthur
P. Meyers
Y. Lancelot
M. Sarnthein
E. Suess
W. Hay
W. Ruddiman
J. Kennett (SOP)
S. Gartner (PCOM Liaison)
G. Brass (NSF)
A. Palmer (ODP)

<u>Executive Summary</u> **APPENDIX H**

SOHP Minutes

(July 25/26, 1985; LDGO)

I. SOHP endorses 2 legs for southern ocean in Indian Ocean Program:

1) Pryda Bay and Southern Kerguelan
(Sites: 4 in Prydz Bay & K7, K12, K5, K10, K11)
2) Northern Kerguelan
(Sites: KHP-1, KHP-3, KHP-5A, S8B)

II. a) SOHP recommends that HPC Sites proposed by J. Hays off Chile be retained as backup sites, but that they have lower priority than Weddell sea program.
b) SOHP reiterates that W7 (or W8), W6, and W10 be completed at end of Weddell Sea program (as previously proposed), but that W10 (Bransfield Straits) be considered as first site if any ice problems.

III. SOHP recommends that a deep hole (ca. 2500 m) be drilled on or near anomaly M25 in the Somali Basin (for reasons detailed in minutes) as out favorite "Chinese Menu" alternative. More specific location to follow.

IV. Deep Stratigraphic Tests proposal will be revised and submitted as formal proposal. Emphase 6 deep holes: 1) Somali Basin; 2) Exmouth-Argo; 3) Bering Sea; 4) Venezuelan Basin; 5) Hole 603B; 6) Moroccan Basin

V. Man, Milankovitch, Mountains, Monsoon proposal: a) 3 Sites in upwelling transect to Ducin Ridge; b) 1 site on Somali basin margin; c) 1 to 2 sites on distal Indus Cone. (follows basic plan of Prell and IOP)

VI. See other comments within on Red Sea, 90°E-Ridge, and possible Chagos/ Laccadive/Mascarene transect.

VII. Next meeting Jan. 6,7 in La Jolla.

APPENDIX I

JOIDES LITHOSPHERE PANEL MEETING
August 29-30, 1985
at Universite Louis Pasteur, Institut de Geologie
Strasbourg, France

SUMMARY

1. Considerable concern over the availability of only two bare rock guidebases that causes major review of Atlantic and Pacific priorities. Recommend that two guidebases be used in the Atlantic only if needed to get one good hole. If a guidebase is available for 111, either left over from 106-109 or because more funds could be found, then 111 should be EPR drilling. 504B and EPR have equal science priority but there is a need to start tackling the technical problems associated with EPR as soon as possible.

2. Excellent MARK site survey work defines ideal drill sites for 106 and 109. Kane Fracture Zone drilling is back-up for 106 but recommend that final decisions on 109 back-ups (if needed) be delayed to January LITHP meeting before PCOM but after 106.

3. EPR drilling site should have three characteristics: seismically defined magma chamber, full photo coverage, and active hydrothermal activity but locate first site in downflow zone. Consensus was 'French' 13°N area probably best meets these requirements at this time.

4. Unique opportunity exists for sampling upper mantle stratigraphy by drilling SW Indian Ridge fracture zones. This proposal combines aspects of both upper mantle geochemistry and fracture zone tectonics, both high priority COSOD objectives. Full panel support for this drilling. Recommend three basement penetrations in Kerguelen and strong support for 90-E ridge program but still would like strengthened proposal and other relevant principals involved in the deliberations.

PRELIMINARY EXECUTIVE SUMMARY

APPENDIX J

TECTONICS PANEL MEETING

September 30 - October 2, 1985
Ocean Research Institute, Tokyo, Japan

* * * * *

1) RECOMMENDATIONS FOR LEG 110 DRILLING ON BARBADOS RIDGE

We endorse the drilling plan submitted by Moore in a memo dated May 17, 1985. Specifically, most of the drilling time should be expended at LAF-1 to: a) drill through the decollement; b) measure in situ physical properties using a drill-string packer; and c) set drill-in casing if necessary. After LAF-1, sites LAF-2 and 3 should be drilled upslope to complete the transect begun on Leg 78A. We do not support drilling completely new sites, such as LAF-5, 6, or 7 in the Caribbean Working Group proposal, on this leg.

2) IN SITU FLUID PRESSURE MEASUREMENTS

In view of the importance of documenting in situ fluid pressures and fluid properties at convergent margins, we recommend:

A) Immediately modifying the Barnes-Uyeda temperature probe so it can be used to measure in situ fluid pressures in the bottom of holes to be drilled on Leg 110;
B) Proceeding with the engineering required to modify the TAM drill-string packer so it can be included in a rotating ("hole-making") drill string, preferably before Leg 110; and
C) Developing a wire-line packer as soon as is technologically possible.

3) INDIAN OCEAN DRILLING

A) From the Chinese menu of possible legs for May-June 1987, we recommend drilling the Southwest Indian Ridge fracture zone (SWIRFZ). As is clear from our earlier ranking, we think both SWIRFZ and Makran address thematic problems of global significance; our rationale is clearly explained in the minutes of our March 1985 meeting. Forced to choose between them, we now favor SWIRFZ. On balance, the panel (by a 5-4 vote) feels that new information concerning fracture-zone tectonics and structure is more important at this stage than additional drilling in an accretionary prism, especially because drilling is scheduled on Barbados Ridge and off Peru. Looking down the road (or strait), we plan to evaluate other prisms and trench slopes in the Pacific Ocean.
Regarding SWIRFZ, we insist on using at least 2 holes to study transverse variations in the fracture zone instead of placing all holes along the trend of the zone as proposed. Finally, the sites proposed for other items on the menu - Davie Ridge and Somali Basin - do not merit drilling from a tectonic standpoint.

B) Kerguelen: Basement must be sampled on the north, central, and southern parts of the plateau. Of the existing proposed sites, we give highest priority to KHP-3, as a re-entry hole if necessary.
C) Drilling into "basement" beneath the dipping reflectors off the Caird Coast of Antarctica is of high priority because of the non-conclusive results of Leg 104 concerning seismically equivalent rocks.

...more

4) WESTERN PACIFIC

From a thematic standpoint, drilling in the Western Pacific offers an outstanding opportunity to address these global tectonic problems:

A) The evolution and constitution of arcs and fore-arc basement; the process of rifting in and near arcs; vertical tectonics in arcs
B) The origin and evolution of back-arc basins, including nascent and more highly evolved examples
C) The tectonics of collisions in the broad sense: The arrival of seamounts, aseismic ridges, plateaus, and continental plates and microplates at active convergent margins.

We plan to devise a drilling program aimed at these topics at our next meeting.

APPENDIX K

Report of the Information Handling Panel meeting,
College Station, Texas, September 9-11, 1985

Summary

1. Publications policy. The IHP restated its firm committment to a strong ODP publication program, and concluded that the two-part program adopted last year by PCOM still best meets the needs of the scientific community. To deal with the current financial shortfall the Panel endorses the conclusions and recommendations of the PCOM Publications Review Subcommittee. We recommend that (1) post-cruise conferences proceed on schedule; (2) all necessary material for Part A volumes be ready at the post-cruise conferences; (3) as a temporary expedient basic, cheaply-printed Initial Core Descriptions be produced for the early legs; (4) as Part A volumes can be completed, they are shelved to await funding for publication; (5) Part B. manuscripts be scheduled as originally planned, and shelved when received to await funding for editing and printing. The Panel concluded that ODP must maintain responsibility for publication of "Part B" peer-reviewed scientific reports by some means, and our proposal for a Part B volume seems ultimately to serve best the scientific community at a cost no higher than alternative proposals.

The IHP feels that the proposed "steady state" publications costs of $2.1 million are reasonable and in line with percentage publication costs of other large science programs. We recommend that publications be given a very high priority when and if additional funding becomes available, to facilitate earliest possible publication of Part A volumes. If anticipated improvement in funding does not occur, IHP asks to meet on an emergency basis to evaluate further options.

In our assessment, if the results of the ODP are not published in an adequate and coherent form, the Project loses its only universally visible product.

2. Logging data. IHP recommends that the routine wireline logging results be published, as edited and selected by the logging operator in consultation with the science operator, in Part A at the scale of the barrel sheets. If financial or production constraints preclude this, representative logs should be published and the presense of all logging data indicated on the core descriptions. Non-routine downhole measurements should appear as individual scientific experiments in Part B.

3. Other subjects. The following matters were also considered at the IHP meeting, and are covered in the attached report.

(a) Logging data distribution policy
(b) Appointment of a liaison to IHP from the logging operator.
(c) Sample curation policy, especially regarding requests for whole round core samples for destructive shipboard analysis.
(d) Status of ODP data bases and data aquisition
(e) Status of Micropaleontology Reference Centers
(f) Status of ODP computer services
(g) Need for representative sampling for consistent correlation

of various measurements.

(h) Relation of ODP Data Bank at LDGO to other data banks and services.

(I) Request for a Japanese representative on IHP.

APPENDIX L

12 August 1985

REPORT OF THE SUBCOMMITTEE FOR REVIEW OF ODP PUBLICATIONS

1. INTRODUCTION

Constraints on the FY86 ODP budget prompted EXCOM to re-examine, among other items, the ODP publications budget. That budget is projected at $864K for FY86 and at $2.0 to $2.5 M steady-state. EXCOM directed PCOM to examine the problem and PCOM in turn appointed a subcommittee for this purpose. Issues to be addressed by the subcommittee grow mainly from the need to cut costs, but they extend to re-examination of the entire philosophy behind the publication of past and projected ocean drilling results.

(a) One option raised by EXCOM was elimination of the blue book series (presumably meaning its equivalent in ODP) and its replacement with another form in which data could be presented, perhaps a collected reprint series or the establishment of a data center at the ODP Databank.

(b) Reservations were expressed about the two part format, particularly Part B (peer reviewed papers discussing the results of a leg).

(c) Publication of logging data in Part A was expected to be very expensive and should be re-examined. EXCOM felt that different ways of making these data available should be explored.

(d) Advances in information technology should be taken into account.

(e) The need of non-U.S. members to have a tangible output from ODP also must be considered.

The subcommittee, consisting of S. Gartner (PCOM), D. Appleman (IHP), A. Mayer (JOIDES), R. Merrill (ODP), and H. Spall (USGS Reston) (for J. Holoviak, AGU) met in Washington on July 29. Also present were W. Rose (ODP) and G. Brass (NSF).

2. BACKGROUND

(a) The Review Group started from the basis of the currently agreed publications policy as recommended by the Information Handling Panel (IHP) and accepted by PCOM. The PCOM (September 1984) recommended that an Initial Report (Part A) should be published about one year post-cruise. This would include a simple introduction, the site chapters with the ICD equivalents and a short summary. The full scientific report (Part B) should appear about three years post-cruise.

(b) IHP in making recommendations to PCOM had drawn up a list of attributes which were desirable for ODP publications designed to serve the needs of the shipboard scientific parties and the co-chief scientists, the outside scientific community of users of the program results, and the program operators and managers. Highest priority went to leg coherence (keeping all the results of a given leg together); timeliness of publications; and editorial scope (peer review standards) and flexibility.

(c) At its Norfolk (April 1985) meeting, PCOM considered that the data from the standard logging tools should be printed as a logging summary in Part A with interpretations and analyses appearing in Part B. This issue has been referred to IHP and to the Downhole Measurements Panel (DMP). The latter reacted enthusiastically to this proposal.

3. CONSTRAINTS

(a) R. Merrill gave a presentation on the current ODP publications policy and a cost comparison between DSDP publications and those projected by ODP TAMU in order to meet the agreed policy. This budgetary information is given in Annexes 1-8 of this report.

(b) The original estimate for FY86 from the Publications Group was for $843K, increasing in later years to a maximum "steady-state" of approximately $2.2 M annually in 1986 dollars. This would include printing and distribution costs which were not included within the DSDP publications costs. Following revisions of the ODP budget consequent upon funding shortfalls, the FY86 figure has been reduced to $188 K, which may be further reduced by about 10% to accommodate the recommendations of the EXCOM Budget Subcommittee.

4. DISCUSSION

(a) Some concern had been expressed by EXCOM over the $2 M - $2.5 M projected "steady-state" budget for publications, which represents approximately 8% of the current annual program costs. The Review Group compared this with USGS activities: these figures are comparable and entirely reasonable for a program of this magnitude. It should be noted that revised estimates from TAMU put the publications "steady-state" cost at $2.14M in 1986 dollars.

It should be recognized that even this revised estimate cannot be taken as cast in concrete. It is impossible to judge whether doubling of the number of shipboard scientists will result in a doubling of scientific contributions. It is reasonable to expect some increase. It is also unclear to what extent the peer review of all of these contributions plus a policy of making all contributions "lean" will materially reduce costs, although such a reduction will almost certainly occur.

(b) The policy for publications with Parts A and B of ODP Proceedings was considered at some length. Part A (consisting of site chapters, core descriptions, black-and-white core photographs, and selected underway geophysics and logging data) is considered essential, and should appear approximately 12-14 months post-cruise to coincide with the release of core material and other data for use by the general scientific community.

(c) The DSDP Initial Reports are considered "gray" literature by some members of the community and there is concern that Part B will be similarly considered and at considerable cost of publication. The conclusion of the subcommittee was that Part B will not be stigmatized by that odious label provided that the papers contained in it are fully peer-reviewed, that realistic deadlines for manuscript submission are adhered to, and that these papers address the interpretation of results. Papers which consist largely of data presentations without interpretations create difficulties if included, despite their being essential to ODP's overall mission. The subcommittee thought that such data might be published on microfiche and bound in a pocket within the book, rather than be published as part of the text of Part B.

Much of the discussion during the meeting pertained directly or indirectly to the issue raised above. The question may be rephrased as follows: "Is it appropriate for ODP to be responsible for publication of those results which are to be included in Part B, i.e., the fully peer-reviewed contributions of shipboard and other scientists pertaining to a particular leg?" Points raised which were relevant to this question are as follows:

(i) Journals in the open literature probably cannot handle the sheer volume of manuscripts produced by ODP science in the course of a year (projected at 6000 printed pages annually).

(ii) Some important contributions could not find space in appropriate publication media because they would make little sense if presented out of context with other material related to the scientific problems addressed by the relevant legs.

(iii) The lack of a designated vehicle (and schedule) for publication of ODP results probably would cause many scientists to lose interest and motivation for timely completion of manuscripts, with consequent irrevocable loss of information.

(iv) Contributions resulting from any single leg would be widely scattered in various journals and be published at various times in various languages; there would be a complete loss of quality control. Under these circumstances, the scope and complexion of the final product of 10 years of the ODP would become unpredictable and uncontrollable and, if ultimately judged to be faulty, would be irreparable.

(v) The contributions in Part B constitute the only public record of the scientific thought invested in the planning, execution and analysis of each leg by the JOIDES community and by the participating scientists. They record the interactions of the international scientific community and the synergistic effects of combined efforts to define, attack and resolve scientific problems. In their present form, they are an essential part of the tangible product of the international scientific community's investment in ODP. Loss of the Part B publication format, and the resultant dissemination of these papers throughout the open literature, could severely impact perceptions of the quality of the ODP product in the eyes of scientists outside of the JOIDES community.

(vi) Elimination of Part B would not necessarily result in a significant cost savings, because page charges and other production costs (drafting, etc.) for an equivalent number of pages to be published in the outside literature would still be incurred by the funding agencies.

(d) There was discussion about the maximum length of papers to be permitted in Part B. Papers should be as brief as necessary, but the subcommittee did not think it appropriate to suggest editorial policy.

(e) ODP/TAMU is reviewing new advances in paper technology for Part A and Part B production. Acid-free, lightweight paper which permits high quality plate reproduction is now available which would decrease the overall cost of production and also create savings in distribution costs.

(f) The subcommittee is satisfied that ODP/TAMU is taking advantage of new technologies in publishing to streamline and reduce the costs of production. These include automated manuscript tracking, optical character reading, and electronic translation of foreign (to the ODP/TAMU computer system) disk formats, which will ease the electronic capture of incoming manuscripts, electronic manuscript transfer to reduce typesetting costs, and ship-to-shore word processing in order to accelerate the production schedule and to make on-line revisions to Part A manuscripts possible.

New machines are now being marketed which facilitate electronic paste-up and page composition (including graphics). These are the WYSIWYG ("what you see is what you get") machines. ODP/TAMU has been asked to assess this technology which, if applicable, could further reduce the future staffing requirements of the Publications Group. At this time, however, this technology is expensive and relatively untested. It may be a useful development in the not-too-distant future.

(g) The subcommittee considered the subject of "advances in information technology." It is not entirely clear what is meant by this phrase, although some present interpreted the phrase to suggest, e.g., dissemination of ODP results on floppy disks. While the technology for this procedure may exist, the complexity and cost of applying this technology are likely to preclude its use in the immediate future.

(h) The subcommittee was satisfied with the level of staffing necessary to produce Part A, which consists of two copy editors (of five proposed), one production editor (of three), one illustrator and one draftsperson. This staff would also be engaged in the production of science cruise prospecti, preliminary reports, technical reports, hole summaries, and support of PR activities.

5. CONCLUSIONS AND RECOMMENDATIONS

(a) It is clear that there are insufficient funds available in the FY86 Publications budget to produce the Part A volumes of the Proceedings and the ancillary publications which are scheduled to appear during FY86.

(b) The subcommittee considers it to be of prime importance to produce some form of ODP publication during FY86, without prejudicing the approved publications policy. Current staffing of publications is frozen for FY86 at the publications supervisor, two illustrators, one draftsperson (for the barrel sheets), and one hole summary coordinator. With this staffing and funding for FY86, the subcommittee recommends the production, printing, and distribution of at least two (2) DSDP-style Initial Core Descriptions. These would be considered preliminary versions of equivalent Part A's, which would be published in FY87. Legs 101 and 103 are appropriate for ICD production, in that cores were recovered, and it may be possible to produce some equivalent documentation for Leg 102 (the logging leg). It is also expected that the Publications Group will carry out some editorial work on Part A's in preparation for FY87 printing, although the lack of editorial staff probably will limit the Group's accomplishments in this direction. Additionally, the Group is asked to continue to produce the ancillary publications referred to in Section viii above.

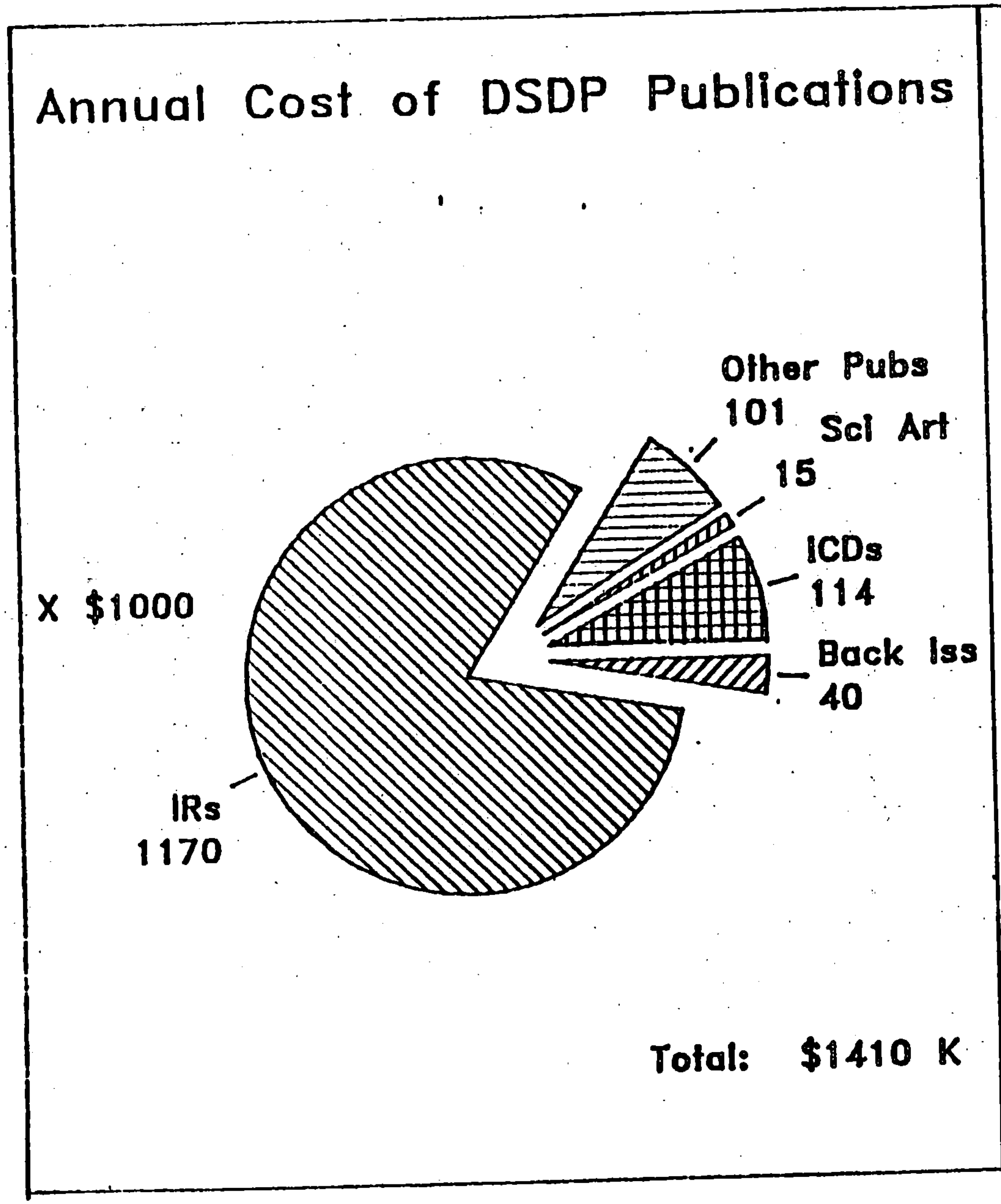
(c) In an effort to reduce costs, the Publications Group should investigate the possibility of using freelance editorial staff. It is understood that the Publications Group will seek out the most economical bids for typesetting, printing and distribution without compromising the quality of the ODP publications.

(d) The Manager of Science Services should hold off on proceeding with RFP's for typesetting, printing and binding, and distribution of Parts A and B until the budget for FY87 can be projected with reasonable accuracy.

(e) Overall staffing of the Publications Group needs further review prior to formulation of the FY87 budget in order to bring staffing in line with the tasks required of the group.

(f) It is anticipated that the phase-down of DSDP during FY87 will assist the ODP budget for that year. The subcommittee places high priority on restoring funds for rapid publication of Part A's for FY86 and FY86 cruises.

(g) The subcommittee considered that, apart from specific logging legs such as Leg 102, Part A of the Proceedings should contain only a brief guide to the logging data and to specialist downhole experiments, and that it should advise as to how users may access data in L-DGO and TAMU. IHP should be asked to give further consideration as to how this may be done.


Annual Cost of DSDP Publications
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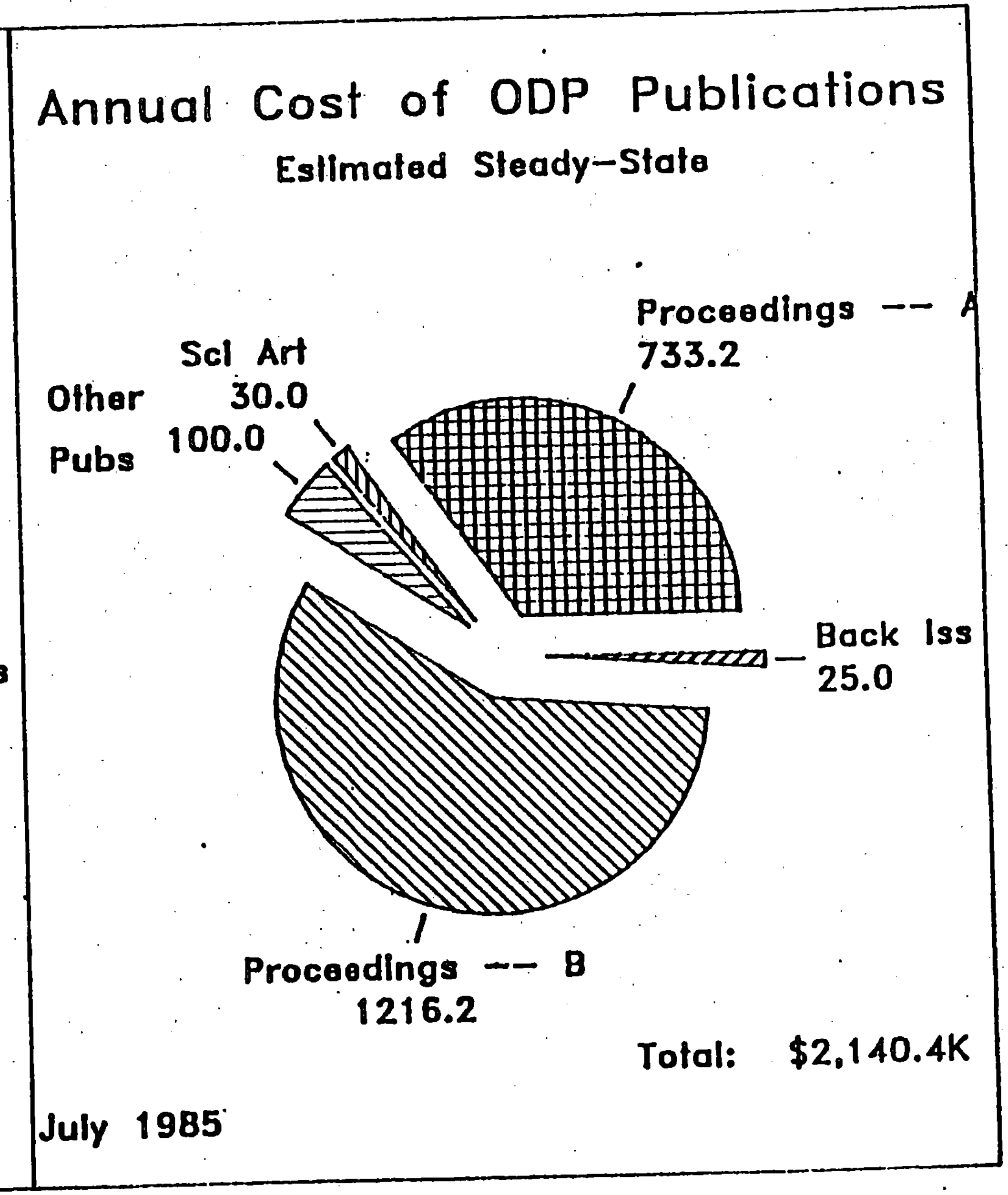
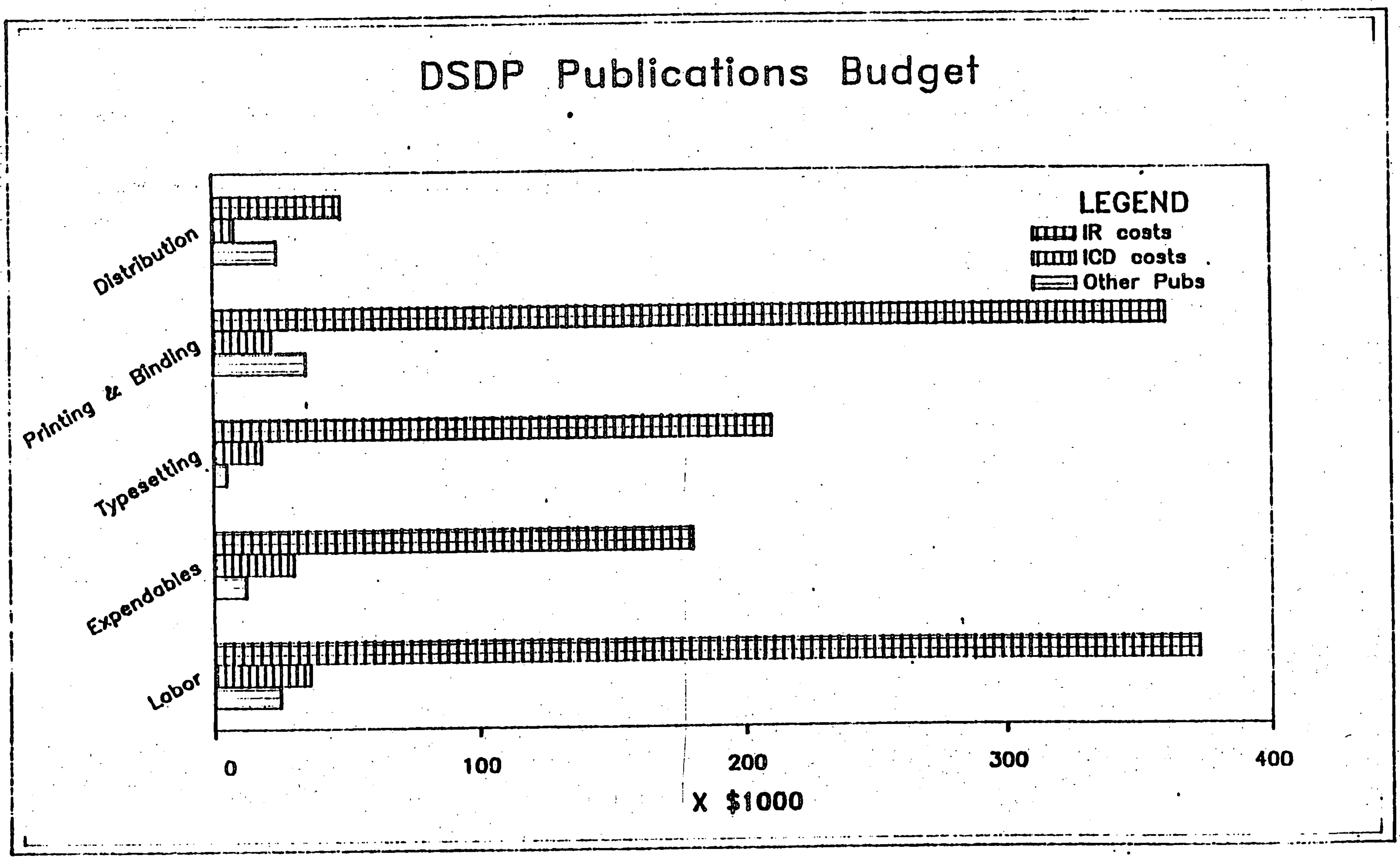
Other Pubs
101
Sci Art
15
ICDs
114
Back Iss
40
IRs
1170
Total: $1410 K


Annual Cost of ODP Publications
Estimated Steady-State
Proceedings -- A
733.2
Sci Art
30.0
Other
Pubs
100.0
Back Iss
25.0
Proceedings -- B
1216.2
Total: $2,140.4K
July 1985


DSDP Publications Budget
LEGEND
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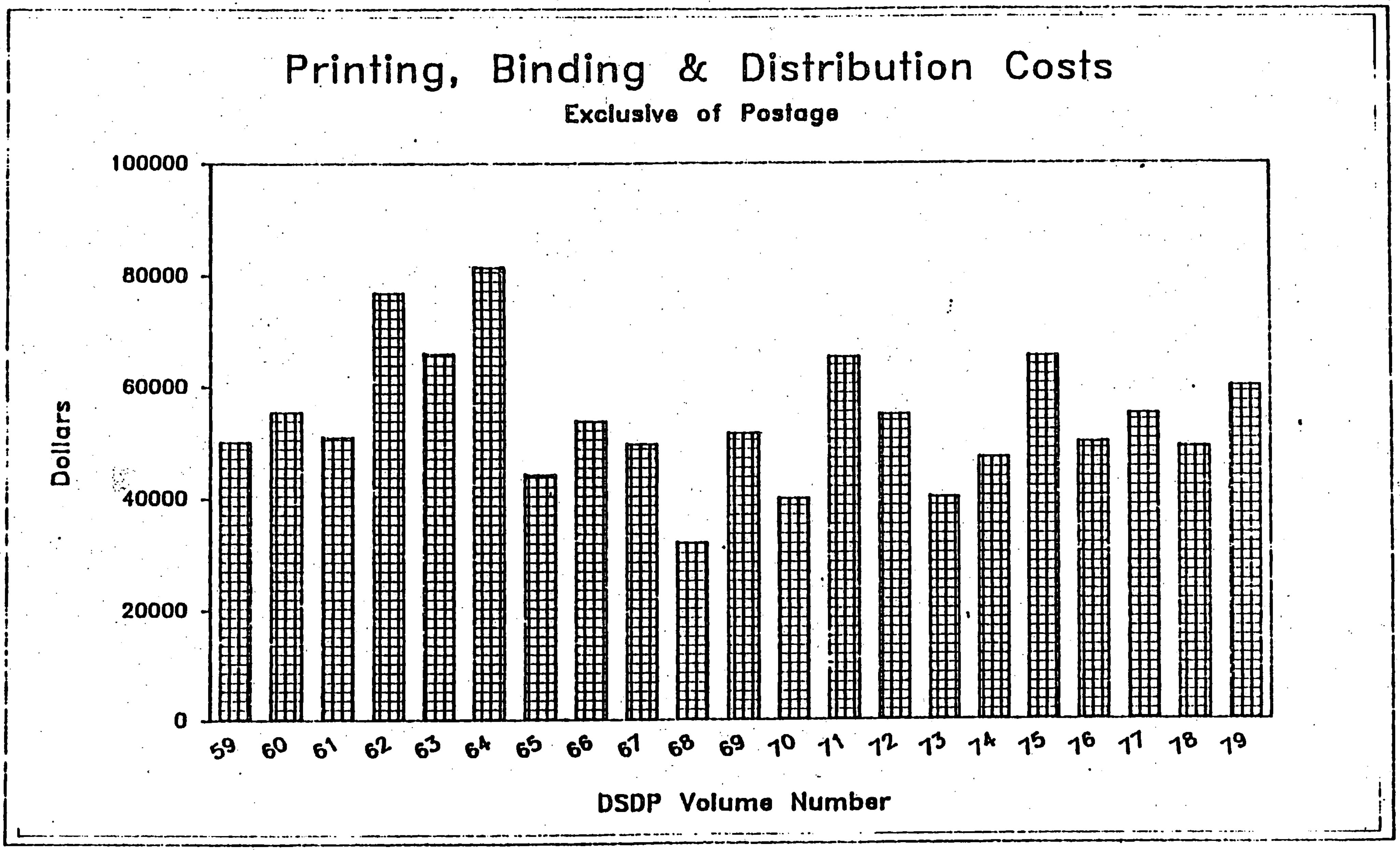
ICD costs
Other Pubs
Distribution
Printing & Binding
Typesetting
Expendables
Labor
0
100
200
300
400
X $1000



Printing, Binding & Distribution Costs
Exclusive of Postage
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80000
60000
40000
20000
0
Dollars
59
60
61
62
63
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68
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72
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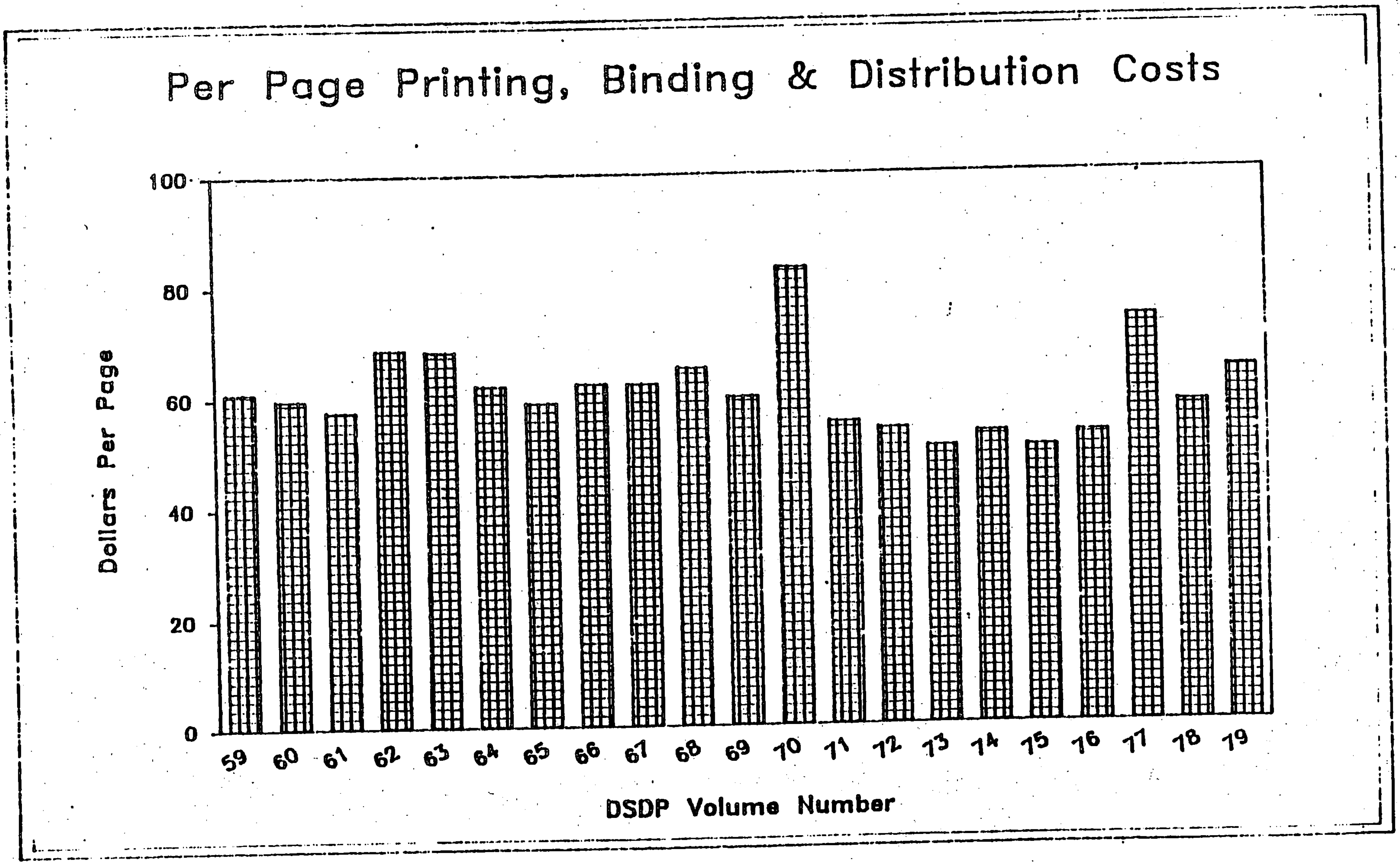
76
77
78
79
DSDP Volume Number



Per Page Printing, Binding & Distribution Costs
Dollars Per Page
0
20
40
60
80
100
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
DSDP Volume Number

Contents of ODP Proceedings

-- Initial Report --

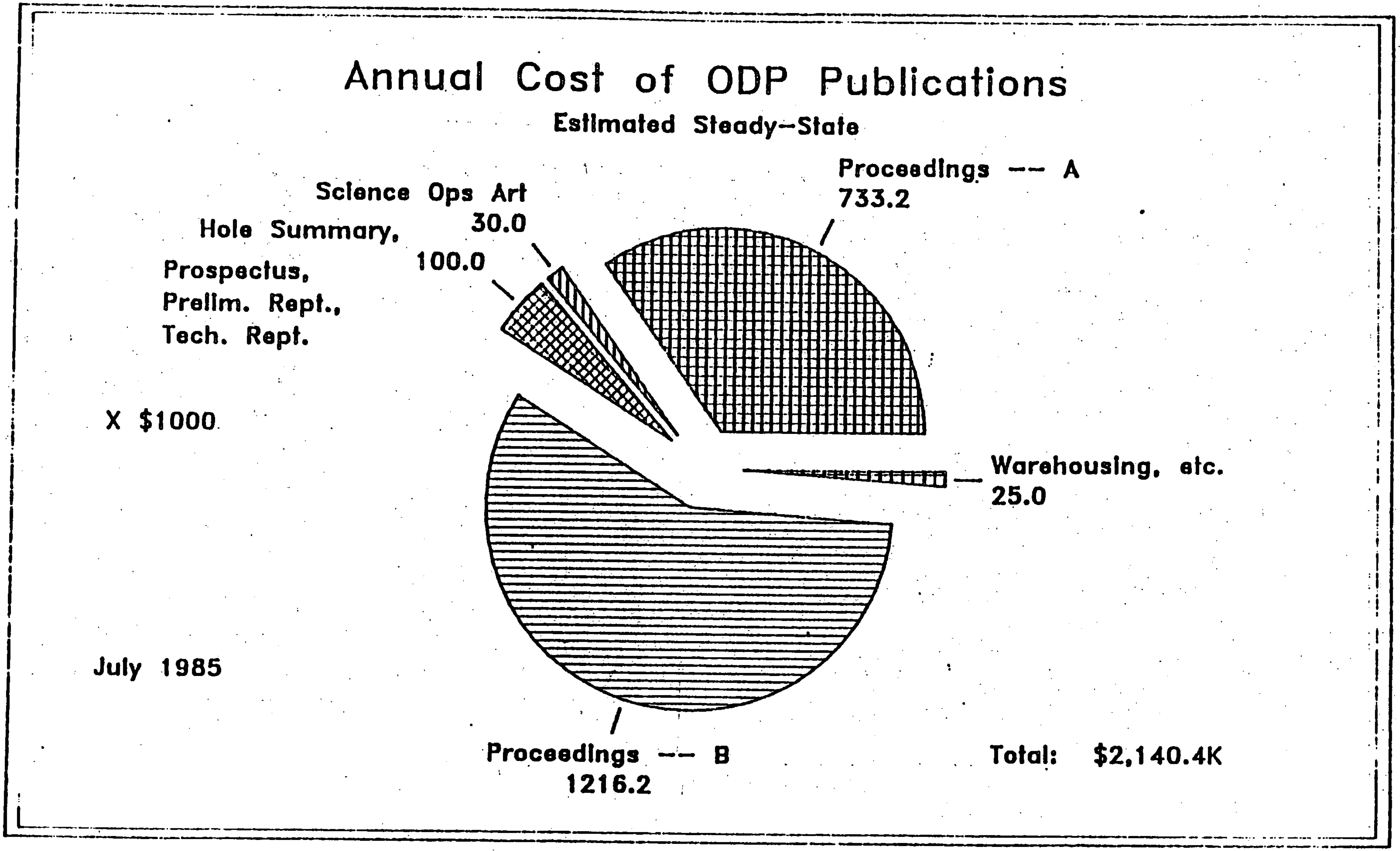
* Introduction & Explanatory Notes
* Site Chapters
* Core Barrel Sheets
* B&W Core Photographs
* Selected Underway Geophysical Data
* Selected Logging Data
* Back Pocket Figures

-- Final Report --

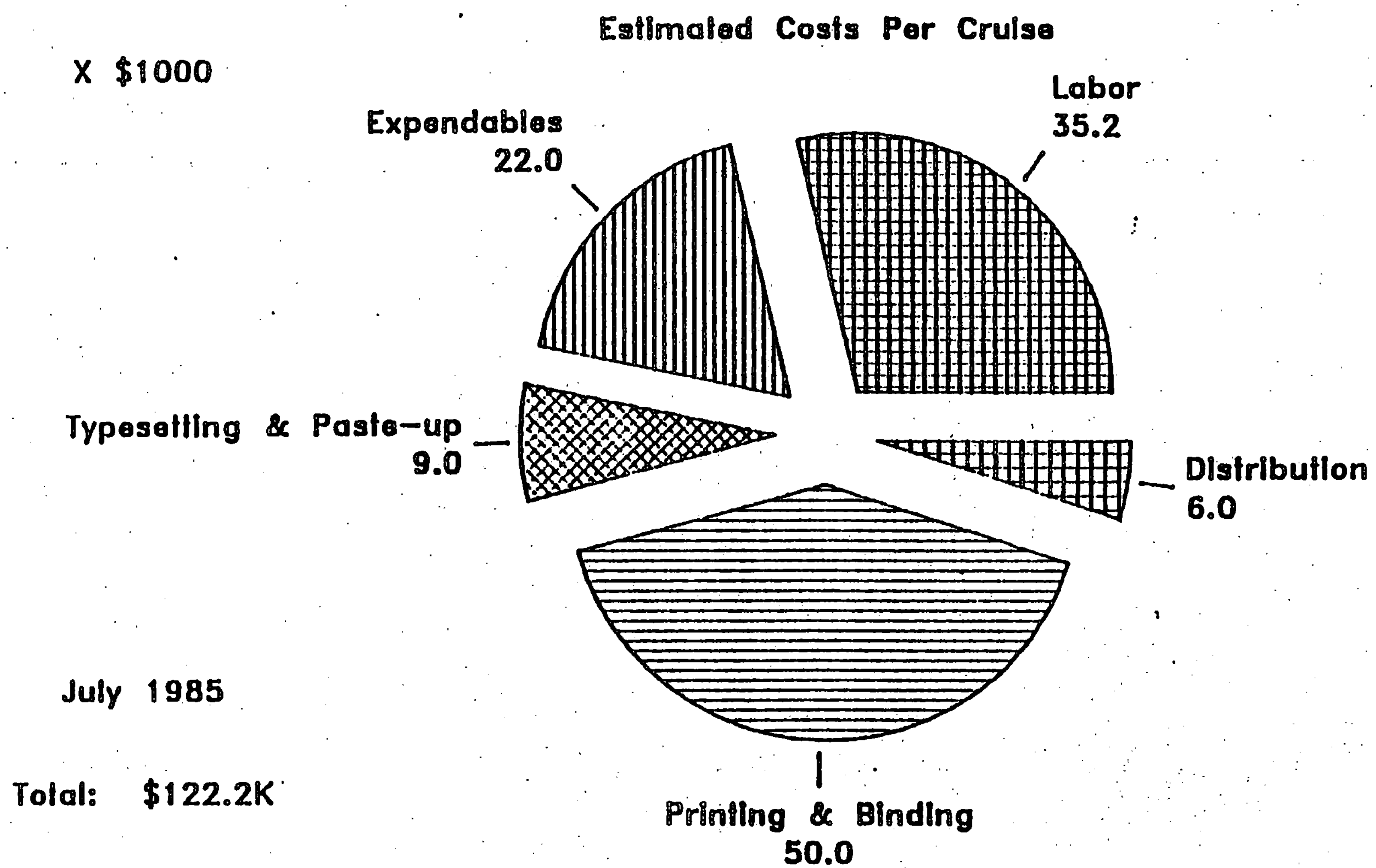
* Frontispiece
* Introduction & Explanatory Notes
* Peer-reviewed specialty papers
* Acknowledgments
* Back Pocket Figures

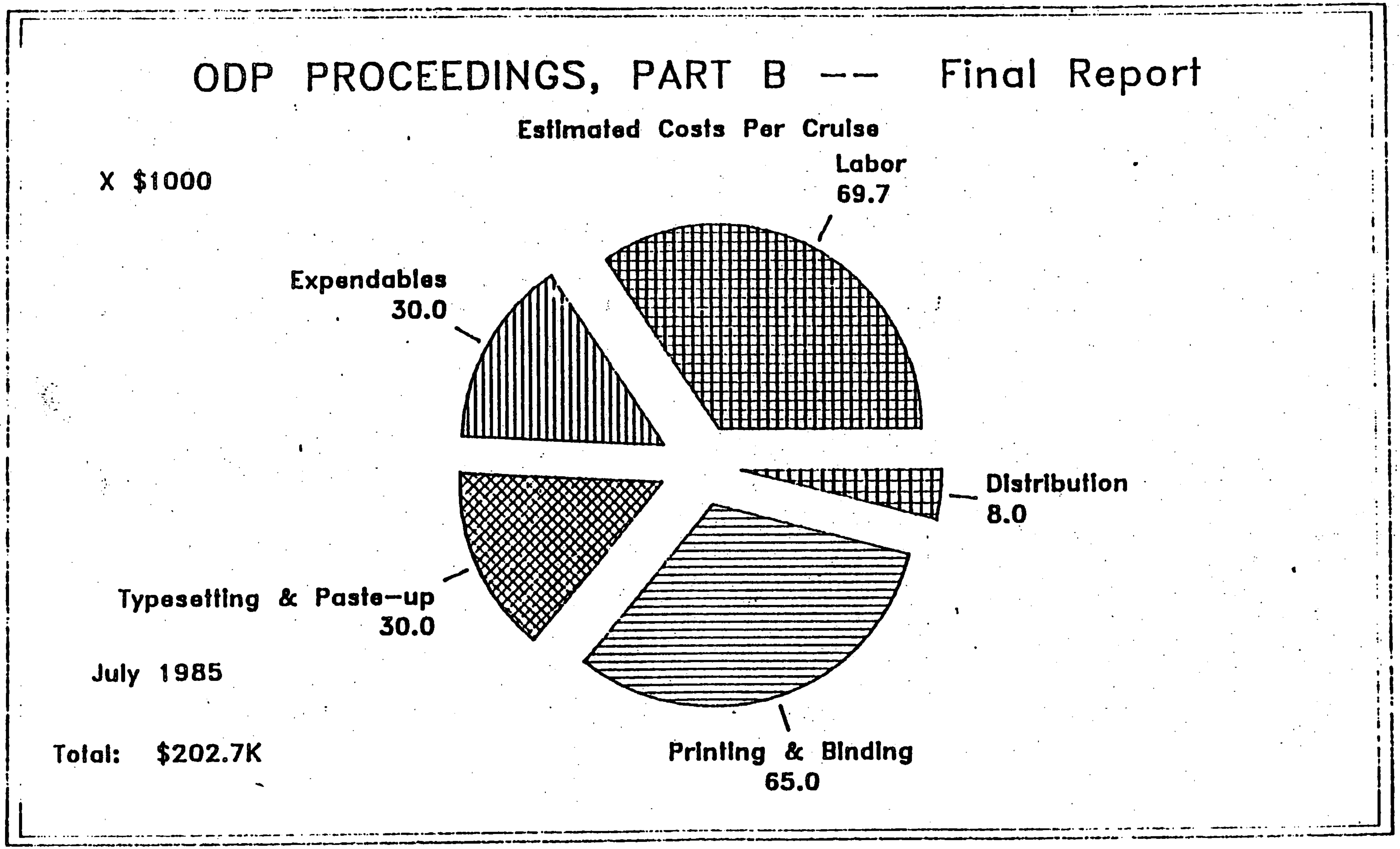
ODP Cruise-related Publications

1. Cruise Prospectus
   3 months precruise
2. Preliminary Report
   1 month postcruise
3. Hole Summary
   1 month postcruise
4. ODP Proceedings: Initial Report
   12 months postcruise
5. ODP Proceedings: Final Report
   40 months postcruise


Annual Cost of ODP Publications
Estimated Steady-State
Proceedings -- A
733.2
Science Ops Art
30.0
Hole Summary,
100.0
Prospectus,
Prelim. Rept.,
Tech. Rept.
X $1000
Warehousing, etc.
25.0
July 1985
Proceedings -- B
1216.2
Total: $2,140.4K

ODP PROCEEDINGS, PART A -- Initial Report




ODP PROCEEDINGS, PART B -- Final Report
Estimated Costs Per Cruise
X $1000
Labor
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Expendables
30.0
Distribution
8.0
Typesetting & Paste-up
30.0
Printing & Binding
65.0
July 1985
Total: $202.7K

ODP Peer–Reviewed Publication Process

- Manuscript Review, Revision and Acceptance
  -- Staff Scientist and Co–chiefs
- ODP Revisions for Consistency & Grammar
  -- Staff Copy Editor
- Typesetting, Illustrating, Proofreading
  -- ODP Art and Production, Typesetting subcontractor
- Co–chief Review & Corrections
  -- Co–chiefs, Staff Copy Editor & Production Editor
- Printing, Binding & Distribution
  -- Printing & Binding Subcontractors

Streamlined ODP Production Procedures

Automated manuscript tracking will prompt laggards and supply management reports

Ship-to-Shore word processing will make on-line editorial revisions to Part A mss possible

Optical character reading/foreign disk translation will ease electronic capture of incoming mss

Electronic ms transfer will reduce typesetting costs

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EARTH SCIENCES
APPLIED SCIENCES BUILDING

SANTA CRUZ, CALIFORNIA 95064

September 25, 1985

85/33

RECEIVED OCT 2 1985

Professor Roger Larson, Chairman
Joides Planning Committee
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882-1197

Dear Roger:

I am writing regarding the Packers for Leg 110 of ODP:

As you know the only packer presently available for Leg 110 is Keir Becker's double element Tam packer which requires a pipe trip and re-entry for utilization. Recently Keir has informed me that his existing Tam Packer can be modified to allow rotation and therefore placement in the drill string during coring operations. This option would allow pressure/permeability testing immediately after penetrating faults during drilling, providing the opportunity for measurements before time-dependent hole collapse occurs and obviating the need for re-entry in some cases. Furthermore, this modified packer is the only tool that could be coupled with the existing drilling casing and potentially measure fluid pressures and permeabilities below the decollement.

The modified Tam Packer has enormous potential for saving both ship time and the cost of drilling hardware (re-entry cones, casing strings). Support of the modification of this tool should be given the highest priority in funding. Since the development of a re-entry compatible drilling casing is not feasible by Leg 110, perhaps some of the funds targeted for this expensive item can be diverted to the Tam Packer modification.

Thank you for your consideration.

Sincerely,

J. Casey Moore
Professor, Earth Sciences

cc K. Becker
R. von Hertzen

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EARTH SCIENCES
APPLIED SCIENCES BUILDING

SANTA CRUZ, CALIFORNIA 95064

September 25, 1985

Professor Roger Larson, Chairman
Joides Planning Committee
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882-1197

Dear Roger:

I am writing regarding the planning for Leg 110 of ODP. Specifically I would like to address the feasibility of penetrating the decollement between offscraped and underthrust material as well as fall-back options should this objective not be achieved.

Drilling Schemes to Penetrate the Decollement

Glenn Foss of TAMU has informed me that they cannot develop drilling casing that is compatible with a re-entry cone and extended casing string. However, they plan to improve the existing, non-re-enterable, drilling casing to more uniformly apply torque and hopefully allow its release from the drill string after emplacement. Secondly, they are preparing a long standard casing string that perhaps could span the decollement. Foss is optimistic that this casing system can be emplaced by using abundant mud to circulate cavings out of the hole while the casing is run. If successful, both coring and existing Tam packer experiments could occur below the decollement. If not, utilization of the modified drilling casing would permit coring and logging below the decollement <u>and</u> packer experiments if the Tam packer is modified (see Keir Becker's letter). Success with either of the above two schemes will allow completion of virtually all leg objectives. I believe that the foregoing options provide an adequate range of approaches to the admittedly difficult problem of penetration of the decollement. I personally believe the chances of success are high.

Alternate Drilling Plan: Scientific Justification

If complete penetration of the decollement is impossible, then operations will be limited to coring, re-entry, logging, and packer measurements above and within the upper part of the decollement. The critical question is whether this "fall-back" position constitutes a viable leg.

Structural and hydrogeologic questions associated with penetrating the offscraped material above the decollement include: 1) is there significant intergranular fluid flow? 2) is there fluid flow along the faults that splay off the decollement? 3) what is the magnitude of fluid flow in the decollement (at least its upper portion)? Since the material below the decollement is undeformed and apparently fine-grained (limiting fluid flow) the attainment of the above objectives probably describe 70% of the hydrologic regime of this accretionary prism. While this would produce an admittedly incomplete analysis of the structure and hydrogeology of this system, it would be virtually the first thorough investigation of fluid flow in this environment of massive tectonic consolidation. Although, not discrediting results from previous Legs at active margins (including 78A!, see attached reprint), they have been principally structurally oriented, and have produced no pressure, pore water, nor temperature data adequate for modeling of fluid transport. Moreover, recent discoveries of unique biological communities at subduction vents provides additional impetus for hydrologic studies of accretionary prisms. The multidisciplinary analysis of the structure <u>and</u> hydrogeology of the Barbados prism will break new ground in studies of accretionary tectonics and provide a basis for conceiving further, more sophisticated investigations.

Time Requirements of Alternate Drilling Plan

Given the good possibility of penetrating the decollement at LAF 1, Leg 110 should begin with this objective and only proceed to the alternate drilling plan after thorough testing of all approaches. Total time estimates are as follows:

LAF 1	Penetration of Decollement	21 days
LAF 2	Penetration to Decollement	15 days
LAF 3	Arcward Reference Site	11 days
LAF 3A	Upslope Fault Dynamics	13 days
	Transit	7 days
		67 days

Time on LAF 1 is that required to try all approaches to penetration. Successful penetration might involve more time to core a test sediment below the decollement. Estimates for all Sites include continuous coring, full log suites, televiewer runs, and packer experiments. Clearly, a credible attempt at LAF 1 plus completion of the upslope transect will more than utilize a normal two month leg.

I hope the above material is adequate to allow PCOM to evaluate the viability of Leg 110 with or without complete penetration of the decollement. For your information I've also enclosed a copy of a previous, more detailed drilling plan. If you have questions please call me at 408-429-2574 (429-2504, leave message; 426-6245, home).

Sincerely,

Casey Moore

Casey Moore
Professor, Earth Sciences

Casey Moore
May 17, 1985

NORTHERN BARBADOS FOREARC TRANSECT: STRUCTURAL AND HYDROGEOLOGICAL PROCESSES

BACKGROUND

The northern Barbados forearc transect is designed to examine structural and hydrogeologic processes in an active accretionary environment. A key objective is to penetrate completely through the toe of the prism, including offscraped sediment, underlying underthrust sediment, and the active decollement separating these differing structural regimes. Emplacing a re-entry cone and casing string to the decollement here would provide the basis for long-term measurements of tilt and fluid characteristics in this environment. To evaluate lateral variations in fluid properties and structural features a series of additional sites are planned up to 23 km landward of the deformation front.

Operating time estimates were derived with the assistance of Glenn Foss and Stan Serocki at ODP. The time required for transit and to accomplish all objectives exceeds the normal cruise length by about 50 percent. A normal cruise should complete the first priority site at the toe plus at least one other hole; with luck several of the upslope holes could also be drilled.

SITE OBJECTIVES AND OPERATIONS

The proposed sites for the northern Barbados forearc transect are listed below in order of priority.

LAF 1: Base of Slope near Site 541, Three Km from Deformation Front

Specific Objectives: Completely penetrate from imbricately thrusted offscraped sediment through active (and probably overpressured decollement) to underthrust stratified sequence, finally to oceanic crust. Determine sequence of structural features including biostratigraphic definition of faults, use televiewer to image structural features downhole. At selected structurally defined localities measure geotechnical properties and fluid pressure, composition, temperature and flow rate.

Establish cased hole with a re-entry cone that could serve as a permanent observatory for down-hole monitoring of subduction zone.

Operations: Achievement of objectives will require two re-entry cones and setting of casing, both standard and drill-in variety.

A-Hole: Penetrate about 500 m to decollement, setting re-entry cone, and casing as necessary to unstable zone in decollement. Measure fluid pressure and compositions associated with faults in offscraped sequence and decollement at base of offscraped section. Compliment drilling with logging, televiewer runs, and packer and geotechnical experiments. - 17.5 days

B-Hole: Set re-entry cone, drill and case as necessary to decollement. Span unstable decollement zone with long section of drill-in casing. Focus logging, televiewer runs, packer and geotechnical experiments in stratified sequence below decollement. 18 days

Note: It is possible that the base of the A-hole would remain stable long enough to continue through the decollement with drill-in casing and therefore save 8 days necessary to set another re-entry cone and to case to the decollement. Therefore the total time to complete all objectives could range from 25.5 to 35.5 days.

LAF 2: Eight Km Upslope from Deformation Front

Specific Objectives: Investigate lateral variations in structural features, physical properties, and pressures, composition, and temperatures of fluids in offscraped material and in decollement zone.

Operations: Single hole designed to penetrate 850 m to decollement using casing as necessary and re-entry cone (required for current packer). Continuous coring with complete program of logs, televiewer runs, and packer and geotechnical experiments at selected localities. 18 days

LAF 3: Twenty-Three Km Upslope from Deformation Front

Specific Objectives: Penetrate landward dipping reflectors (fault?) at top of lower slope. Establish arcward reference point for variations in structural style, fluid properties, and temperature. Test for active fluid movement along faults well arcward of deformation front.

Operations: Single hole designed to penetrate 500m to prominent series of landward dipping reflectors. Re-entry cone required to use packer. Full suite of logs planned plus borehole televiewer and geotechnical experiments. 11 days

LAF 3A: Fifteen Km Upslope from Deformation Front

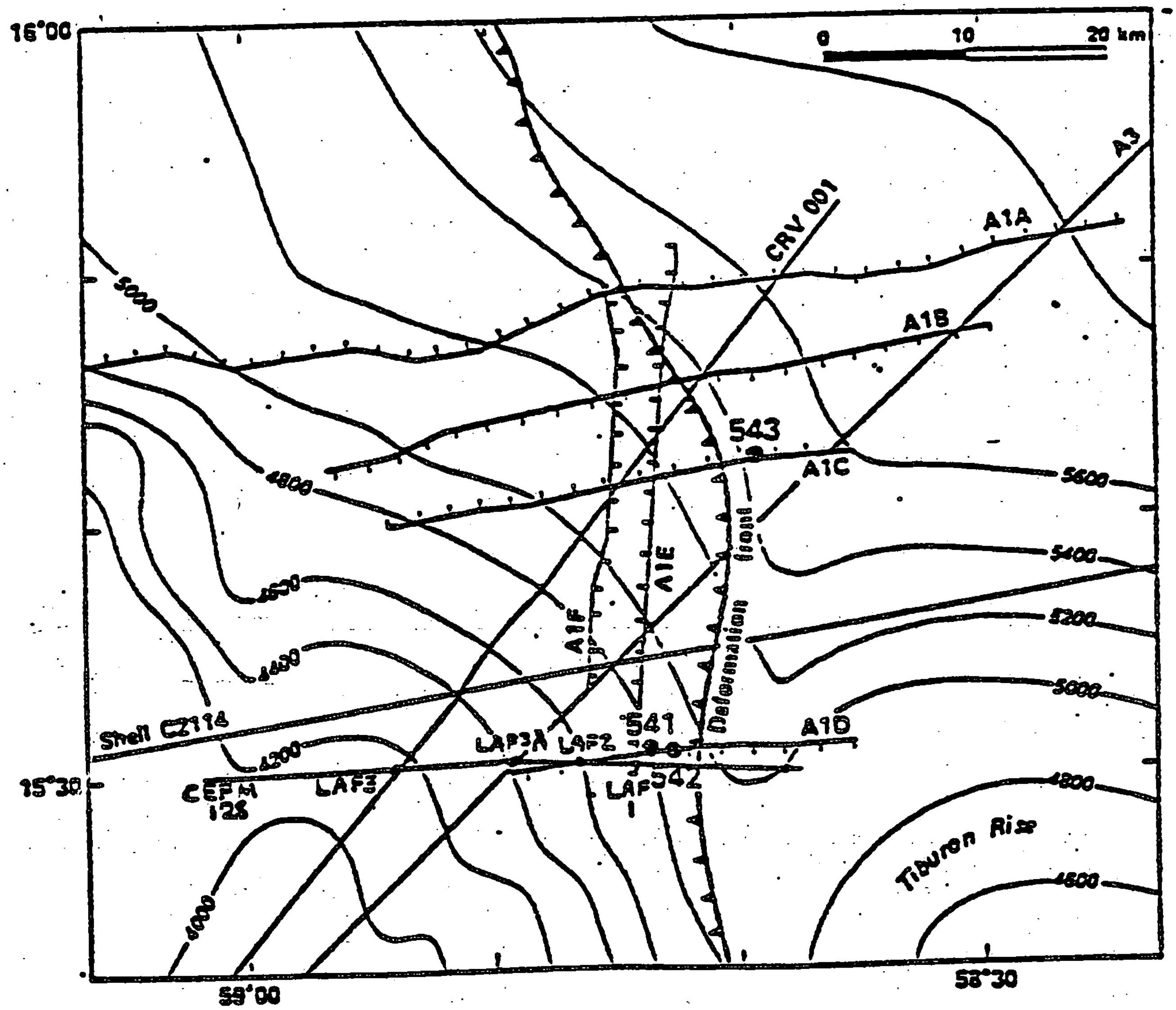
Specific Objectives: Penetrate landward dipping reflectors in order to establish structural style, fluid pressure, temperature and composition. Test for active fluid movement along landward dipping reflectors (fault?). LAF 3A is designed to complete transect and provide control on lateral gradients of fluid properties and structural style should LAF 2 and 3 also be drilled.

Operations: Single hole designed to penetrate 600m to landward dipping reflectors. Re-entry cone required to use packer in this environment. Full suite of logs planned plus borehole televiewer and geotechnical experiments. 13 days

TABULAR SUMMARY

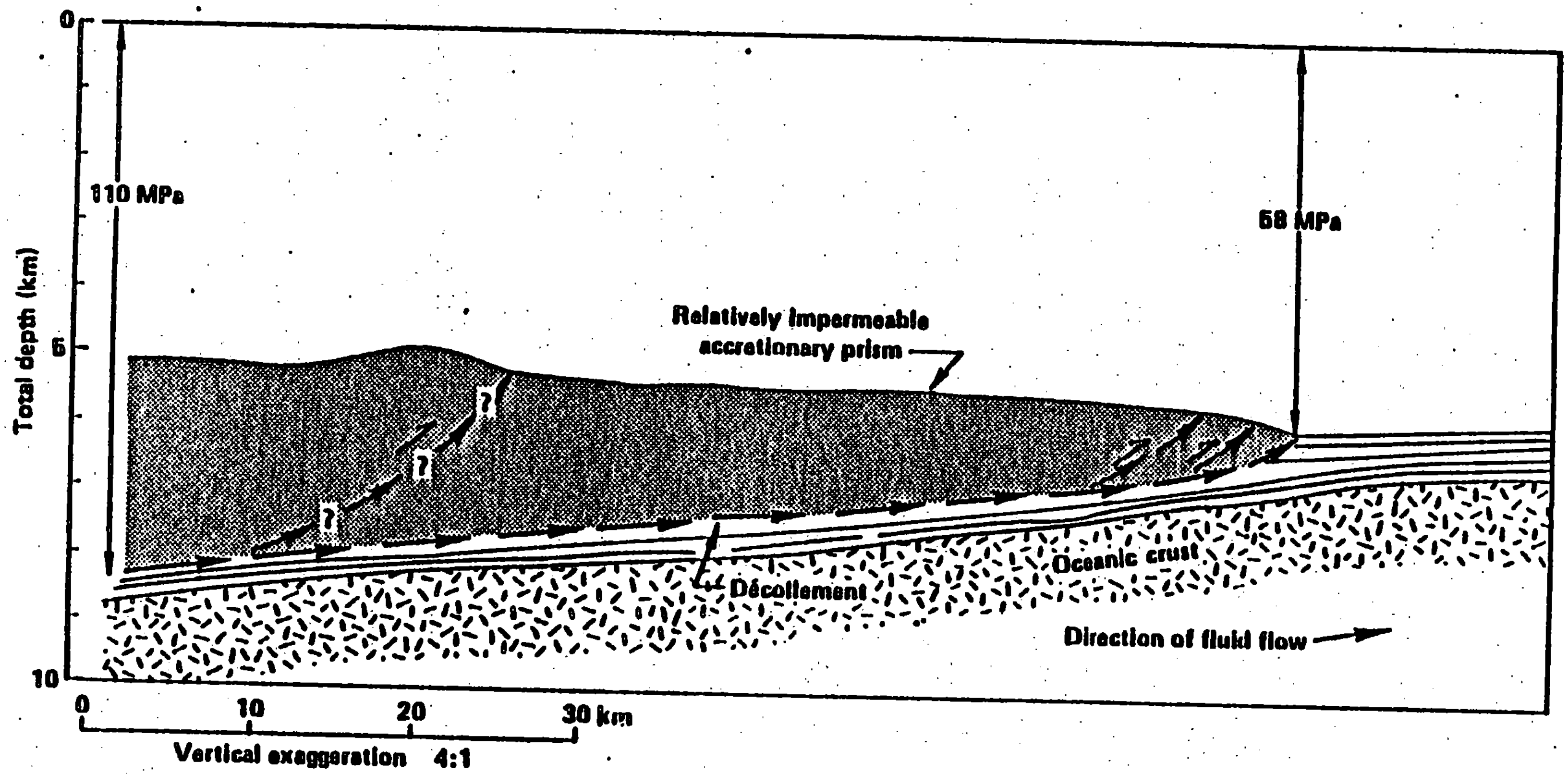
Site	Water Depth (meters)	Penetration (meters)	Time Required (days)	Comments
LAF1	5025	860	25.5-35.5	Two holes
LAF2	4800	850	18	
LAF3	4275	500	11	
LAF3A	4650	600	13	
			67.5-77.5	
		Estimated Transit	7	
		Total	74.5-84.5	

Note: All sites require re-entry cones, and have significant associated experimental programs.



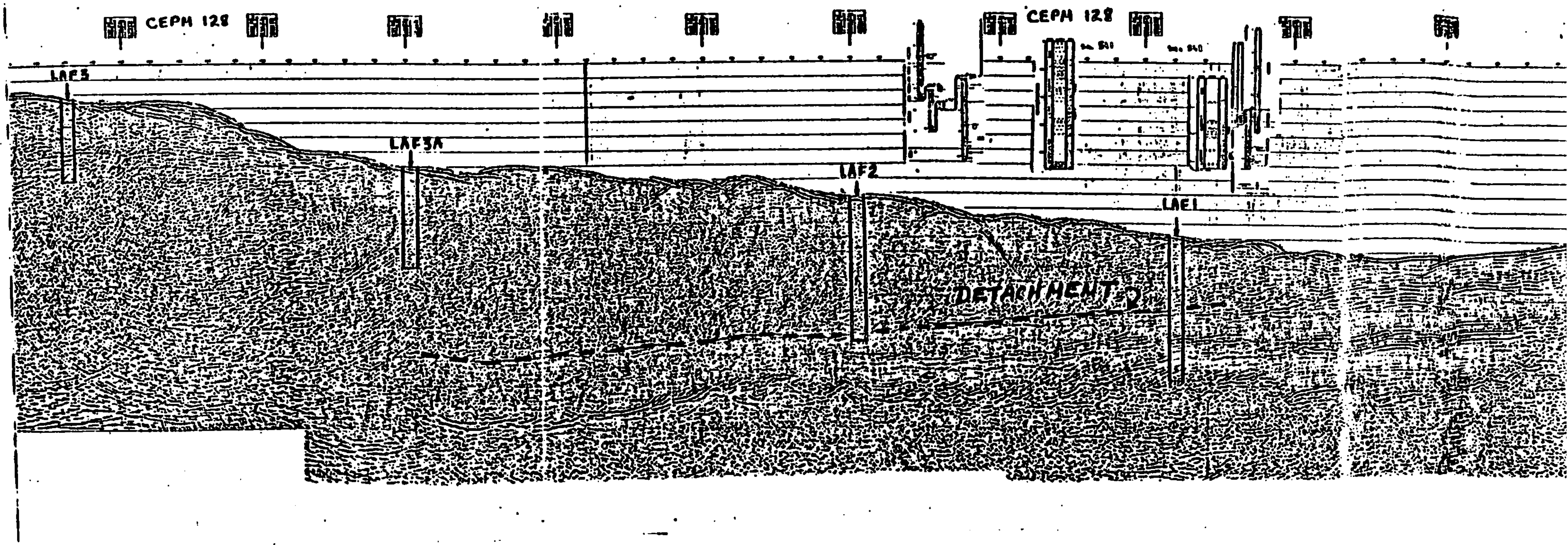
● 541...3 Leg 78A SITES

● LAF 1...3 Proposed Sites



0
5
10
Total depth (km)
110 MPa
58 MPa
Relatively impermeable
accretionary prism
?
?
?
Décollement
Oceanic crust
Direction of fluid flow
0
10
20
30 km
Vertical exaggeration 4:1

Barbados North



APPENDIX N

University of Miami
Miami, Florida 33149

DIVISION OF MARINE GEOLOGY AND GEOPHYSICS
Dorothy H. and Lewis Rosenstiel
School of Marine and Atmospheric Science
4600 Rickenbacker Causeway (305) 361-4663

SEP 25 1985

23 September, 1985

Dr. Roger Larson (from K. Becker)
Chairman, JOIDES Planning Committee
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882-1197

Dear Roger,

After our September 4 and 5 discussions regarding packer use on Leg 110, and given the recent Lithosphere Panel recommendation regarding Leg 111, I decided I'd better write you before the October PCOM meeting. I do so in my roles as (1) principal investigator of the NSF grant covering operations of the drill-string packer, and (2) main author of the proposal to return to 504B and Lithosphere Panel nomination to be co-chief scientist of Leg 111. I'll make my comments as brief as possible; if you need clarification, please call me at 305-361-4661 or 361-2352 (but I'll be gone to Tectonics Panel 9/27-10/6).

Leg 110 packer use

It became apparent at the ODP Engineering Workshop that the Barbados packer work would be much easier if the TAM packer had a routine rotational capability. I enquired of the manufacturer whether the drill-string packer could be modified to allow rotation, and he replied positively, with the following qualifications: The packer would have to mounted above the BHA, at the bottom of the drill pipe, so that the packer be kept out of compression, and it would have to be configured as a single-element (non-straddle) packer. The cost of such a modification would be on the order of $20-40k, which I do not have in my grant.

I feel that such a modification would be useful for general operational and safety considerations, as it would allow reentry of existing holes with the packer above a clean-out BHA, and it would in some cases negate the necessity for separate pipe trips for packer tests. If PCOM feels that this modification should be made for Leg 110, a strong recommendation to that effect would aid me in trying to obtain a supplement to my grant. Please note that this discussion of a possible modification is based only on a single phone call to the manufacturer; we should have a better idea of the feasability of this modification after I ship the packer back to the factory in early October to correct the minor design flaws that prevented packer success on Leg 102.

PANELS

&

WORKING GROUP

MINUTES OF MEETINGS

Minutes
JOIDES Downhole Measurements Panel Meeting
Dalhousie University
Halifax, Nova Scotia
June 12-14, 1985.

Panel Members Present	Absent
M. H. Salisbury (Chairman)	F. Duennebier
R. N. Anderson (ex-officio)	D. Georgi
K. Becker	E. Howell
S. Bell	G. Ohloeft
R. Goodman	T. Timur
A. Jageler	
R. Jung	**Guests**
R. Merrill (TAMU liason)	K. Moran (BIO)
G. Pascal	S. Srivastava (BIO)
F. Sayles	A. Taylor (EMR)
J. Scott (alternate)	
K. Suyehiro (alternate)	
R. Traeger	
R. Von Herzen (PCOM liason)	

1. Previous Minutes (September, 1984) approved.

2. NSF/JOI (Salisbury for Brass, Sutherland)

Since the last meeting, Canada has formally joined the ODP and Japan has announced that it will join next year, bringing total membership to five countries, including the U.S., France and the Federal Republic of Germany. The United Kingdom is having considerable difficulties and will not be able to join in the near future. The European Science Foundation is entering into negotiations with Australia to form a consortium which it is hoped, will join early in FY'86. At the recommendation of EXCOM and with the knowledge of the U.S. State Department, a Soviet delegation has been invited to the next PCOM meeting in Germany in order to renew contacts with the Soviet Union.

A consequence of the failure of the UK and the ESF to join this year is that the program will suffer a $4M budgetary shortfall in FY'86 assuming contributions from 5 countries at $2.5M each plus $20M from the U.S. (If the ESF fails to join, the NSF will make up the difference). The cuts on an institutional basis are as follows:

		requested ($M)	funded ($M)
	JOI	1.6	1.42
	LDGO	2.8	2.50
	TAMU	32.0	28.85
		36.4	32.8
plus	DSDP	2.5	2.0
	USSAC	7.35	6.85

In fact, the cuts are worse than this because TAMU originally requested $35.8M, or $7M less than was actually funded.

3. PCOM Report (Von Herzen, Salisbury)

The following specific cuts have been proposed to meet the budget shortfall:

TAMU

1.)	10-11% reduction in current staff	$600K
2.)	Delay hiring of TAMU publications staff	937K
3.)	Cut drilling equipment inventory	218K
4.)	Cancel 4 barerock drilling guidebases (EPR and beyond)	1M
5.)	Delay development engineering activities oriented core core bit development XCB mud motor (Navidrill) PCB instrumentation drill-in casing high T drilling engineering test facility explosive bit release	650K
6.)	Masscomp for shore and core imaging system	0K
7.)	Shore lab	1.9M
8.)	Repository maintenance	357K
9.)	Drill string loss reserve	500K
10.)	Cost of living adjustment (SEDCO)	500K
11.)	Misc	125K

LDGO

1.)	Postpone tool aquisitions		300K
	BHTV	65K	
	12 channel sonic	90K	
	2 Masscomp terminals	14K	
	1 E Systems software package	40K	
	wireline packer	75K	
	backstrip program	15K	

Of these cuts, only TAMU items 9-11 are considered painless, 9 because TAMU believes they will be able to insure the pipe, 10 because infla [illegible]n has been minimal. To date, little action has been taken to resolve the issue other than the resolution by EXCOM to court the Soviet Union, a second resolution to establish a budget committee to meet with the Planning Committee at their next meeting in Hannover and an attempt on the part of the Planning Committee to set priorities for the restoration of funds should more money become available. Their recommendations were:

1st priority	bare rock guidebases
2nd	restore drilling inventory
3rd	partial hiring of editorial staff
4th	reinstate TAMU personnel

(At this point the DMP briefly considered the implications of these cuts with regard to DMP objectives but decided to postpone making its own recommendations until hearing the rest of the reports).

4. TAMU (Merrill)

Since the last DMP meeting, the ship conversion and sea trials have been completed, the third cruise, Leg 103, is nearly over and scheduling and staffing are nearly completed through Leg 106 (Appendix 1). Although drilling on the first two legs was slow because of mechanical problems and lack of familiarity with the new drilling equipment, startup problems are now largely overcome and drilling is going well. In particular, the new Western Gear heave compensator is superb.

With the exception of the underway geophysics lab, which is having major problems with the PDR seismic and magnetometer gear, most of the labs, including the core lab, the chem lab, the physical properties lab, the SEM and the shipboard computer facility are up and running. Several pieces of equipment, however, are still having problems (the logging winch is cogging at low speeds, the cryogenic magnetometer and the XRD are still being de-bugged and the XRF is still being calibrated) and others, including the triaxial consolidation equipment, the GPS and the vertical GRAPE, remain to be put on board. The wireline heave compensator will be brought on board and tested on Leg 104 and a new slimline Mesotech sonar will be tested on 105. In addition, WHOI is working on software for the HPC temperature probe and user-friendly software is being purchased for the HP printer/plotter. The bare rock guidebase design has been completed and construction begun on two guidebases (Appendix 2).

Question (Sayles). Under what pressure are samples brought to the surface in the PCB?
Answer (Merrill). 5000 psi. But by way of clarification, the PCB listed in the budget cuts is not the sampling tool developed by DSDP but an engineering tool designed to monitor hydraulic pressure at various ports in the APC in order to assess and improve its operation.

Question (Bell, returning to the budget). Could not outside groups be induced to attack our engineering problems?
Answer. Probably not, unless a profit is involved.

5. Logging Report (Anderson)

Schlumberger Operations

At the recommendation of the DMP, Schlumberger calibrated many of the tools intended for ODP use in the USGS pits in Denver last December. The tools checked out well, (particularly the LSS) but the LDT displayed calibration problems which were corrected in time for Leg 101. (It should be noted that the USGS pits are not well suited for testing the behavior of tools in basalt; LDGO is trying to extend their results to higher density, lower porosity rock types). Since then logging has been conducted on three Legs: 101, 102, and 103.

Leg 101 (Bahamas). On Leg 101, hole conditions (caving sands) made it impossible to reach the deep objectives planned at several sites and caused low recovery in most of the holes drilled. Logging was done primarily through the pipe using the neutron porosity tool and the new GST (neutron activation) tool which will now be routinely available. A nuclear combination tool (CNT-G/LDT/NGT) was lost in one hole when the bottom hole assembly twisted off. As a consequence, Schlumberger has agreed to have two of each tool on board at all times in order to provide a backup capability.

The most impressive logging results from the leg were given by the GST tool. In several intervals with low recovery, it allowed the shipboard party to reconstruct the lithology of the section. In one hole it was possible to generate a synthetic seismogram for the section using porosity and GST-derived carbonate and silica data and to compare the results with site survey data. It is hoped eventually to test a cryogenic version of the tool (Schlumberger's ERL tool) which uses a germanium detector and can determine the relative abundance of about 30 elements.

<u>Leg 102</u> (Downhole Measurements in Old Crust).

Extremely successful leg but presentation and discussion postponed until next meeting.

<u>Leg 103</u> (Galicia Bank).

Logging was successfully conducted at three sites, Site 637 where 110m of sediments and 30m of serpentinite were logged and Sites 638 and 639 where about 100m was logged through the sediments in both holes. As on Leg 101, no deep holes were drilled or logged because of drilling conditions.

LDGO Specialty Tools

12 Channel Sonic. The 12-channel sonic tool has now been centralized, strengthened with fiberglass spacers and successfully deployed on two ODP Legs. On Leg 101, diagenetic boundaries in the sediment column were clearly delineated by changes in the energy and frequency content of acoustic waves received by the tool. On Leg 102, excellent P and S wave date was collected throughout much of the basement section. Used in conjunction with the density logs, it should be possible to compute synthetic seismograms for the section.

Borehole Televiewer. The televiewer continues to suffer from reliability problems and from being too light. These problems should be solved in FY'86 with the acquisition of the German BHTV which will provide digital travel time and amplitude data. The analog tools will continue to be used as backup.

Wireline Packer. Development of the AMOCO wireline packer, which in addition to measuring pore pressure and permeability, will measure Eh, Ph, T, P, and resistivity <u>insitu</u> and collect water samples at elevated pressures and temperatures to 350°C, is going slowly. The initial tests, which ODP has not been able to buy into (and thus accelerate) because of budget cuts, will take place this Fall. Since the tool will have to be scaled down even if the tests are successful, the tool may not be ready for Leg 110.

Wireline Heave Compensator. The wireline heave compensator (Appendix 4) is currently being built by Schlumberger using a TI contol system and will be tested in Houston on July 1. It will then be shipped to Stavangar to be loaded on board the ship for testing on Leg 104B and routine operation on Leg 105. It is estimated that the heave compensator will reduce line heave to 10-30%.

Tool Pusher. Schlumberger is currently leasing an IFP-designed tool pusher to log horizontal holes. It can be used, however, to log high temperature holes because it provides a means of pumping water past, and thus cooling the tool, cable head and cable while logging. The pusher consists of a bottom sub with a tool seat and windows for sensors and transmitters, a top sub at the top of the string with a hole in the side for feeding in logging cable and a "wet connect" which allows the logging cable to be connected and disconnected down hole. Since the tool pusher is designed for use with conventional and HEL (hostile environment logging) tools, we should be able to use it in the upcoming bare rock holes to measure all properties except those which should be measured at high temperatures (T, water chemistry, flow, etc.).

Shipboard Log Analysis

At present it is possible to plot and cross-plot the Schlumberger data on board ship and to run standard Schlumberger interpretive programs such as Saraband and Coraband. Terralog (KOALA) programs will be put on board shortly which will make it possible to run 3 axis (3rd in color) plots and to make lithologic interpretations. LDGO had hoped to put E Systems software on board in FY'86 (it has "hooks" for interpreting special lithologies) but the $40K required to acquire an additional package for the ship (LDGO already has one on shore) was cut from the budget.

Discussion: Salisbury and Scott pointed out that on Leg 102, Terralog had been brought out but could not be used for lack of an 800 BPI tape reader on the ship. Merrill proposed that ODP solve the problem by putting its HP unit on board.

Shorebased Log Analysis

An extensive log analysis capability now exists at LDGO including a Masscomp, E Systems software and numerous programs developed for the ODP (See Appendix 3). In addition, ODP is paying for the use of the LDGO logging truck for 6 days/year.

LDGO Budget

As noted earlier, the LDGO FY'86 budget (Appendix 3) has been cut from $2.8M to $2.5M, largely by cutting new tool acquisition and development. The personnel budget ($361K) supports 10.5 FTEs as follows:

- 2 managers
- 3 scientists ($1.75 FTEs)
- 1 log analyst
- 1 mechanical engineer
- 2 programmers
- 2 graduate students
- 1 logging technician

The $118K allocated to Stanford University is largely for digital televiewer acquisition. The $1.35M figure allocated for Schlumberger, though large, is about 1/3 what the company would normally charge a dedicated client for an operation of this scale.

Discussion:

Following the reports from PCOM, TAMU, and LDGO, the Panel felt it appropriate, in view of the budget problems, to review and prioritize for restoration the items which have been cut from the program.

Not cut but perhaps vulnerable for that very reason, are the personnel and contractual levels being maintained at LDGO in support of downhole measurements, the Schlumberger service contract and the wireline heave compensator acquisition. Von Herzen asked in particular, whether some cuts might be made in the staff at Lamont in order to purchase new equipment. After considerable discussion, the Panel passed the following recommendations:

<u>Recommendation 1.</u> Wireline Services

The Downhole Measurements Panel reviewed the Wireline Service Operation of the ODP on June 12-14, 1985. Results to date confirm that wireline logging is crucial to continued exciting research during ocean drilling. Specifically it is needed: (1) to obtain lithostratigraphic information where core is not recovered (eg. Leg 101, 4% core recovery); (2) to make measurements which cannot be made on core (ie. fracture density, formation dip, fracture fluid chemistry,); (3) to develop visible technology transfer to industry (ie. 12 channel sonic); and (4) to develop new geophysical techniques important to ODP (ie. synthetic seismograms from logs). The Panel finds the Lamont operation in general to be cost and science-effective. The following recommendations are made for new or continuing activities in order of decreasing priority.

1. Current personnel and contractual levels are minimal but effective; further reductions are not viable.
2. The existing Schlumberger effort and suite of logs must continue to be used. No expanded effort is recommended at this time.
3. To enhance the scientific usefulness of logging and other measurements, the wireline heave compensator must be made operational as soon as possible. Actual tool response must be defined by developing a first order model of tool and wireline motion and confirming measurements are needed on tool motion (see Recommendation 2). These should be low cost studies run on a non-interference basis. (Estimated additional costs are $10,000.).
4. Addition of the Energy Systems log analysis software to drill ship capabilities is essential for analyses of log data, comparison of that data to core information and for decision making when core is not recovered. This package is essential for effective real time use of the logging data by the shipboard scientist. ($40.000.)
5. An area of extreme scientific interest is formation fluid sampling with the AMOCO sampler holding the most promise. ODP needs to show support immediately to this large and continuing, Amoco development project. A design and prototype test of a reduced size version of the Amoco tool is needed as soon as possible in order to make a decision on the variability of such a sampler for use on Legs 110 and 111 ($40,000 minimum to start; an additional $76,000 for design and testing).
6. New exciting research will result from bare rock drilling. That research will require detailed fracture mapping and <u>insitu</u> stress measurements. The borehole televiewer is a unique tool to provide these measusrements, as well as stratigraphic information. The BHTV, however, is currently a delicate tool and duplicate tools are essential to assure scientific success. The panel feels purchase of a second, digital tool is recommended. ($90,000.)
7. The 12 channel sonic tool has demonstrated its capabilities in velocity and attenuation studies. As with all such tools, a second is required for reliable, cost effective science. Purchase of a second tool is recommended. ($90,000.)
8. The requested Masscomp conversions to color graphics and software develpment for backstripping analysis would be useful but the panel cannot support these expenditures at present in view of the other

more critical problems to be resolved. ($29,000.)

In summary, the Downhole Measurements Panel recommends that the Lamont and Schlumberger budgets be maintained at the FY'86 budgeted level. The Panel requests that a portion of the $300,000 additional addendum budget be added, in decreasing priority order as follows:

A.	upgrade Downhole Bit Motion Indicator	$10,000.
B.	Energy Systems log analysis software	$40,000.
C.	AMOCO fluid sampler	$40,000.*
D.	BHTV	$65,000.
E.	12 Channel Sonic	$90,000.
		$245,000.

* Previously deferred by PCOM

In discussing the problem of wireline heave compensation, the Panel noted that the compensator being built by Schlumberger may only partially solve the problem and will have to be extensively tested to evaluate its effectiveness. To this and the Panel made the following recommendation:

Recommendation 2. Downhole Motion Sensor

A new wireline heave motion compensator will be installed on the JOIDES Resolution in the near future to minimize the effects of ship's heave on the borehole measurements made by various logging tools. The compensation system will sense heave motion at the ship's centre of gravity and feed this information to a programmable controller that will regulate a mechanical system for taking in and paying out cable in response to ship's heave. However, heave-induced motion at the depth of the logging tool is also affected by the elasticity of the logging cable, weight of the logging tool, friction between the cable and the pipe, and depth of the tool beneath the ship. In order to take these factors into consideration, an algorithm must be developed and installed in the programmable controller. Some basic measurements that relate downhole tool motion to ships' heave are needed to develop this algorithm, and these measurements can be made with TAMU's downhole bit motion indicator (DBMI) which has a self-contained solid-state memory and a vertical accelerometer, and the ship's heave motion sensor.

The Downhole Mesurements Panel strongly recommends that the Co-chiefs on Legs 105 and 106 make every effort to run the DBMI attached to logging tools of different weights, with the logging cable held stationary at various depths, so that recordings of heave-induced motion at the depth of the logging tool can be compared with recordings of the ship's heave motion sensor during the same time period.

Since the present DBMI has a battery life of only 8 hours, after which the solid-state memory also dies, it is recommended that the unit be modified by TAMU, in coordination with LDGO, to extend the measurement time to 16 hours, and if possible, that the memory be changed to one that retains data even after the batteries are dead. Further, the timer in the DBMI should be upgraded to assure synchronization with the ship's heave measurements to within one second. (Alternatively, the DBMI data might be sent up the logging cable and recorded at the surface or used to drive the wireline heave compensator directly.) Finally, it is recommended that the upgraded DBMI be kept available for use on future legs as needed to improve the algorithm to meet special conditions that may be encountered.

6. Engineering Budget

Returning to the budgetary problems raised in the PCOM report (Item 3), the Panel regarded with particular alarm the cuts proposed in TAMU's engineering activities. Cuts in developmental engineering on the scale proposed are equivalent to consuming the Program's seed corn. If implemented, the Program would lose its ability to address new problems, to attract the interest of the scientific community and ultimately, its ability to compete for funds. The Downhole Measurements Panel recommended in particular (Recommendation 3) that funds be restored to those projects which will allow new classes of sites and new kinds of science to be pursued. Such projects include, but are not limited to:

a.) Bare rock drilling - which will allow zero-age crust to be drilled anywhere along the mid-ocean ridge system.
b.) Drill-in casing - which will increase our chances of being able to drill through unstable and over-pressured formations such as those encountered in the Barbados thrust on Leg 78A and expected again on Leg 110.
c.) High-temperature drilling - which is required in order to achieve deep penetration into oceanic basement, especially in zero-age crust.
d.) Mud motor (Navidrill) development - which may be required for deep basement penetration.
e.) Oriented coring (hard rock) - which is needed for insitu stress and magnetic declination studies.

7. Archiving and Publication of Geophysical Data

Returning to the TAMU report, Russ Merrill asked the Panel to advise TAMU on several questions wich have arisen concerning the archiving and publication of geophysical data. In particular:

1) How should the logs be published in the Initial Reports (Should they be published in Part A or Part B; at full or reduced scale; and with what supporting documentation)?
2) Should TAMU archive routinely collected borehole geophysical d[illegible] in both raw and processed form or should TAMU only archive the final results?
3) Should independently funded investigators be required to archive non-routine data at TAMU and to publish their results in the Initial Reports?

After an extensive discussion, the Panel recommended (Recommendation 4) that edited logs, along with explanatory notes and a logging operations summary be published in Part A and that detailed analyses be published in Part B. While the Panel recognized the expense of publishing the logs, it was felt this was the best way to alert the community as to their existence and content. To reduce publication costs, however, the logs might be published at a reduced scale with a note stating that detailed logs at a variety of scales are available upon request from LDGO.

The Panel further advised (Recommendation 5) that borehole, or borehole-related, geophysical data such as heat flow and thermal conductivity data collected routinely by the shipboard party, be archived by TAMU in both raw and reduced form along with explanatory notes and an operations summary. The necessity for archiving in such detail arises from the fact that heat flow data is often collected by non-specialists and must sometimes be re-evaluated at a later time.

The issue of the archiving requirements for non-routine data collected by independently funded investigators is more complicated. While the data is collected from a publically funded vessel and the purposes of the Project and the investigator are often well served by archiving with the Science Operator, the Panel recognized that the proprietary rights of the investigator could be compromised by improper release the data and that the nature of the data collected in the more complicated experiments (such as the OSE and VSP experiments) made it useless to all but the PI in the absence of excessive documentation. In view of these considerations, the Panel recommended (Recommendation 6) that ODP (TAMU) offers to archive one complete set of raw borehole geophysical data for independently funded investigators for purposes of data security. Since in general, only the PI can sensibly use the data, the Panel does not recommend archiving it in perpetuity. However, the final results should be archived and published by TAMU in accordance with ODP policy.

8. New Proposals

Since the last meeting, the Panel had been asked to review several new proposals and to advise the Project on the refurbishment and use of several pieces of existing equipment:

a.) Kvenvolden Request for Pressure Core Barrel Refurbishment.
The PCB has not been used since DSDP Leg 84 and needs refurbishment in order to conduct clathrate studies on Leg 110 and other upcoming margin Legs. The Panel accordingly recommended (Recommendation 7) that TAMU refurbish the PCB for use on Leg 110 and subsequent Legs.

b.) Karig Physical Property Site Proposal.
On Leg 87, it was found that the physical properties of the sediments drilled along a transect across the Nankai Trough could be related not only to their composition and depth but to their deformation history. To quantify these relationships, Dan Karig has submitted a proposal to return to the Japan margin with modern physical property and geotechnical gear and to drill a hole specifically for physical property/geotechnical studies. The Panel endorsed the concept of a physical properties site (Recommendation 8) and agreed that the Japan margin offered an excellent target for interdisciplinary studies involving geotechnical studies, physical properties, sedimentology and structural geology.

c.) Krammmer/Pohl Proposal for Magnetic Susceptibility Tool.
Reinhard Jung outlined a German proposal by Krammer and Pohl to build a borehole susceptibility tool for use as early as Leg 109 (MARK-2). The panel endorsed the proposal (Recommendation 9) but felt that it should eventually be incorporated in a combination tool with the BGR 3 axis magnetometer in order to save rig time and to ensure that the data can be superimposed. The panel also suggested that the digitization rate for the magnetometer be increased so that data for all three axis can be recorded at the same depth.

d.) McDuff/Barnes Proposal for HPC Water Samples.
Since the deployment of the HPC heat flow tool (which Von Herzen plans to upgrade to 200°C), water sampling using the Barnes tool has decreased because it requires a separate run. To cut down on rig time and thus make it more attractive to deploy, McDuff and Barnes have

proposed to place a miniature pore water sampler in the HPC cutting shoe in a manner similiar to the heat flow tool. The Panel endorsed the concept (Recommendation 10) and further suggested 1) that a pressure sensor be mounted behind the stone so that pore pressure can be measured at the same time and 2) that the water sampler be run in conjunction with the heat flow probe in a parallel slot.

e.) HPC Water Sampling Protocol.
In a parallel request, McDuff asked the Panel to endorse a high density water sampling program to make the development of the HPC sampler worth while. The Panel recommended (Recommendation 11) that if funded, the new tool should be run every 20m to refusal in several holes to test its effectiveness. If warranted, the DMP would consider a proposal for continued intensive use leading to replacement of the current interstitial water program.

9. National Reports

Canada (Bell, Taylor)

Sebastian Bell reported (Appendix 5) that ODP activity in Canada starting to accelerate, with particular interest being shown in geotechnical studies (Dusseault and Greenhouse at Waterloo, Hill and Moran at B.I.O.). Also, Lapointe (Earth Physics Branch) is hoping to run a combined total field/susceptability tool of Canadian - Finnish make in several holes.

Alan Taylor, also of Earth Physics Branch, reported (Appendix 6a,b) on long term temperature monitoring in a borehole in the Sverdrup Basin using an array of downhole sensors, a seafloor telemetry unit designed to operate for 3 years and a surface recording station adrift in the ice pack (total cost approximately $75k). The panel noted that the technology described meets many of the requirements of our proposed seafloor observatories and urged that it be upgraded for deep water use.

France (Pascal)

Many organizations are presently active in the French downhole measurements program, including Schlumberger, IFP, IFREMER and several universities. These groups are currently sponsoring four programs: 1) a major wireline re-entry project (COMEDIA); 2 & 3) a proposal to construct a re-entry test site and to conduct downhole measurements on Leg 107; and 4) a variety of instrumentation projects.

Wireline Re-entry (COMEDIA)

If re-entry holes are ever to be exploited as natural laboratories, a capability must be developed for re-entering them more or less at will using small ships (the drill ship is used primarily for drilling and is too expensive to keep on site for extended downhole measurements). To meet this need, the marine engineering groups at Brest and Toulon, in collaboration with scientists from W.H.O.I., are designing an active wireline re-entry system (Appendix 7). The principle difficulties anticipated are heave and obstructions in the borehole. A feasibility program will be conducted in 1985-1986 involving the deployment of a test frame with two motors from a non-dynamically positioned ship, the design of a flexible arch heave compensator, and logging from a submersible (the Nautile) at Site 395A or one of the sites drilled on Leg 103 or 107 (the NADIA experiment).

Leg 107 Re-entry Test Site and Downhole Experiments.

The Marine Group at Brest has submitted a proposal (Appendix 8) to the Mediterranean Working Group to deploy a re-entry cone and case to basement on Leg 107 in order to establish a test hole for wireline re-entry and to conduct the Oblique Seismic Experiment and VSP using French equipment. It is estimated that 5 days would be needed on Leg 107 to set the cone and casing and that an additional 3-5 days would be needed for the seismic experiments. The objectives of the OSE and VSP experiments would be:

a.) to determine the seismic velocity and attenuation structure in the vicinity of the site,
b.) to determine the porosity and permeability of the crust at the site,
c.) to determine the lateral extent of reflectors,
d.) to look for anomalous structures, and
e.) to study anisotropy in the upper crust.

The cone would be set on very young crust near a presumed spreading ridge where the sediments are about 200 m thick. After setting the cone, casing through the sediments and then drilling 300-500m into basement, the VSP experiment would be conducted with a 3-component geophone set every 50m. at zero and 1000m offsets. The Oblique Seismic Experiment would then be conducted using radial and circular shooting patterns and 2 or 3 geophone depths.
After Leg 107 was completed, the re-entry hole, which would be located near the south coast of France, could be used for wireline re-entry tests and further logging during the NADIA experiment.

Instrumentation.

Five categories of new instruments are under construction or consideration:

a) Hydro-frac (Francois Cornet).
A double straddle packer with high pressure steel-reinforced hose will be acquired from West Germany. Fracture orientations will be obtained using an impression packer and a new technique based on electrical logging which allows the orientation to be obtained during injection. The tool will be ready for use in late 1987 in the Indian Ocean. The French objective will be to obtain a stress profile perpendicular to a spreading ridge.

b) Electromagnetic and Magnetic Measurements (Tabbagh, University of Paris)
The French have funded the development of a combined magnetic susceptibility/apparent resistivity tool which will separate the magnetic susceptibility response from the response due to electrical conductivity. The tool is a dipole - dipole device with two coils separated by 1.5m and operating at 110, 440 and 1750 Hz. A proposal has also been submitted to build a 3-component magnetometer in order to determine the horizontal component of the earth's field and variations in the vertical component.

c) Temperature Measurements.
The B.R.G.M. is developing a high temperature (600°C) probe for use in geothermal wells which can be adapted for ODP use. The tool is 2.5cm in diameter, 1 m long, and uses a Fenwall thermistor

with an accuracy of 0.01°C. Measurements can be made continuously or every 25cm. A prototype has already been run successfully to 200°C (the cable limit) in geothermal holes in France. This will be extended to 450°C using a JAPEX cable. In addition, SIMPHOR (IFP) has developed a tool pusher (used by Schlumberger) with circulation and a "wet connect" which in principle will allow conventional logging in high temperature holes.

d) Video borehole imaging.

e) Wireline Coring (to allow hole cleaning in the absence of a drill string).

Germany (Jung)

On Leg 102, Bosum and Meyer (BGR) successfully tested a gyro-stabilized, 3-axis magnetometer which had been modified for ODP use. The tool can withstand pressures of 1 kbar and temperatures of 80°C, has a 1 gamma sensitivity and is equipped with a gradiometer. If significant basement drilling is scheduled, it will be deployed on Leg 107.

In 1986, it is planned to combine the 3 axis tool with a magnetic susceptibility tool built by Krammer and Pohl at Munich and to upgrade both to a 175°C capability using German continental drilling funds. The tool should be ready by Leg 111 or Hole 504B. In addition, a new high resolution temperature probe with a 1/10,000 °C sensitivity may be availabel for use on Leg 109.

Japan (Suyehiro)

The Japanese are developing a dewared 3 axis fluxgate magnetometer for use to 260°C and 0.6 kbar. The tool, which will have a sensitivity of 1 gammma, will also monitor temperature and pressure and will record the data downhole at a rate of 4 samples/minute using 64K bit EPROM storage. The tool should be ready by the end of this year. A flowmeter is also being designed to use the same type of dewar. Plans are also being developed to build a long-term tilt meter with a bubble memory and a "whispering" acoustic link which can be interrogated later by lowering a hydrophone to a low energy transmitter on the seafloor.

In addition to the instrumentation efforts outlined above, the Japanese are submitting proposals to study 1) the triple junction off Japan in 1989 using tiltmeters, flowmeters, heatflow gear, and ocean bottom gravimeters; 2) 504B using flowmeters, temperature probes and borehole magnetometers; and 3) the Antarctic con tinental shelf using heatflow gear and tiltmeters.

10. Recent Borehole Geophysical Results

Discussion postponed until next meeting.

11. Upcoming Leg Plans and Recommendations

Leg 104 Norwegian Sea (Merrill)

The drilling on Leg 104 is designed to study the seaward-dipping basement reflector series off Norway and to study the paleoceanography of the Norwegian Sea by examining the evolution of species and sedimentation patterns in the basin over the past 60 my. Three sites are planned along a transect perpendicular to the Norwegian margin: Site 2A (the prime re-entry site), which will penetrate approximately 430 m of sediments before drilling another 570 m into the dipping reflectors; Site 4, which will be drilled about 1100 m to just above basement at the seaward end of the transect; and Site 5 which will be drilled to 200 m at the landward end using the hydraulic piston corer (HPC).

After reviewing the objectives and the available geophysical data for each site, the panel felt that no borehole studies (other than heat flow) were warranted at Site 5 and that the objectives at Site 4 could be met using the standard suite of logging tools. Since the drilling at Site 2A will be the first significant penetration of the dipping basement reflector series, the Panel strongly recommended an expanded program of borehole geophysical studies including routine logging to document the insitu physical properties of the series, BHTV studies to examine dipping structures and breakouts, and VSP to determine interval veolocities in the section and the depth to the base of the reflector series (see Recommendation 12). At the end of the meeting, these recommendations were forwarded to the co-chief scientists by Telex.

Leg 105 Baffin Bay/Labrador Sea (Srivastava)

Drilling on Leg 105 will be conducted in two distinct areas, Baffin Bay and the Labrador Sea. In Baffin Bay (re-entry Site BB-3B) it is planned to drill through the Eocene/Oligocene unconformity at about 1450 m to a total depth of 1.7 - 2.0 km. The objectives are to determine the depositional and subsidence history of the basin during the Cenozoic and to study paleoenvironmental conditions in a high latitude basin throughout the Quaternary. Drilling is planned at two sites in the Labrador Sea: Site LA-5, where it is hoped to drill down through the Miocene to 1485 m and Site LA-9 (the principle site in the Labrador Sea), where an 850 m hole is planned to basement. The objectives of drilling in the Labrador Sea are: 1) to date the magnetic anomalies in the area; 2) to study changes in paleocirculation in the North Atlantic as circulation was initiated in the Arctic; and 3) to study warming and cooling trends during the glacial cycle. An additional objective at Site 5, which will be drilled in an area of drift deposits, will be to date reflectors R_1-R_4.

From discussions with Srivastava, it was clear that Leg 105 had insufficient time to drill and log the prime sites if any down time was experienced due to weather or icebergs. The Panel thus tried to design a minimum downhole measurements program for each site to complement the coring. At Site BB-3B, we recommended routine plus GST logging to characterize the sediments in expected zones of low recovery, VSP to determine the depth to basement (it won't be reached by drilling) and if time is available, MCS logging to determine the detailed velocity structure of the section drilled. At Sites LA-5 and 9, the Panel recommended routine plus MCS logging, and if time is available, GST logging at Site LA-5 for sediment typing and both GST and BHTV logging at Site LA-9 for sediment typing and insitu stress studies (Recommendation 12). If recovery is poor and time is short, the GST tool should be run instead of the MCS tool.

Leg 106/109 Bare Rock Drilling on the Mid-Atlantic Ridge (Becker/Meyer)

The first bare rock drilling attempt is scheduled for Legs 106 and 109 on the Mid Atlantic Ridge. On Leg 106, it is planned to deploy and anchor a guidebase on the seafloor, drill ahead 50 m (without coring) using a modified Navidrill and then core another 150 m into basement using conventional rotary drilling. On 109 it is planned to deepen the hole and/or start a second bare rock hole along the ridge but closer to the Kane Fracture Zone. The objectives of the drilling program are to sample zero age crust before ageing and alteration have set in and to establish a series of natural laboratories in zones of active crustal accretion. Three target sites have been identified: the prime "cowpie" site, a 1.5 km wide, flat-topped cone which has a 0.5 km wide caldera on the top and is surrounded by pillow lavas; a second site located on a series of flows emanating from the wall of the axial zone; and a third site (the youngest) located near the Kane Fracture. If major engineering problems arise early on Leg 109, an alternate site will be drilled in the Kane Fracture.

After reviewing the objectives, the drilling plan and the likely thermal regime at the prime site (low temperature, disturbed by drilling), the Panel recommended a minimal borehole measurements program on Leg 106 which would permit us to evaluate the requirements for Leg 109. Specifically, we recommended a routine logging suite at the bare rock site, supplemented by a pore fluid sampler (PFS) and an HEL T tool (to determine the temperature should the hole prove to be hot after all). For the Kane Fracture, routine and HRT logging were recommended (Recommendation 12).

If the guidebase deployment and drilling scheduled for Leg 106 go according to plan, the DMP and the Lithosphere Panel recommend that Leg 109 be devoted to drilling and downhole experiments in the bare rock hole begun on Leg 106 and to completion of the downhole measurements program begun in the basement at Site 395 on Leg 78B. Specifically, if the hole reached a depth of at least 200 m on Leg 106, the Panel recommended a temperature/water sample run immediately after re-entry, followed by temperature logging with the new German HRT tool to look for aquifers. Once the equilibrium temperature profile has been established, the hole should be deepened to 400 m. If at this point, the temperature exceeds 150°C but is less than 300°C, the hole should be logged using the USGS-Water Resource Division suite of high temperature logging tools. If the temperature is less than 150°C, the hole should be logged using conventional tools plus the BHTV, MCS, packer, magnetometer and susceptibility tools. If the hole reaches depths of more than 400 m, we also recommend VSP and large scale resistivity logging.

At Site 395A, the Panel recommended conducting an extensive series of tests to provide a baseline suite of borehole geophysical data in young Atlantic basement (A limited program was run on Leg 78B but the results were seriously compromised by ship heave and poor logging tool performance; much better results are expected using the wireline heave compensator and Schlumberger tools). The runs proposed include temperature/water sampling, the German HRT tool, routine logging, the BHTV, MCS, magnetometer and susceptibility tools, the large scale resistivity experiment, packer tests, VSP and in an HPC hole drilled adjacent to Hole 395A, HPC-temperature measurements. If funds (approximately $80K) could be found to scale down the USGS borehole gravimeter in time for the leg, the Panel recommended running it in the hole as well in order to determine the formation density and thus porosity of the upper crust.

Alternate Leg 109

The Panel further recommended (Recommendation 13) that if only two barerock guidebases are built due to financial constraints or if major technical problems are encountered on Leg 106, then the second guidebase should be deployed on the East Pacific Rise and Leg 109 should be devoted to logging and experiments in Hole 395A (8-10 days), a resumption of drilling in Hole 418A (20 days) and further logging and experiments in Hole 418A (10 days). This would accomplish two major objectives of the Lithosphere and DMP programs: the deepening of a major hole into the dikes in old crust along the bare rock / 395A / 418A flowline and the geophysical characterization of Layer 2 in young and old crust through borehole geophysical measurements. The Panel recommended that a proposal to this effect be prepared on its behalf and submitted to the PCOM (Appendix 9).

Legs 107 and 108

Discussion postponed until next meeting.

Leg 110 Barbados (Merrill)

On Leg 110 it is planned to drill a transect of holes up the accretionary prism off Barbados. At the prime re-entry site (LAF-1), it is planned to drill 860 m through the toe of the sediment prism, the decollement zone, the underplated sediments and the underlying oceanic crust. The objectives of drilling are to determine the hydrogeology and the mechanics of deformation along an active thrust zone. The remaining sites (LAF-2, 3 and 3A) will be drilled to depths of 500-850 m at shallower levels to look at deformation and slip associated with imbricate faulting at higher levels in the section.

After reviewing the geophysical data for the sites, the experience on Leg 78A (particularly the hole problems encountered at the decollement) and the objectives of the Leg, the Panel recommended drilling LAF-1 and conducting a major borehole geophysics/hydrogeology program at the site if drill-in casing (or another means of drilling through the decollement) is available and a practical technique is available for measuring pore pressure vs depth. This requires funding of the TAM wireline packer or the Briaud/McClelland geotechnical engineering proposal, the development of a deep water pressure meter or multiple shut-in tests using a conventional packer. If these conditions are met, the Panel recommends (Recommendation 14) that an 8-11 day program of logging, flowmeter tests, insitu pressure tests, heat flow studies, fluid and pore water sampling, BHTV logging, oriented coring and borehole geotechnical studies be conducted at the site. At the remaining sites, a more conventional logging program is envisioned (supplemented by hydrogeologic studies if the need arises).

Legs 111-112 East Pacific Rise, 504B

If only two guidebases are available and both are deployed on Legs 106/109, the Panel strongly recommended that Hole 504B be deepened and studied as proposed by Becker (Recommendation 15). This site remains the ODP's best chance of penetrating and examining one of the great geophysical boundaries of the world.

Should a guidebase be deployed on the EPR a major high temperature borehole geophysics program is being planned using existing gear supplied by Saudia, Los Alamos, the USGS and Schlumberger.

12. <u>Next Meeting</u>

October 28-30, 1985 in St. John's, Newfoundland (subsequently postponed to early January , 1986 in order to discuss the options for Legs 109 and 111 in light of developments on Leg 106).

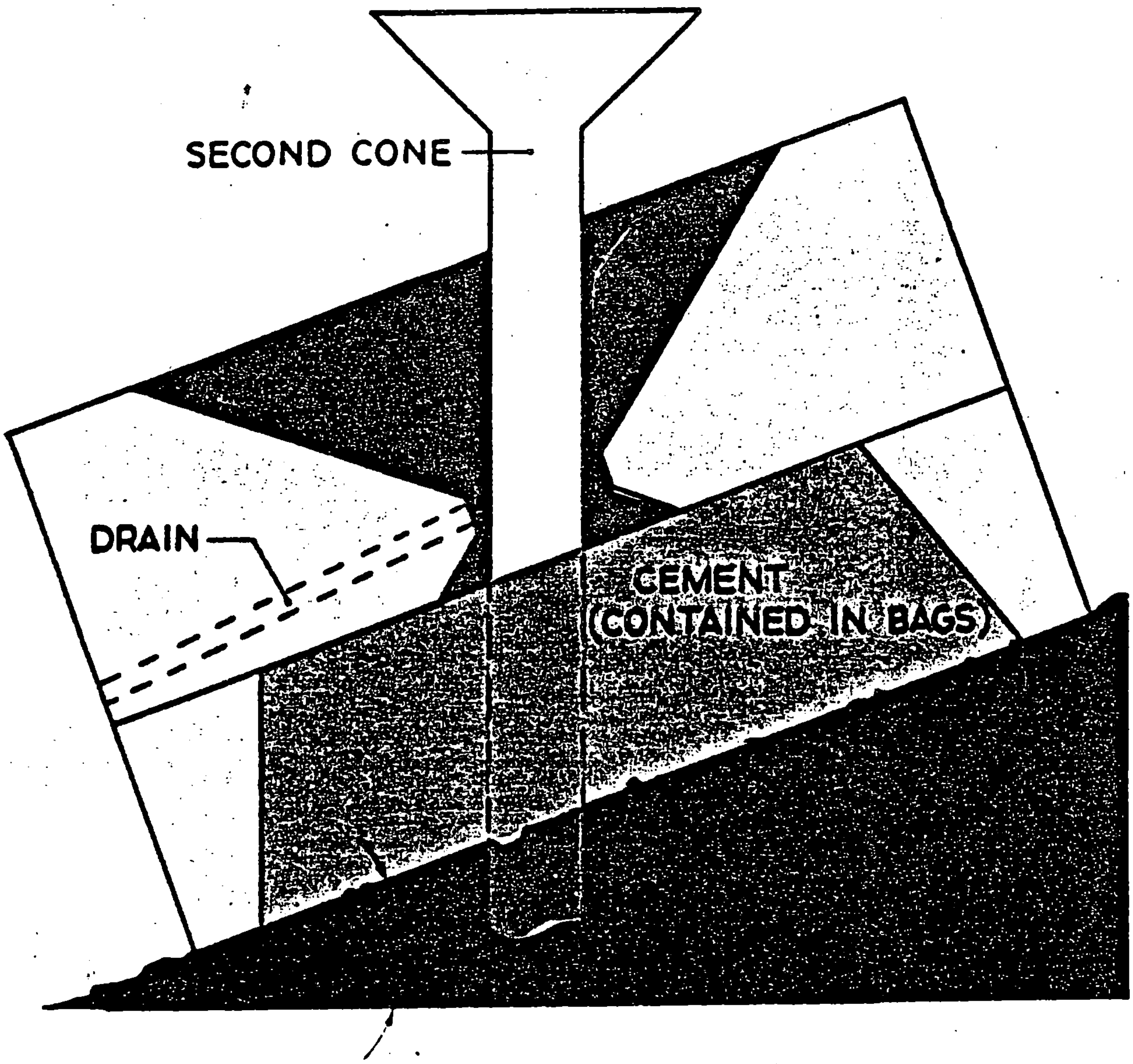
Appendix 1

VESSEL ITINERARY
ODP OPERATIONS SCHEDULE
Legs 101-105

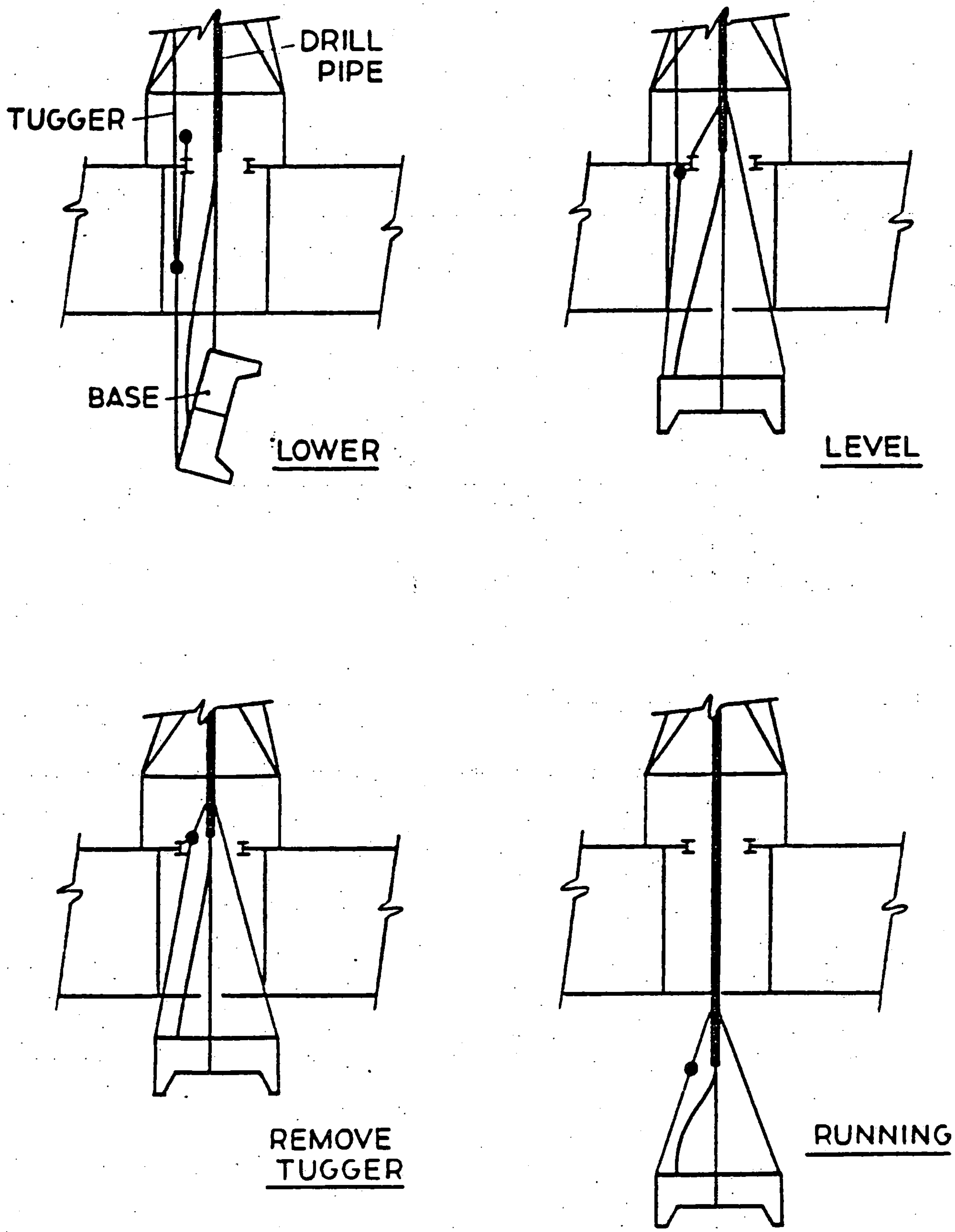
LEG	DEPARTS LOCATION	DEPARTS DATE	ARRIVES AT DESTINATION	ARRIVES DATE	IN PORT
101	Miami, Florida	31 Jan	Miami, Florida	14 Mar	Mar 14-19
102	Miami Florida	19 Mar	Norfolk, Virginia	10 Apr	Apr 10-15
102B	Norfolk, Virginia	15 Apr	Ponta Delgada, Azores	25 Apr	Apr 25
103	Ponta Delgada, Azores	26 Apr	Bremerhaven, Germany	20 June	June 20-25
104	Bremerhaven, Germany	25 June	Stavanger, Norway	11 Aug	Aug 11-16
104B	Stavanger, Norway	16 Aug	St. John's Newfoundland	24 Aug	Aug 24-25
105	St. John's Newfoundland	26 Aug	St. John's Newfoundland	26 Oct	Oct 26-30
106	St. John's Newfoundland	31 Oct	Malaga, Spain	27 Dec	Dec 27 - Jan 1
107	Malaga, Spain	1 Jan 1986	----------	------	------

revised 6/10/85
LEG

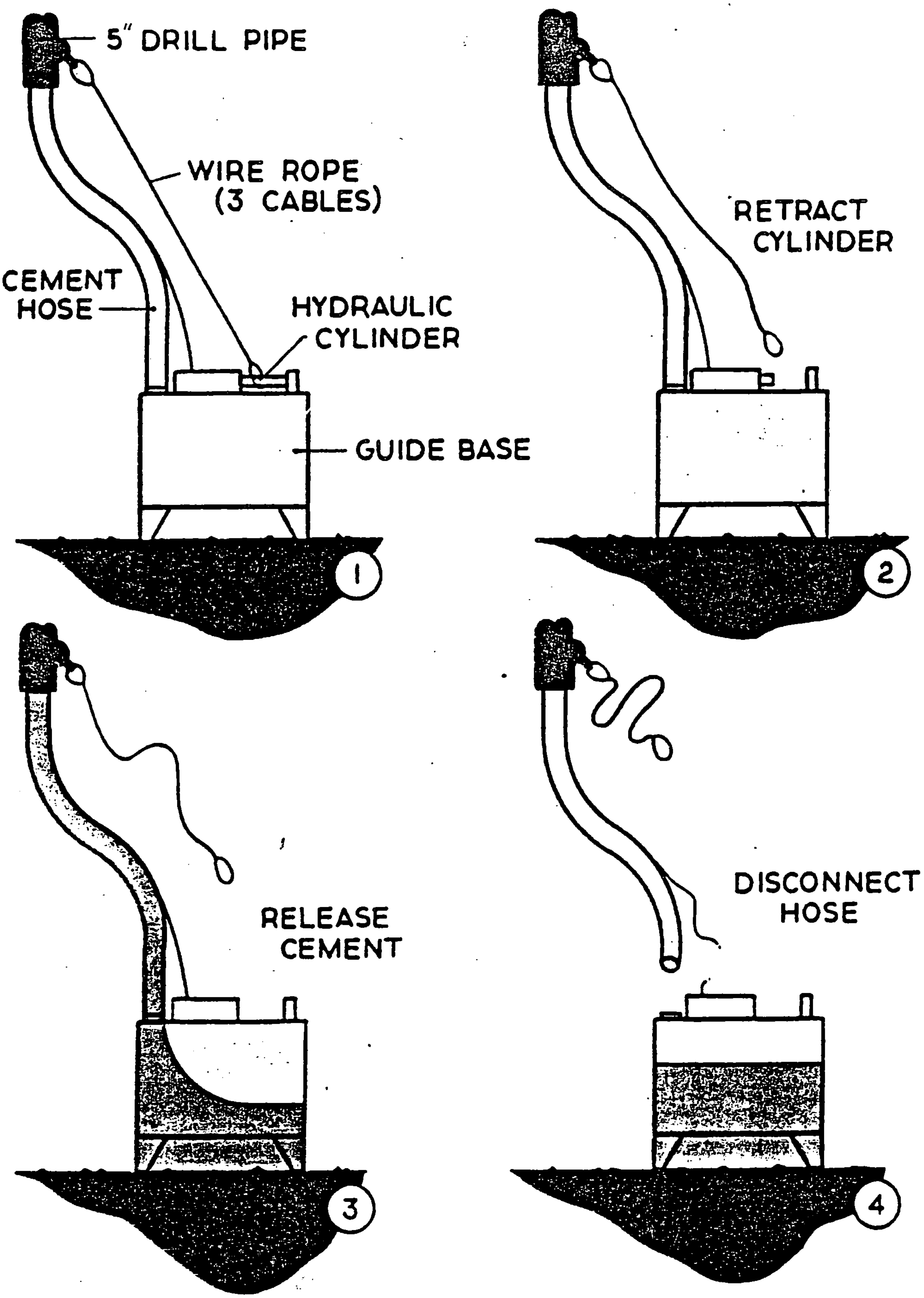
Appendix 2



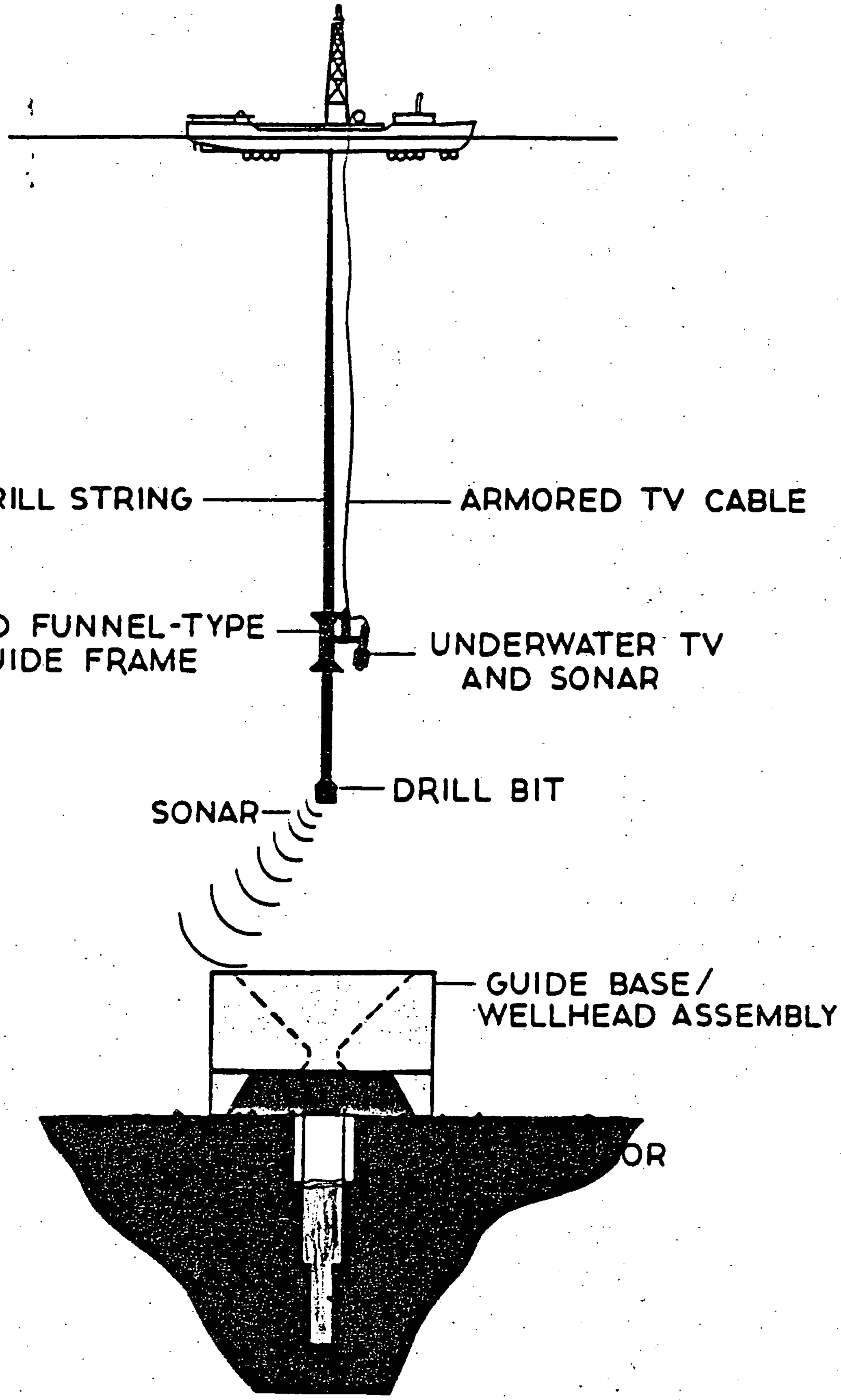
GUIDE BASE CONCEPT (HRB)



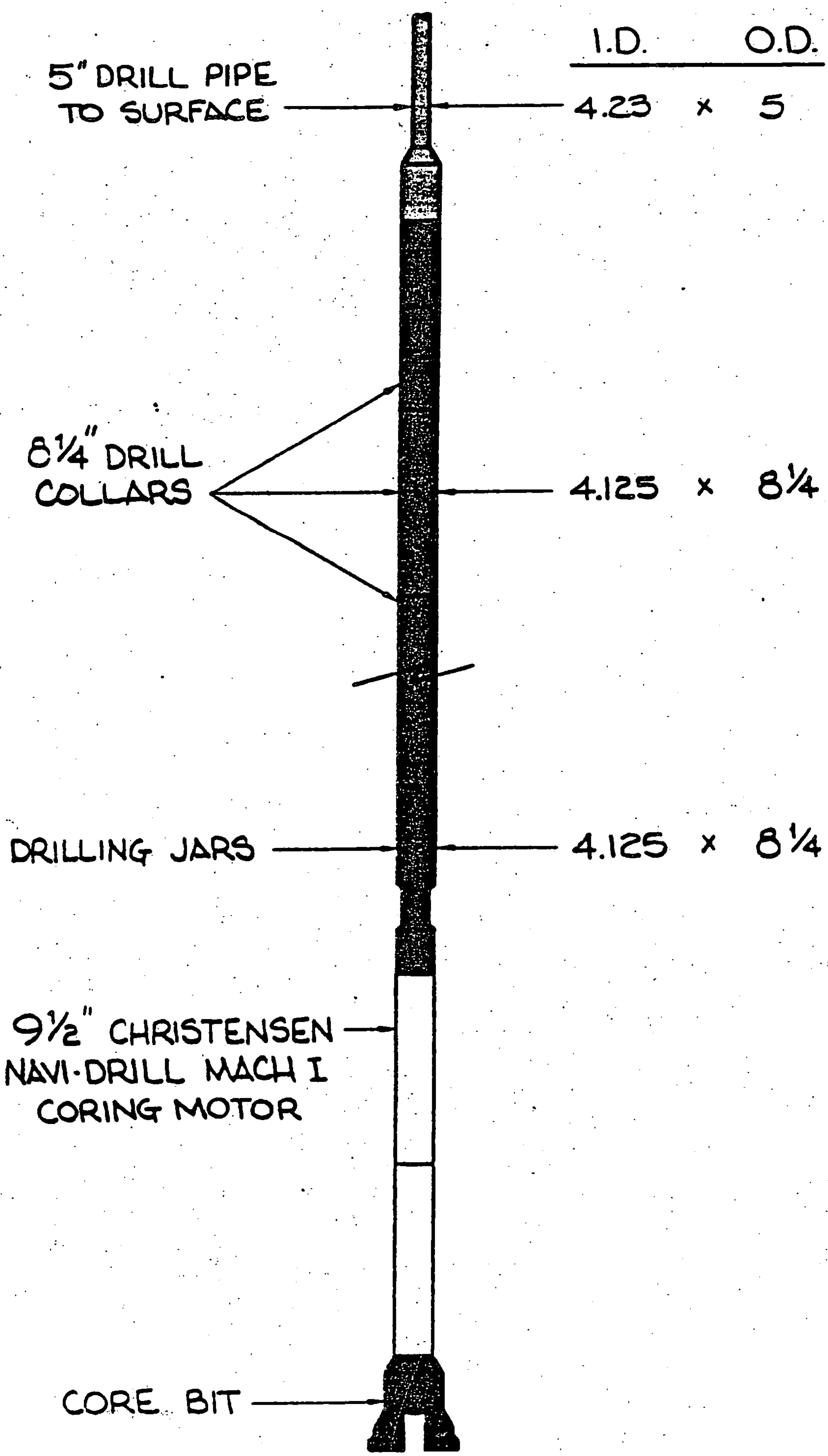
HRB DEPLOYMENT



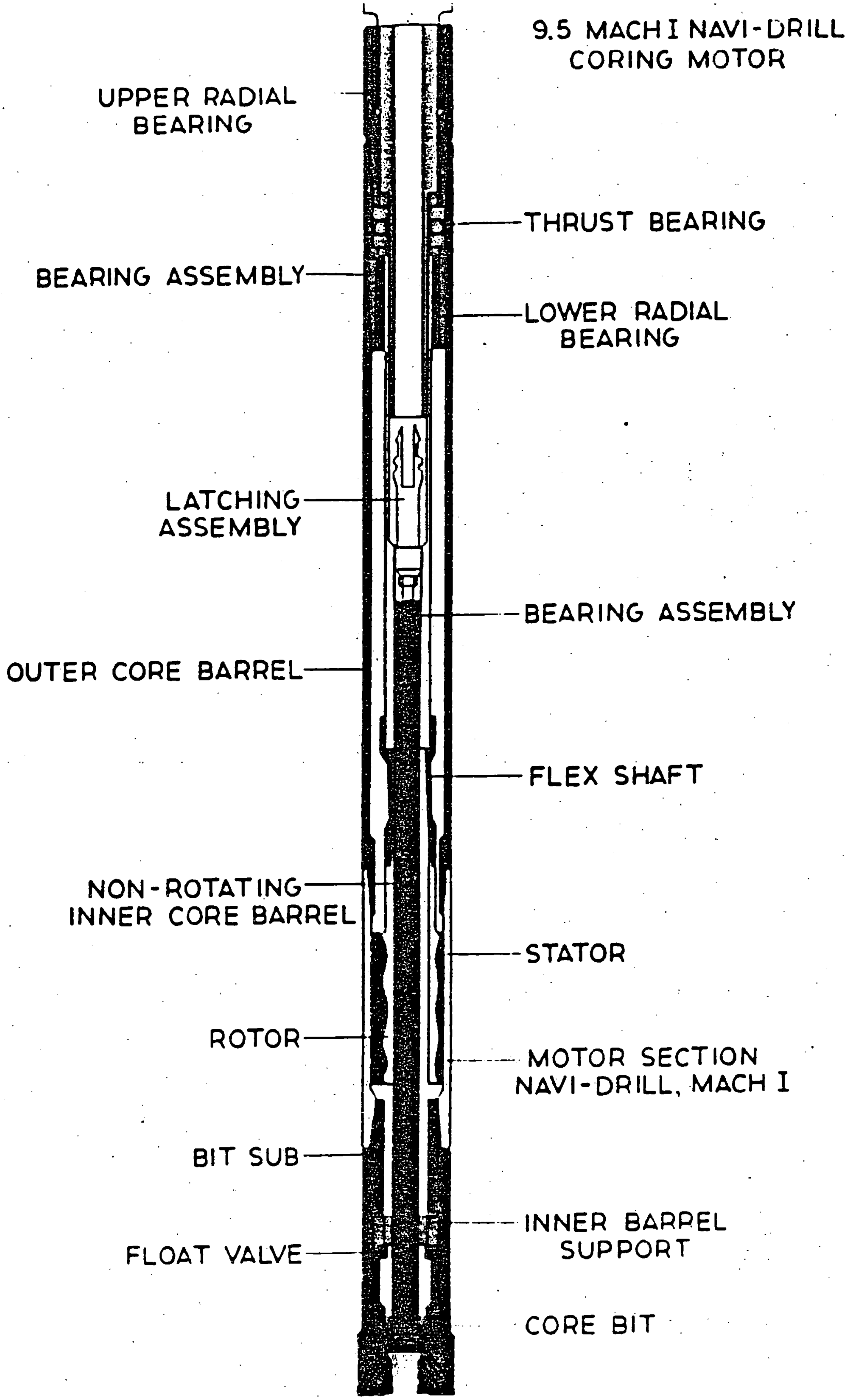
HRB LANDING AND CEMENTING SEQUENCE



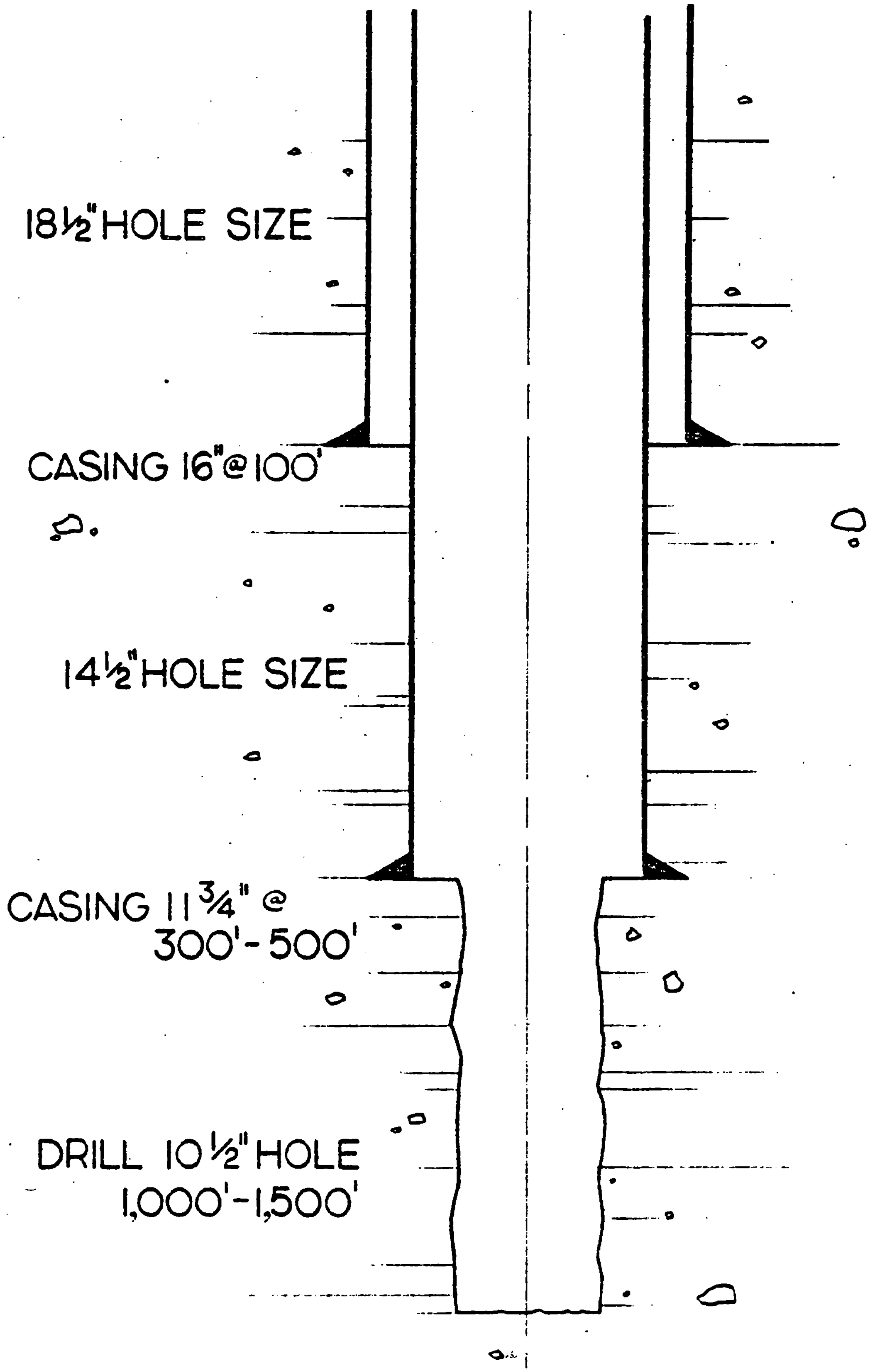
REENTRY CONCEPTS (External & Internal)



BOTTOM HOLE ASSEMBLY



9.5 MACH I NAVI-DRILL CORING MOTOR
UPPER RADIAL BEARING
THRUST BEARING
BEARING ASSEMBLY
LOWER RADIAL BEARING
LATCHING ASSEMBLY
BEARING ASSEMBLY
OUTER CORE BARREL
FLEX SHAFT
NON-ROTATING INNER CORE BARREL
STATOR
ROTOR
MOTOR SECTION NAVI-DRILL, MACH I
BIT SUB
INNER BARREL SUPPORT
FLOAT VALVE
CORE BIT



HOLE PROGRAM

Appendix 3

LAMONT-DOHERTY GEOLOGICAL OBSERVATORY
WIRELINE LOGGING SERVICE OPERATOR
FOR THE
OCEAN DRILLING PROGRAM

FY 1986 PROGRAM PLAN

Submitted April 1, 1985

Furnished in Accordance with Section F-3

of

Subcontract Number 66-84 JOI Budget Code 4505-3415

I. INTRODUCTION

Overview of Logging Program

The Lamont-Doherty Geological Observatory of Columbia University has been designated as the Wireline Logging Service Operator of the Ocean Drilling Program by Joint Oceanographic Institutions, Inc. (JOI, Inc.). JOI, Inc. is the prime contractor for the Ocean Drilling Program (ODP) and the corporate entity of the Joint Oceanographic Institutions for Deep Ocean Sampling (JOIDES). In its capacity as the Wireline Logging Service Operator for ODP, the Borehole Research Group at Lamont will take advice and direction from JOIDES panels and committees, especially the Downhole Measurements Panel, in developing new logging tools for use in ODP holes and insuring that the scientific objectives and results of each ODP leg are maximi i through the use of advanced standard and specialty logging to..s and real-time analysis of logging data.

In Fiscal Year 1986, the Lamont-Doherty Geological Observatory (LDGO) Borehole Research Group (BRG) will continue logging operations on the JOIDES RESOLUTION that include state-of-the-art standard and specialty logging services for the ODP, and will continue, to the limits of the restricted funds available, to develop a wireline heave compensator system for the RESOLUTION and a prototype wireline packer for <u>in situ</u> formation fluid monitoring and sampling.

During FY1986 two prime subcontracts will be renewed to assist the BRG in carrying out its contractual obligation to provide standard and specialty logging services for ODP. One subcontract is to Schlumberger Offshore Services to provide standard logging services onboard the RESOLUTION. The second subcontract is to Stanford University for technical assistance the BRG in developing and testing specialty logging tools and log analysis software, especially the digital borehole televiewer and the wireline packer. The third subcontract will be let to MASSCOMP computer company for service contracts and spare parts for the three ODP logging computers (shipboard, LDGO and LDGO logging truck). This subcontract is necessary in order to avoid extra overhead charges which would otherwise impinge on other necessary budget line items. Because we intend to continue the service agreements for the computers in future years this subcontract line will become a fixed item in future ODP logging budgets.

The Schlumberger subcontract in FY86 will consist primarily of providing standard logging services during each leg of the ODP for this fiscal year. Close interaction between Schlumberger, the BRG, the JOIDES Downhole Measurements Panel (DMP), and individual ODP Leg co-chiefs and logging scientists will insure that the types of logging tools used and the data acquired through their use, will maximize the scientific information available for each

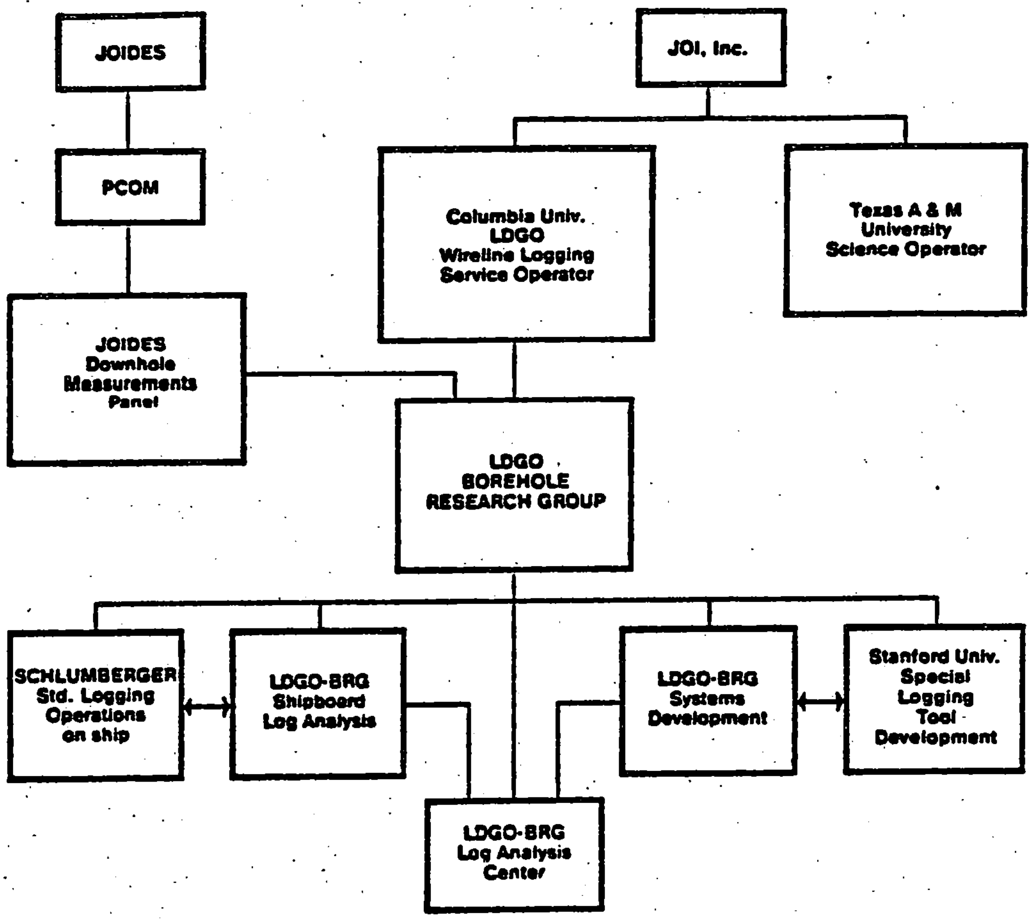
ODP drillhole. In addition, a small portion of the subcontract is for final payment for the completion of the wireline heave compensator system. This system was initially funded with carryover funds from FY84. Because of lack of FY85 funds Schlumberger agreed to defer the final payment for completion of the system until October 1, 1985. Due to delays in approving the design of the wireline heave compensator and finalizing contractual arrangements with Schlumberger the completed system will not be ready for installation and initial testing until after Leg 103.

The Stanford U. subcontract in FY86 will provide for the continued procurement and packaging of the West German Digital Borehole Televiewer and the development and prototype design of a wireline packer. The Stanford involvement in assisting the BRG with the development of these two specialty tools is in addition to aiding the BRG with downhole logging computer software acquisition and analysis programs and insuring that ODP computers are properly interfaced so that systems and data analysis packages can be freely interchanged and are 100% compatible.

Structure of the Logging Service

The logging services for ODP consist of three major components as outlined on Figure I.1. Standard logging is subcontracted to Schlumberger Offshore Services, the industry leader, who provide ODP with state-of-the-art commercial logging on every leg. The adaptation of specialty logging tools, not currently available from Schlumberger, is coordinated by the BRG with the assistance of Dr. Mark Zoback of Stanford U. At present the two specialty tools available for ODP logging are the 12-channel logging tool and the borehole televiewer. During FY86 the borehole televiewer will be digitized to provide enhanced imaging of borehole surfaces. New specialty logging tools such as a wireline packer and wireline heave compensator are planned additions pending the availability of funds and recommendations from JOIDES panels. Thirdly, the Log Analysis Center (LAC) at the LDGO-BRG has computer processing, log analysis and interpretation services available for ODP scientist's use after leaving the ship. This center is designed to provide the JOIDES scientist with the interpretative skills to solve geological problems through the use of logging data. The implementation of the shipboard logging program requires three individuals per ODP leg. They are: 1) a LDGO-BRG logging technician, 2) a Schlumberger logging engineer, and 3) a JOIDES community logging scientist. The logging scientist is nominated by LDGO-BRG, appointed by TAMU and approved by the JOIDES Downhole Measurements Panel. These trained personnel will assist the other shipboard scientists in the design and implementation of logging programs and subsequent interpretation of logging data for each ODP leg.

TABLE I.1



BOREHOLE GROUP PERSONNEL

Director of Operations—Dr. Roger N. Anderson
Overall responsibility of BRG operations and ODP logging.

Scientist-in-Charge—Dr. Dan Moos
Responsible for the operation of the LAC and Shipboard Log Analysis Facility and interfacing with Stanford University and Schlumberger.

Manager of Logging Services—Dr. Daniel Fornari
Responsible for managing BRG operations and the LDGO-BRG contract with JOI and subcontracts with Schlumberger and Stanford University.

Research Scientist—Dr. David Goldberg

Log Analyst—Ms. Cristina Broglia
Operates the LAC under the direction of the Scientist-in-Charge. Assists visiting scientists in running log analysis programs and handles correspondence relating to the scheduling and use of the LAC by ODP scientists.

Operations Manager—Mr. David Roach
Duties include procurement and shipping functions related to the daily operations of the BRG as well as oversight responsibility of the Logging Truck and its maintenance and operation.

Computer Programmers—Mr. Divyang Shah and Mr. Ken Peters

Secretary—Ms. Hester Cason

Draftsperson—Ms. Mary Ann Luckman

Graduate Students—Mr. Colin Williams and Mr. Matthew Greenberg

During FY1986 the BRG will continue to modify computer hardware and log analysis software packages so that we can carry out our contractual mandate of providing specialty tool log analysis in real-time, on board the drill ship, as well as operating and maintaining a post-cruise Log Analysis Center (LAC) at LDGO. The LDGO LAC will have the potential to apply a large array of processing techniques, (both standard oilfield log analysis and specially developed log analysis programs geared to pure-science applications) to the logging data acquired at each ODP drillhole. The LAC will be the repository for all ODP logging data and will serve as a laboratory facility for ODP scientists to further process logging data. The LAC will also act as a distribution center for scientists requesting ODP logging data for post-cruise studies.

Synopsis

FY86 is the third year of the LDGO-BRG's operation as logging contractor for the ODP. As such, it will be the most critical year yet. FY84 consisted of a start-up year where we developed the strategy and rationale for making logging a standard part of the scientific data base collected on each ODP leg and elevated the logging equipment to state-of-the-art tools and analysis programs. FY85 marked the begining of operational logging for the ODP on Leg 101. In preparing for standard and specialty logging on the RESOLUTION we conducted extensive tests of specialty logging tools and computer acquisition and analysis programs in land boreholes at LDGO and Kent Cliffs, N.Y. (Ramapo fault zone). In addition, the BRG in conjunction with Schlumberger, Stanford and the U.S. Geological Survey conducted calibration tests of Schlumberger standard logging tools that would be used during ODP logging. Because of funding limitations we were not able to fund extensive development of the wireline packer during FY85. To date we have signed a confidentiality agreement with Amoco in order to have access to their design and benefit from their extensive research into this new technology. Finally, FY85 saw the initial testing of the Schlumberger Gamma Spectroscopy Tool (GST) on Leg 101. This state-of-the-art logging tool in combination with epithermal and thermal neutron logs, Potassium, Thorium and Uranium natural gamma ray logs, and multichannel sonic and spherically focused electrical resistivity logs will allow us to directly measure 10 elements (Fe, Ca, Cl, C, O, S, Si, K, U, and Th) in the wellbore formation rock thereby identifying eight types of standard lithologies (clay type, calcite, quartz, dolomite, limestone, granite, basalt and evaporite). This tool is being made available to ODP on a no-charge basis at present and we intend to make it part of the standard logging tool complement during FY86. We intend to continue this multifaceted approach in FY86 by supplying the ODP with standard and logging services that represent an integrated effort headed by the LDGO-BRG that includes Schlumberger and Stanford U.

The remainder of the FY1986 program plan discusses various aspects of the ODP logging program in detail and presents itemized budgets for funds necessary to carry out the program. As per our discussions with JOI, we have included an addendum budget for $300K for permanent equipment items that have had to be cut from our initial $2.8M budget to arrive at the $2.5M budget presented for FY86.

II. LDGO-BRG OPERATIONS AND STAFF

Special Tool Program

The BRG is contractually obligated to provide and operate a set of special research tools (separate, although complimentary to the standard logging tools to be provided under our subcontract to Schlumberger Offshore Services) for routine use on the RESOLUTION. These tools have been purchased from commercial vendors and subsequently modified and packaged by Stanford and the USGS (during FY84 and FY85) who are acting as technical subcontractors to the BRG. The two currently operational specialty tools available for ODP logging are the 12-channel, full-waveform sonic logging tool and the borehole televiewer.

<u>12-Channel, Full-Waveform Sonic Tool</u>

During FY84 we refurbished the existing 12 channel sonic tool purchased with funds from the research contracts with the U.S. Office of Naval Research. The refurbishment entailed redesigning the reciever string and developing a better centralizer mechanism. (We were able to do these modifications to two receiver strings, thereby helping to initiate a program of building up a stock of integral spare parts for special logging equipment.)

In FY1984 we requested funds to purchase a new 12 channel, full-waveform sonic tool and associated periferal electronics. Because of budget cuts in FY85 and FY86, below the projected levels initially computed at the begining of the logging program, we have been unable to acquire a complete spare 12-channel logging system. We do have a spare receiver string, however our original intention was to have two fully operational systems on the drillship and one system at the BRG as a replacement that could also be used to test new acquisition hardware and software that would upgrade the tool and resulting data. This additional sonic tool is necessary to insure the uninterrupted use of this important specialty logging tool throughout the ODP program. Consequently, we have included in the FY86 Addendum Budget, as a permanent equipment line item, a complete 12-channel sonic tool and associated electronics.

<u>Borehole Televiewer - Stanford U.</u>

During FY1984 we purchased two analog borehole televiewers (BHTV) from Simplec Manufacturing and the uphole analog recording and display system from the same manufacturer.

During FY1985 Stanford and USGS devoted a major portion of their efforts to procuring and refining Digital Borehole Televiewer technology and assisting in field testing of televiewer and 12-channel sonic tools and equipment before deployment on the RESOLUTION.

The design of the functions and interactions between the required set of MASSCOMP computer programs and the BHTV system was completed by USGS during FY1984. During FY1985 these programs were debugged and further developed and tested. In addition, the WBK computer programs were transferred to Stanford and USGS, converted to run on the MASSCOMP, and interfaced with the existing BHTV programs.

During FY86 Stanford U. will devote a major portion of its effort to completing the prototype digital borehole televiewer with the WBK mining institute of West Germany and finishing the computer assisted digitization system that will allow full-color acoustic reflectance images of all ODP boreholes to be generated and used to support lithostratigraphic analyses. In addition, Dr. Zoback of Stanford will assist in coordinating the development and design of the wireline packer that will be modelled after the system currently being built by Amoco.

Wireline Packer

While funding for the development of a state-of-the-art wireline packer for the ODP was requested in FY84 and FY85, we had to cut development funds for this specialty tool in both fiscal years to adjust to reduced budget levels. A wireline packer has been developed by Amoco, and a company called TAM manufacturing has acquired the rights to construct this instrument. We had several meetings with Amoco officials responsible for their packer program and have signed non-disclosure agreements with Amoco in order to appraise their design and work with them to adapt it to the smaller diameter pipe used in ODP drilling.

This packer will be ideally suited for monitoring, in real-time, the formation pore pressure and selectively sampling pore fluids. The Amoco design includes a one and one-half horsepower downhole pump capable of inflating two rubber packers against the wellbore, isolating a 3 foot interval of formation from the annulus. While in operation the system passes wellbore fluid through a real-time sampling chamber where Eh, Ph, alkalinity, chlorinity and resistivity are measured. These chemical data are transmitted to the surface via the logging cable and monitored onboard the drillship so that the operator can decide when the annulus fluids passing through the sample chamber are truly representative of formation fluids. At that point the operator would activate one of the four sample chambers to take a fluid sample that would return to the surface for further analyses and study. We envision that future models of the wireline packer should be equipped with a variety of chemical sensors, however, for the present we are concentrating our efforts on selecting the appropriate design parameters and contracting for the construction of a prototype that could be field tested during FY1987.

A number of geophysical parameters such as seismic velocities and geotechnical properties depend heavily on pore pressure, and pore-fluid geochemistry is of great interest and importance. Hence, the development and use of an advanced wireline packer should result in a significant increase in our understanding of oceanic igneous and sedimentary formation pore pressures and fluids and their effects on oceanic crustal geophysical measurements.

It is essential to point out that without adequate funds for initial design assesment and feasibility studies that were originally planned for FY1984 and FY1985, the availability of an advanced wireline packer for the Barbados leg (Leg 109) is not possible. Even with a major expenditure of funds in FY86 (above the $39K funds requested in the FY86 budget, and even with the addition of $76K that we have requested in the Addendum Budget for FY86) it is unlikely that a wireline packer prototype could be available by the middle or end of FY86.

Computers

The BRG has developed an in-house computing facility to carry out the responsibilities of the JOI logging contract. The system was designed with the following goals in mind: 1) to provide a state-of-the-art computing facility for the development of applications programs for the JOI logging program; 2) to duplicate the field data system so that data acquisition programs could be developed in the laboratory before initial field testing on the logging truck and final deployment on the RESOLUTION; 3) to process experimental, special tool logging data including BHTV logs and full-waveform sonic logs; and 4) to process and analyze the standard logging data using both our own specially developed programs and commercial log analysis packages.

A MASSCOMP data analysis and display system was chosen to fulfill these requirements and was purchased with FY1984 funds. The computer runs a multiuser UNIX operating system with enhancements by MASSCOMP to facilitate real-time data analysis. The computational power of the computer is enhanced by the inclusion of a mathematics co-processor and by the presence on the main buss of both a floating point processor and an array processor. Thus the system we are using is ideally suited to the analysis of full-waveform data and of images returned by the borehole televiewer, as both these tools acquire data at an fast rate and for long periods of time.

During FY85 an intensive program development effort was undertaken, aimed at completing the first set of data acquisition programs and getting as for as possible on analysis routines. As of the time of this submission we have completed the sonic logging data acquisition and analysis programs, including those for computing sonic velocities and the display of sonic waveforms and velocity logs. In addition, a complete set of routines for the acquisition and display of pressure-time and flow rate data from hydrofracture experiments was developed and will prove essential in utilizing wireline packers in ODP holes.

The plans for FY86 call for completing a series of sonic analysis programs that include: FFT's, filters, plotting routines, natural fracture analysis routines, and synthetic waveform routines. Secondly, we intend to continue integrating the data analysis routines into a package that can be run from a simple menu. Thirdly, continued development of data analysis routines, in particular those for frequency-domain analysis of sonic data, and improvements and streamlining of data acquisition and analysis programs, by reprogramming them in assembly language to improve logging rates, will be undertaken in FY86. The listing provided in Table II.1 provides a summary of the MASSCOMP programs developed by the BRG to date.

Development and Maintenance of Shipboard Log Analysis Facility

A critical component of the LDGO-BRG logging program is the enhanced capability for real-time, shipboard log analysis. This function will provide feedback to the overall drilling program for each leg.

During FY84 and FY85 we developed and tested computer hardware and log analysis software now being used during ODP logging. The LDGO, Stanford U. and shipboard data acquisition and log analysis systems are identical, having the same computers and software packages. This will insure that all prototype, special tool testing and log analysis program upgrades originating at the BRG or Stanford U. will be compatible with the shipboard system.

Initially we are relying heavily on the Schlumberger CYBER unit for log analysis and processing of standard logging data, however, with time and with the intended development of the full-spectrum of enhanced log analysis programs, we envision that the focus will shift from the CYBER unit to the LDGO system. The LDGO system will, however, be dedicated from the start of the program to acquisition and processing of all special tool logging data (12-channel sonic and BHTV).

During FY86 we had initially planned for the deployment of the Energy Systems log analysis software, now being used at the LDGO-LAC on the RESOLUTION. We have had to cut this from our FY86 budget but have listed the purchase price of this item in our FY86 Addendum Budget.

TABLE II.1

Summary of MASSCOMP computer programs developed during FY1984 and FY1985 by the LDGO-BRG

*** [illegible] subroutines ***

(1)	BELL	Rings a bell on terminal.
(2)	CLEAR_SCRN	To clear the masscomp screen.
(3)	COPY_IARRAY	Copy an array of integers.
(4)	COPY_RARRAY	Copy an array of reals.
(5)	DISPLAY	Display a line and move cursor to a fixed position on screen.
(6)	FIRE_TOOL	It uses parallel port to fire a sonic tool.
(7)	FIT_SLINE	[illegible] = Linear least square fit, which returns mean, slope, intercept and standard deviation of f.x on floats. [illegible] = For integer.
(8)	GET_DATE	Gets the date in the form [illegible] or time [illegible]
(9)	MOVE_TAPE	Used for moving tape in any direction by # of records.
(10)	OUTLINE_BOX	Used to draw a box on a MASSCOMP terminal.
(11)	READSTRING	Used to read a string from a file or stdin.
(12)	REWIND	To rewind a tape.
(13)	RUNTIME	Gets the current runtime of a process and its child in ms.
(14)	TAPEEOF	Writes a 1 = end of file on a magtape.

*** [illegible] ***

(1)	BACKUP	To take the backup of selected directories on tape using TAR.
(2)	[illegible]	This allows the user to get help on the local commands and programs available.
(3)	[illegible]	For compiling a 'C' program.
(4)	[illegible]	Change the mode of 'Selanar' terminal to [illegible] mode.
(5)	[illegible]	To dismount the floppy disk.
(6)	FLOPPY	General program for use of a floppy by 'CPIO'.
(7)	[illegible]	To mount the floppy disk.
(8)	[illegible]	Compile fortran program
(9)	[illegible]	Save a graphics screen (MASSCOMP) in a disk file.
(10)	[illegible]	Change the mode of 'Selanar' to graphics mode.
(11)	HP	Program which is used to print files on HP-laser printer
(12)	HPLASER	This allows you to use different fonts and options available on HP-laser printer.
(13)	HPRINT	Command to print a file on HP-laser printer.
(14)	HPLOT	Command to plot GPS-plot file on MASSCOMP terminal.
(15)	READMAG	Program to read tapes written on another computer. (Tape written on [illegible], eg. on VAX - [illegible])
(16)	RESET	Program to reset the MASSCOMP terminal.
(17)	TELL	Program to ring bell until stopped. This can be used for waking up the operator after long jobs.
(18)	TPLOT	Command to plot GPS-plot file on 'Selanar' terminal.
(19)	TRIM	Program to remove the blanks from the end of the records in a file.
(20)	VPLOT	Command to plot GPS-plot file on versatec plotter.
(21)	VPRINT	Command to print small print files on versatec plotter

*** sonic data acquisition and display ***

(1)	SONIC	Program to log the sonic data, continuous or discontinuous.
(2)	SONPLOTS	Program to plot the sonic data on masscomp graphics terminal.
(3)	SONPLOTV	Program to plot the data of a receiver on versatec plotter.
(4)	SONICCOPY	Program to copy data from tape to tape/disk, for backup.

*** analysis of a sonic data ***

(5)	SEMB	Program to calculate the semblance for the sonic data using array processor.
(6)	SEMBAP	Program to calculate the semblance using array processor.
(7)	COMPARE	Program to compare the output data file from SEMB and SEMBAP. This was used to debug the programs.
(8)	AVERAGE	Program to do the averaging of semblance data over the range of depth of records.
(9)	SEMBPLT	Program to plot the semblance data on versatec plotter. Program creates a velocity file which will be appended for the full well and plot the velocity table.
(10)	APPENDVF	Program to append the velocity files, created by SEMBPLT, for the full well. This program allows you to convert the [illegible] depth to the actual well depth.
(11)	[illegible]	Program to merge the compressional and shear velocity data for full well (output of APPENDVF) in a one file. This file is then used for plotting a velocity table.
(12)	[illegible]	Program to plot the velocity table for compressional and shear wave.
(13)	LOOKDATA	Program allows to look at the semblance data (output of SEMB [illegible]) by [illegible] range.
(14)	LOOKVEL	Program allows you to look at the velocity data (output of [illegible] or APPENDVF or [illegible]). Note that the format of the files are different [illegible]. Program [illegible] for selecting the format of a file to look at. [illegible]: [illegible] = Raw data file. APPENDVF = Appended data file. [illegible] = Merged data file. Select the option according to the above conventions.
(15)	SELECT	Program to select the data records from the sonic data in [illegible] sequence. This was written to debug the [illegible] program. It can be used to process the part of the data file.
(16)	SONICPICK	Program to find velocity using the picking routine to find the arrivals of a signal.
(17)	PICKPLOT	Program plots the velocity and % standard error on versatec.

*** hydro fracture logging ***

(18)	FRACTURE	Program to log the hydro-fracture data.
(19)	FRACPLOTS	Program to plot the hydro-fracture data on MASSCOMP terminal.
(20)	FRACPLOTV	Program to plot the hydro-fracture data on VERSATEC.
(21)	FRACCOPY	Program to copy the hydro-fracture data from tape to tape disk. This is used for taking a backup.

Tentative Shipboard Logging Personnel on FY1985 Legs

Leg	Locale		Logging Scientist	Lamont Logger
106	MAR-Engineering		?	?
107	Mediterranean		Christina Broglia	Dale Chayes
108	Morocco		?	Colin Williams
109	MAR		Roger Morin, USGS	Francis Alvarez
110	Barbados		Keir Becker, UM	Mike Hobart
111	EPR-1	or	Roger Morin, USGS	Dan Moos
112	EPR-2 or 504B		Jeff Daniels,OSU	Matt Greenberg
113	Peru-Chile		Jim Scott, USGS	Dave Roach

We envision that shipboard logging scientists will visit the LDGO-BRG Log Analysis Center for a one-week training course prior to going on the drillship. This, in addition to the available expertise of the BRG and Schlumberger logging personnel on the RESOLUTION will insure that ODP scientists are well-versed in the capabilities, operations and objectives of logging programs on each ODP leg.

During FY1985 we compiled and printed a shipboard logging manual for use by ODP logging scientists. This manual encompasses not only descriptive sections on all standard and specialty logging tools, but also discusses the applications of data acquired through their use. In addition, this manual serves to illustrate log analysis computer use and available log analysis programs and graphics capabilities.

The Shipboard Log Analysis Facilty (SLAF) was staffed by two LDGO-BRG personnel and one Schlumberger personnel during FY1985. Two BRG personnel are required during each ODP leg during FY1985 for the purpose of training individuals in shipboard special-tool logging routines, log analysis hardware and software, and interfacing with Schlumberger standard logging operations. Begining with FY1986, only one BRG technician will sail on each leg, accompanied by one Schlumberger technician.

The SLAF will be operational throughout each leg. During drilling operations it will operate as a maintenance and development facility for standard and special tool logging programs and will give advice to Sedco personnel and shipboard scientists regarding logging operations and standard and special tools usage. During and after logging operations in each ODP hole the data from standard and special tool logging runs will be processed by Schlumberger and BRG technicians with advice from the co-chiefs and logging scientists.

LDGO-BRG Shorebased Log Analysis Center

A digital cross-correlation, display and interpretation log analysis capability was initially assembled at LDGO during FY84 and FY85 so that ODP investigators could have their logs analyzed. We intend to provide a yearly log analysis publication for the ODP as required. To the extent authorized by the JOI Contract Executive the LDGO Log Analysis Center (LAC) will be available to the international scientific community, further subject to the restrictions imposed by the JOIDES Executive Committee on data dissemination.

During FY84 we purchased a computer, log analysis software package, complete set of duplicate tapes of the IPOD/DSDP logging data, computer peripherals and minor hardware and software items necessary for the implementation and continued function of the LAC. During FY1985 we continued to develop computer programs for processing of standard and special tool logging data, and we continued to test, modify and apply the Energy Systems (ES) log analysis package.

The ES log analysis system (ES-LOG) is an interactive graphic system that provides a complete and accurate analysis of log data. Original data are input via tape, digitizer or manually. These data can be interactively adjusted for errors that may occur during logging operations or corrected for environmental conditions. The data can be interpreted in terms of porosity, shaliness and fluid saturation by using the most appropriate analysis model. The system is color graphics based, thus providing a great flexibility in visually analysing data. A color graphic display allows the user to manipulate trace data through colors in order to produce a more visually enhanced display thereby aiding in the interpretation. Finally, the ES log analysis system provides users with the capability of developing their own programs by using a simple programming language that combines features of both Fortran and Pascal. A detailed description of the ES log analysis hardware, and analysis capabilities is presented in Appendix I.

Table II.2 summarizes the FY86 costs of the LDGO-BRG by major budget heading.

TABLE II.2

PERSONNEL	127 Person Months	$361,002.
PERMANENT EQUIP.		$138,735.
MATERIALS & SUPPLIES		$ 51,000.
DOMESTIC TRAVEL		$ 29,870.
FOREIGN TRAVEL		$ 27,770.
OTHER COSTS		$125,000.
SUBCONTRACT COSTS		
Stanford U.		$118,122.
Schlumberger		$1,350,900.
MASSCOMP Computer		$ 49,086.
GENERAL ADMIN. COSTS		$136,568.
OVERHEAD		$112,817.
TOTAL		$2,500,000.

Budget Justifications

As detailed in the Budget Section (III) a total of 127 person months are budgeted for and deemed necessary to maintain and operate the various functions of the Wireline Logging Program at LDGO-BRG. This is in addition to the labor required of Stanford and Schlumberger in their capacity as prime subcontractors to the LDGO-BRG. We have followed Columbia Univ. policy in budgeting for Sea Pay for LDGO-BRG personnel who will be onboard the RESOLUTION for ODP legs.

We are requesting 3 months of salary support for Dr. R. Jarrard to assist the BRG in developing log analysis software for: 1) sonic and density log editing for synthetic seismograms, and 2) determination of lithology and porosity of continental margin sedimentary sequences and subsequent subsidence analysis. A synopsis of his intended work is presented in Appendix II.

Two begining graduate students (both ex-Schlumberger logging engineers) will start graduate studies at LDGO and assist BRG scientists in various capacities including serving as shipboard logging technicians. In addition, we have requested 12 months of support for a technician who could serve both as a seagoing logging tech and a shorebased mechanical and electrical engineering tech. Because of the high degree of technical equipment utilized in the logging program and the necessity of supporting the logging program onboard the drillship we need additional personnel to handle these tasks. Finally, we are requesting minimal support for a shorebased draftsperson to assist in the production of graphics for logging publications and log data presentations.

Permanent equipment required during FY1986 is largely self-explanatory and represents a substantial cut from what we initially planned for this fiscal year. In particular, start-up costs for the wireline packer are minimal. We have listed a total of $300K of additional permanent equipment items in the FY86 Addendum Budget should additional funds become available.

Domestic travel is related to three principal categories. They are: travel to JOIDES panel meetings; travel to attend meetings with contractors and subcontractors; and travel to attend trade shows or present ODP logging program summaries at scientific meetings.

Under Foreign Travel we have requested funds for travel for BRG personnel to meet the RESOLUTION. In addition, we have requested travel funds for BRG personnel to attend JOIDES panel meetings. We have also allotted a small, $5K foreign travel contingency fund to cover any unplanned travel to the ship to effect repairs or make special site visits.

Under the Other Costs section of the FY1986 Budget we have requested funds to cover maintenance and operating expenses related to the line items listed under Section H. In addition, we have allotted for insurance to cover the Schlumberger tools and equipment both on deck and in the borehole. Shipping costs are a present best estimate for operating away from U.S. shores and include the cost of shipping Schlumberger tools and equipment to and from the drillship.

Subcontract costs are itemized under line items N through P in the LDGO Main Contract Budget and detailed budgets for the Stanford U. and Schlumberger contracts follow on succeeding pages. Standard logging tool capabilities and Schlumberger logging services are described in detail in Appendix III.

The MASSCOMP subcontract covers costs for service contracts for the two computers at LDGO and spare parts and hourly billed labor for the computer on the drillship. These costs are sufficiently high and will continue for the duration of the program so we felt it best to initiate a subcontract to avoid excessive overhead charges as they relate to these expenditures.

A 5-year summary budget (starting in FY84) is presented as a guideline to past spending history for the ODP logging program and for future financial planning.

The FY86 Addendum Budget which follows the 5-year budget summary (since FY84) is presented as a request for additional funds for needed permanent equipment should additional funds become available to JOI.

LAMONT-DOHERTY GEOLOGICAL OBSERVATORY
BOREHOLE RESEARCH GROUP

FY 1986 BUDGET

JOI - WIRELINE LOGGING SERVICES MAIN CONTRACT - ODP
10/1/85 to 9/30/86

A.	TOTAL SALARIES AND FRINGE BENEFITS	$	361,002
B.	PERMANENT EQUIPMENT		
	(1) Energy Systems log analysis software updates for 12 months	$	7,000
	(2) Schlumberger Wireline Heave Compensator (2nd payment-final)		81,000
	(3) Start-up costs for wireline packer development		39,335 *
	(4) Borehole Research Group Office Xerox (2nd payment-final)		2,400
	(5) Storage racks (shipboard and LDGO) for mag. tapes, video tapes, televiewer records, logging tools		9,000
	TOTAL PERMANENT EQUIPMENT	$	138,735
C.	TOTAL MATERIALS AND SUPPLIES	$	51,000
D.	TOTAL TRAVEL	$	56,770
E.	OTHER COSTS		
	(1) Printing services for duplication, archiving and preparation of logging documents and reports	$	15,000
	(2) Repair and calibration of logging tools and modification of equipment		15,000
	(3) Logging truck expenses (supplies, fuel & upkeep)		6,000
	(4) Insurance		10,000
	(5) Communications		12,000
	(6) Shipping (from LDGO and Schlumberger to and from ship)		60,000
	(7) Graphic arts reproduction services		7,000
	TOTAL OTHER COSTS	$	125,000
F.	LDGO DIRECT COSTS TOTAL	$	732,507
G.	LDGO INDIRECT COST BASE $593,772		
H.	LDGO GENERAL ADMINISTRATIVE COSTS (@23%)	$	136,568
I.	LDGO OVERHEAD (@19%)	$	112,817
J.	LDGO BUDGET TOTAL	$	981,892
K.	MASSCOMP SUBCONTRACT (service contracts for 3 computers plus spare parts)	$	49,086
L.	STANFORD UNIVERSITY SUBCONTRACT	$	118,122
M.	SCHLUMBERGER SUBCONTRACT	$	1,350,900
N.	TOTAL LDGO WIRELINE LOGGING SUBCONTRACT	$	2,500,000

*PCOM Budget Subcommittee recommended wireline packer development be deferred . . . . $ - 39,335

Lamont-Doherty Geological Observatory
Borehole Research Group
Wireline Logging Contractor for the Ocean Drilling Program

ADDENDUM BUDGET

THIS BUDGET IS SUBMITTED IN THE EVENT THAT FUNDS BECOME AVAILABLE TO BRING THE FY1986 BUDGET LEVEL UP TO THE ORIGINAL TARGET FIGURE OF $2.8 MILLION

PERMANENT EQUIPMENT

1.	One (1) BHTV system to be converter to digital plus spare surface electronics panel	$ 65,000
2.	One (1) 12 channel sonic tool and uphole electronics	$ 90,000
3.	Two (2) MASSCOMP computer terminal conversions to color graphics (@$7,000)	$ 14,000.
4.	One (1) Energy Systems log analysis software package for drillship	$ 40,000.
5.	Wireline Packer development funds	$ 76,000.
6.	Computer programming for continental margin backstripping analysis package based on logging data	$ 15,000.
	TOTAL FUNDS REQUESTED IN FY1986 ADDENDUM...............	$300,000.
7.	Start-up costs for wireline packer development (deferred by PCOM Budget Committee)	$ 39,335
		$339,335

Appendix 4

Heave Motion Compensator

System Overview

This system is designed to provide heave motion compensation on floating vessels which have no riser for use as a reference of heave. This is accomplished by measuring and integrating twice the heave acceleration of the vessel, using an accelerometer. The resulting heave is scaled and compared to the position of the piston in the hydraulic cylinder by an industrial programmable controller. The controller generates control signals based on the heave measurement which drives the piston in the hydraulic cylinder. Attached to the rod at the end of the piston is a conventional wireline scheeve wheel. As the vessel rises, the piston is extended paying line into the hole. Conversly, as the vessel lowers, the piston is retracted,taking line out of the hole. The hydraulic cylinder is driven by an pump capable of seventy gallons per minute flow at a system pressure of thirty-five hundred pounds per square inch. The prime mover of the system is an one hundred and fifty horsepower electric motor.

The system is divided into three major subsystems. They are the heave indicator, the heave control panel, and the hydraulic power package.

Progress to Date:

1. All of the components to the heave indicator system have been received and are being evaluated and assembled and should be ready for final testing by the end of June, 1985.

2. The heave control panel is being assembled and tested. The software which is to be loaded into the controller is being developed and also should be ready for final evaluation at the end of June.

3. The hydraulic power package is about forty percent complete, and is being slowed by delivery problems for components manufactured by the Rexroth Corporation. We have been assured by the vendor involved that the problems will be solved and that we will receive the package at the end of June.

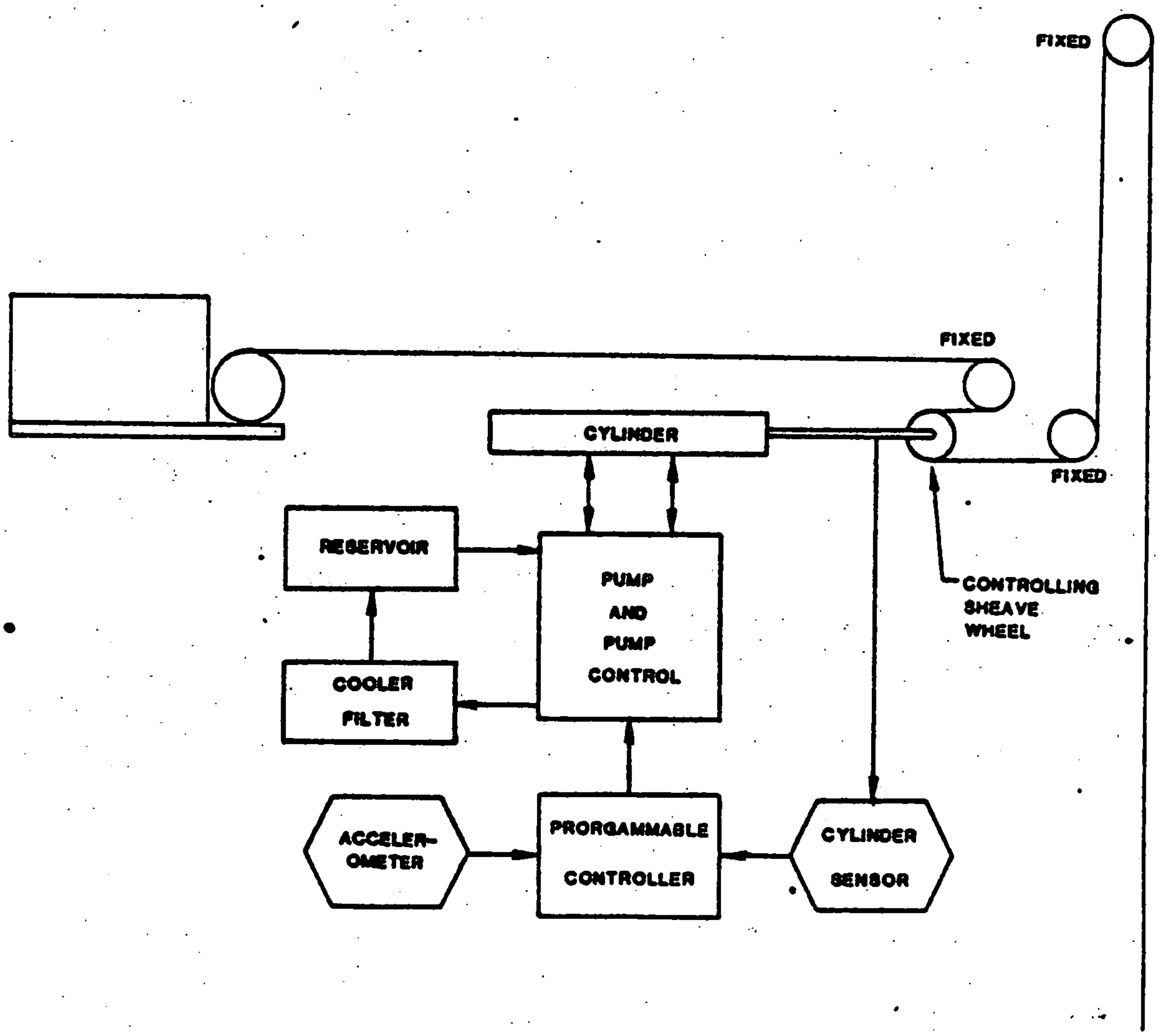
Heave Motion Compensator

It is our intention to make the assembly available for delivery at the end of July and it looks at this time we should be able to maintain that schedule, the only real concern is the power package and that should be resolved this week.

It is our understanding that Sedco has presented Colombia University with an installation bill of materials and that we shall procure the materials and bill Columbia. It would be helpful if we could obtain that bill of materials so that we can proceed with that process and clear up any doubt about delivery dates.

The rest of this paper is a more detailed explanation of each of the subsystems incorporated in the heave motion compensator.

GENERA Schematic



Heave Motion Compensator

Heave Indicator Subsystem

The heave indicator subsystem consists of the accelerometer and its power supplies, signal conditioner, and transmitter. The entire subsystem is mounted in an explosion proof enclosure to be located near the center of gravity of the vessel. The cable connecting the enclosure to the rest of the system is also explosion proof and shielded electrically. The heave accelerometer is manufactured by Schaevitz Engineering and is identical to that used by Sedco for heave measurements in other applications. The circuitry which integrates the heave acceleration to give heave displacement is also manufactured by Schaevitz. This unit reputedly provides accurate measurements of heave in time periods of 100 to 4 seconds.

The power supplies which the accelerometer requires is manufactured by Sola Industries and is of commercial quality. The 110 v. supplied to the Sola unit is Conditioned in the heave control panel for transients which are common on shipboard sources.

The output from the accelerometer assembly is a voltage proportional to heave. An Action Instruments optically isolated process transmitter us used to convert this voltage to an current loop of 4-20 ma. This is done to help with noise problems. This process transmitter is also powered by the conditioned 110 v. supply from the control panel.

Filters are utilised in the accelerometer assembly to insure that the heave output always occillates around zero, reducing drift in the system. As a result however, the unit must be powered up for several minutes before it output can be used for compensation purposes, this should not present any great difficulty unless power is interrupted while the compensator is being used.

Heave Indicator

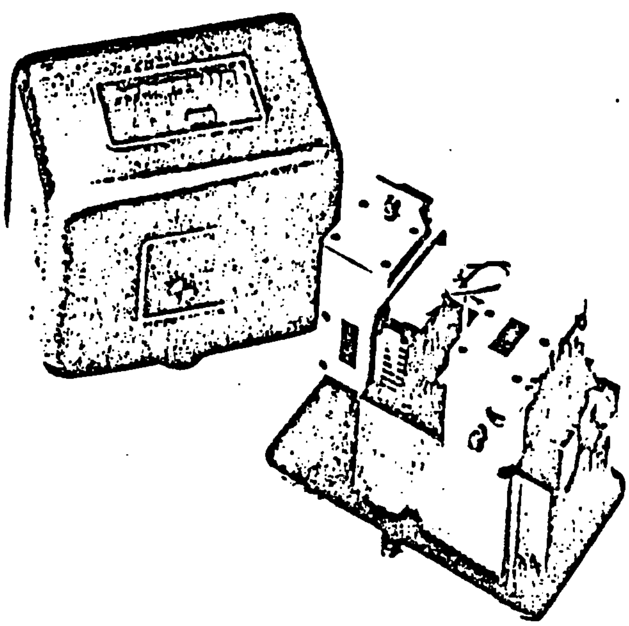
INTRODUCTION

The Schaevitz HMS-1736 Heave Motion System measures the movement of rigid, sea-going platforms with respect to the three dimensional axes. It serves as the safety monitor of heave and tilt for offshore oil drilling platforms, ships, barges, and buoys. The system can also aid in the even distribution of cargo on barges and ships.

The HMS-1736 System gives six continuous outputs, three of which are calibrated and three of which are for reference purposes. These outputs are pitch angle, roll angle and heave height (calibrated), and tilt angle, heave acceleration and heave velocity (reference).

In use, when a platform's tilt angle exceeds the user's specified limit, the Schaevitz Heave Motion System trips a relay closure to start a user-determined chain of events. This fail-safe alarm also activates in the event of a power or electronic failure and can only be silenced manually.

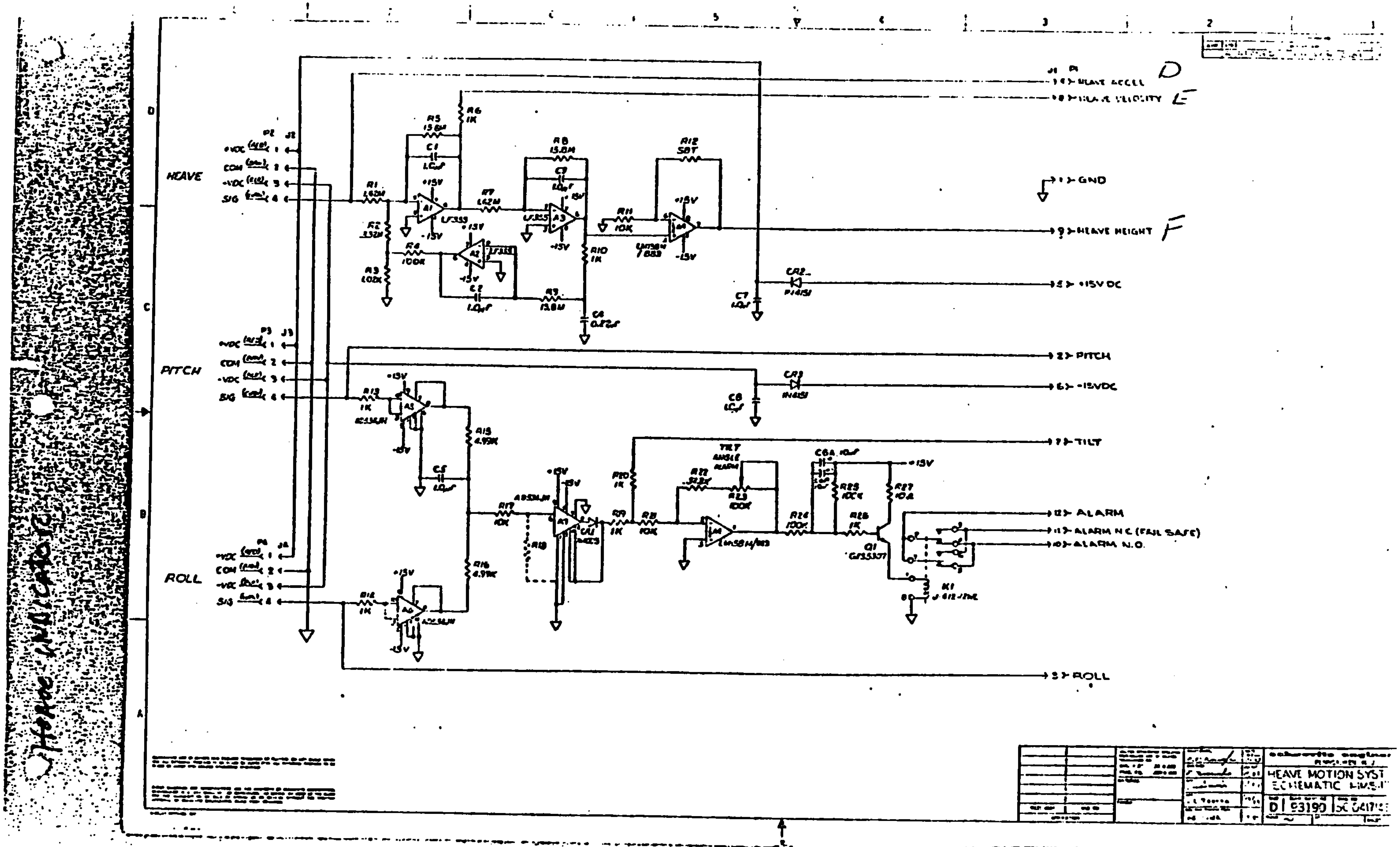
The system's housing is salt water resistant and easily mounted on a vertical surface. Once installed, the unit requires only a ±15 V DC power supply, an alarm, and voltmeters and/or readouts for operation.



HMS-1736 HEAVE MOTION SYSTEM SPECIFICATIONS

PITCH	
Range	±14.5° (±10 V DC)
Accuracy	±0.1% full range at constant temp.
Scale Factor	1.45°/V DC (0.690 V DC/degree)
ROLL	
Range	±14.5° (±10 V DC)
Accuracy	±0.1% full range at constant temp.
Scale Factor	1.45°/V DC (0.690 V DC/degree)
HEAVE ACCELERATION*	
Range	±0.5g with 1g bias, unless otherwise specified
Accuracy	±0.1% full range at constant temp.
Scale Factor	0.1g/V DC (10 V DC/g)
HEAVE VELOCITY*	
Range	±15 feet/second
Scale Factor,Typical	5 feet/second/V DC (0.2 V DC/foot/second, not calibrated)
HEAVE HEIGHT	
Range	±15 feet (±4.6 meters), unless otherwise specified, frequency dependent
Period	1.0 to 100 seconds
Accuracy	±0.13 ft. (±0.8%) at constant temp.
Scale Factor	±5 V DC = ±15 feet; 3 feet/V DC (0.333 V DC/foot)
TILT LIMIT RANGE (ALARM ANGLE)	User-specified; 2° to 7° typical, set point accuracy 0.1° at constant temp.
TILT*	
Range	2° to 7°
Accuracy	0.25° at constant temp.
Scale Factor	2.27°/V DC (0.44 V DC/degree)
SUPPLY VOLTAGE	±15 V DC at ±100 mA maximum
OPERATING TEMPERATURE	
Range	-18°C to +71°C (0°F to 160°F)
AXIS ALIGNMENT	±1°
HOUSING MATERIALS	Salt-water-resistant anodized aluminum alloys and stainless steel
ELECTRICAL CONNECTIONS	13-pin MIL-C-5015 connector, Type: MS 3102A-20-11P
MAXIMUM DIMENSIONS	180.3 mm x 120.6 mm x 122.5 mm (7.10 in. x 4.75 in. x 4.83 in.)
WEIGHT	1.5 kilograms (3.3. pounds)

* Reference Only


HEAVE
PITCH
ROLL
+VDC
COM
-VDC
SIG
HEAVE ACCEL
HEAVE VELOCITY
GND
HEAVE HEIGHT
+15V DC
PITCH
-15VDC
TILT
TILT ANGLE ALARM
ALARM
ALARM N.C. (FAIL SAFE)
ALARM N.O.
ROLL
LF355
LM358H/883
D
E
F
HEAVE MOTION SYST
SCHEMATIC HMS-II
D 93190

Heave Motion Compensator

Heave Control Panel

The heave control panel is to be mounted inside the Texas A&M winch unit. It will contain the process controller which will maintain compensation when the unit is operating. It also incorporates power supplies and conditioners for both itself and the heave indicator and the hydraulic power package. It also contains all indicators and switches to control the compensator.

. The specific switches are:

1.Main power for prime mover. This switch will function as the primary control and emergency shut -off. An additional emergency shut off switch will be mounted on the hydraulic power package.

2. Processor power. This switch will turn on the Texas Instruments industrial process controller which is to control the system. The software in the controller is in ROM to prevent volatility problems.

3. Manual control. This button will take the compensator out of the automatic mode and allow the operators to control the hydraulic cylinder manually when rigging up or down.

4.Retract. This button will retract the cylinder at a constant rate until the cylinder is near the retract limit switch, or until the operator releases the button.

5.Extend. Similar to the above.

6.Zero.. This button will place the cylinder at the center of travel (5 ft.) It is to be used before going to compensation on mode.

7. Compensation on. This places the controller in command of the operation of the cylinder. As a safety feature it will only respond if the cylinder has been zeroed previous to being pushed. When a number of conditions have been met, compensation will proceed untill any of the other buttons are pushed.

Appropriate lights and alarm will be include to make the operators aware of the compensator status.

Heave Motion Compensator

Hydraulic Power Package

The prime mover for the hydraulic power package is an 460 V.,150 H.P.,three phase motor. In addition there will be a ten horsepower motor for circulation of hydraulic fluid through the cooler. The prime mover drives an Rexroth A7Y 250 CC/minute pump, resulting in a flow rate of 75 G.P.M. at a system pressure of 3300 P.S.I. The pump is both pressure compensated and horsepower limited . The proportional valve which controls the position of the cylinder is also manufactured by Rexroth as is the electrical control interface between the valve and the programmable controller. The valve will flow rates at up to 130 G.P.M. in increments of less than one percent. The valve is also capable of going from zero to maximum flow in one tenth of an second.

The cylinder is manufactured by Ortman and is four inches in diameter with a stainless steel shaft that is one and three quarters inch diameter. The working length of the cylinder is 130 inches; which should allow compensation amounts of approximately 20 ft. Maximum piston velocity is going to be 40 inches per second.

The skid unit upon which all of this is to be mounted is twenty-five feet long and weighs approximately 15,000 lbs., dry. The hydraulic oil reservoir will contain 200 gallons of hydraulic fluid and will be filtered to 10 microns.

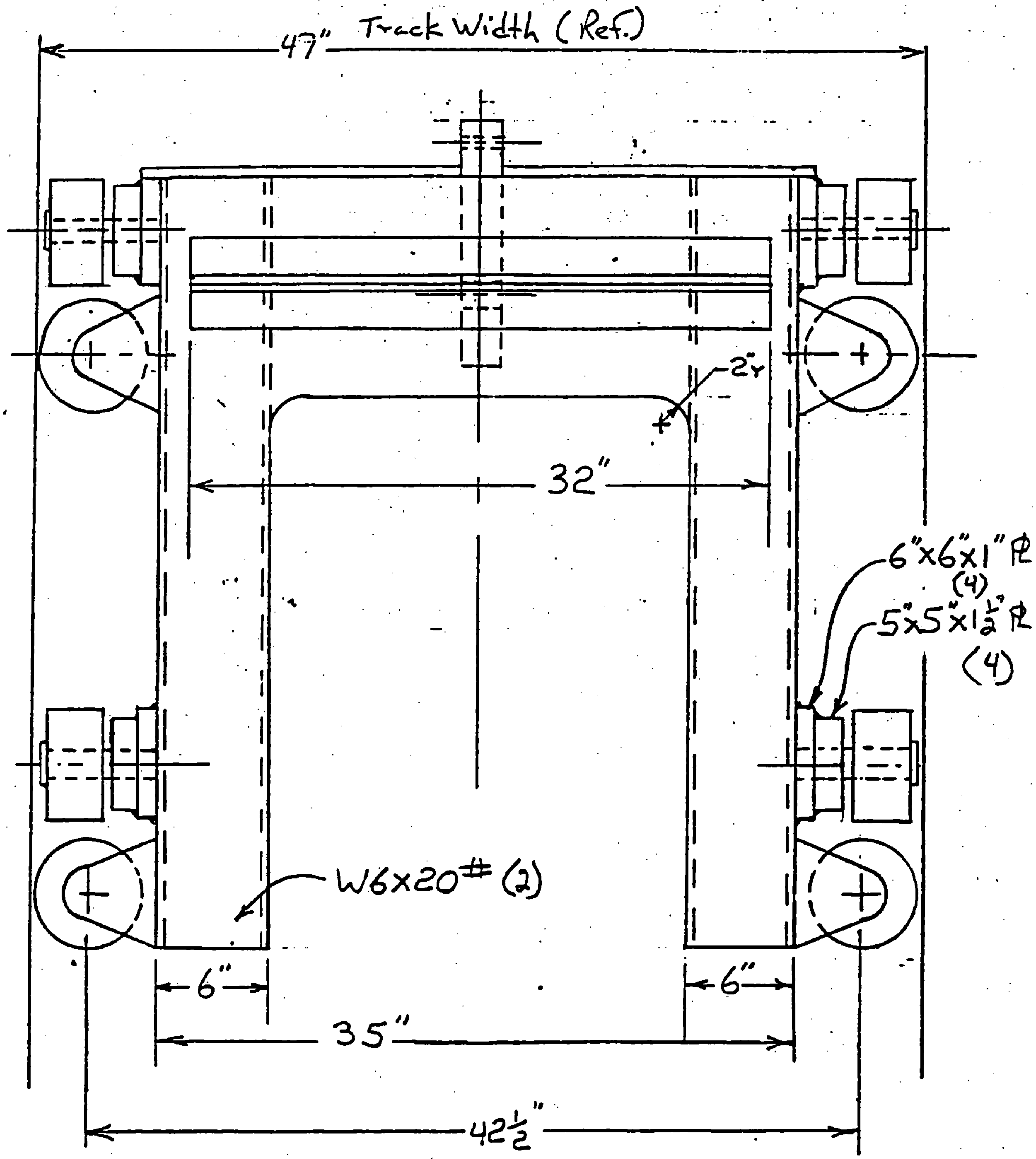
Please see the drawings for a schematic of the hydraulic system.

REXROTH
WORLDWIDE HYDRAULICS
MOBILE DIVISION

H-14

Trolly

Scale $1\frac{1}{2}" = 1"$

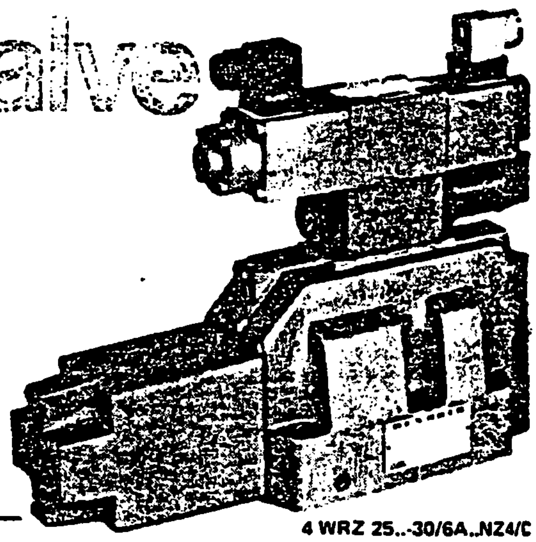


Trolley Mounted on END of Piston

Top View

VALVE WE ARE USING

ProportionalValve



- Refer to RA 29120

- Mounting to ANSI D06
- A Single Valve for Flow and Directional Control
- Internally or Externally Piloted and Drained
- Operation by Proportional Solenoid
- Spring-centered, Eliminating Drift of the Main Spool
- Low Pressure Drop Across the Spool Lands
- Electrically Operated (WRZ) and Hydraulically Operated (WRH)

Pilot Operated

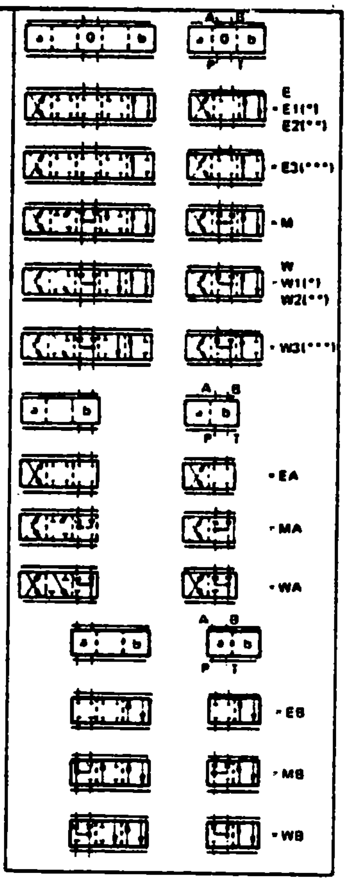
Up to 5000 psi
Up to 231.7 gpm

Ordering Code — 4 WRZ 25..-30/6A..NZ4/C

4 WR Z 25 E 270–30/6A 24 N ET Z4/ D2 V *Further Details

OPERATOR
- H = Hydraulic operation
- Z = Electro-hydraulic operation

SPOOL



NOMINAL FLOW AT 150 PSI PRESSURE DROP
- 270 = 71.3 GPM
- 325 = 85.8 GPM

E1, E2, E3, W1, W2 and W3 available only for the "325" nominal flow

DESIGN SERIES
- 30 = Design series 30

†PILOT CONTROL VALVE
- 6A = Size 6 valve with wet pin DC solenoid

†SOLENOID VOLTAGES
- 12 = 12 VDC
- 24 = Std. 24 VDC

†MANUAL SOLENOID OVERRIDE
- Omit = Without manual override
- N = With manual over

SALT WATER PROTECTION
Consult factory

†PILOT OIL SUPPLY/RETURN
- Omit = Ext. pilot supply, Ext. pilot return
- E = Int. pilot supply, Ext. pilot return
- ET = Int. pilot supply, Int. pilot return
- T = Ext. pilot supply, Int. pilot return

†ELECTRICAL CONNECTION
- Z4 = Plug-in connector
- K4 = Socket for Z4 connector with mating plug

†PRESSURE REDUCING VALVE
- Omit = Not required
- D2 = ZDR6DP2-30/75YM valve included

SEALS
- M = Petroleum based h ids
- V = Phosphate esters
- ◆E = Emulsions

* For spool types E1 and W1:
P→A Q = 85.8 GPM B→T = $\frac{Q}{2}$
P→B = $\frac{Q}{2}$ A→T Q = 85.8 GPM

** For spool types E2 and W2:
P→A = $\frac{Q}{2}$ B→T Q = 85.8 GPM
P→B Q = 85.8 GPM A→T = $\frac{Q}{2}$

*** For spool types E3 and W3:
P→A Q = 85.8 GPM B→T
P→B A→T Q = 85.8 GPM
(For regenerative control, connect blind end of cylinder to port A)

†Not applicable for WRH (Hydraulic) mode

◆ Please consult factory

● (RA) Engineering Data Sheets provide complete technical information

Indirect Operated Proportional Directional Valves (Pilot Operated)

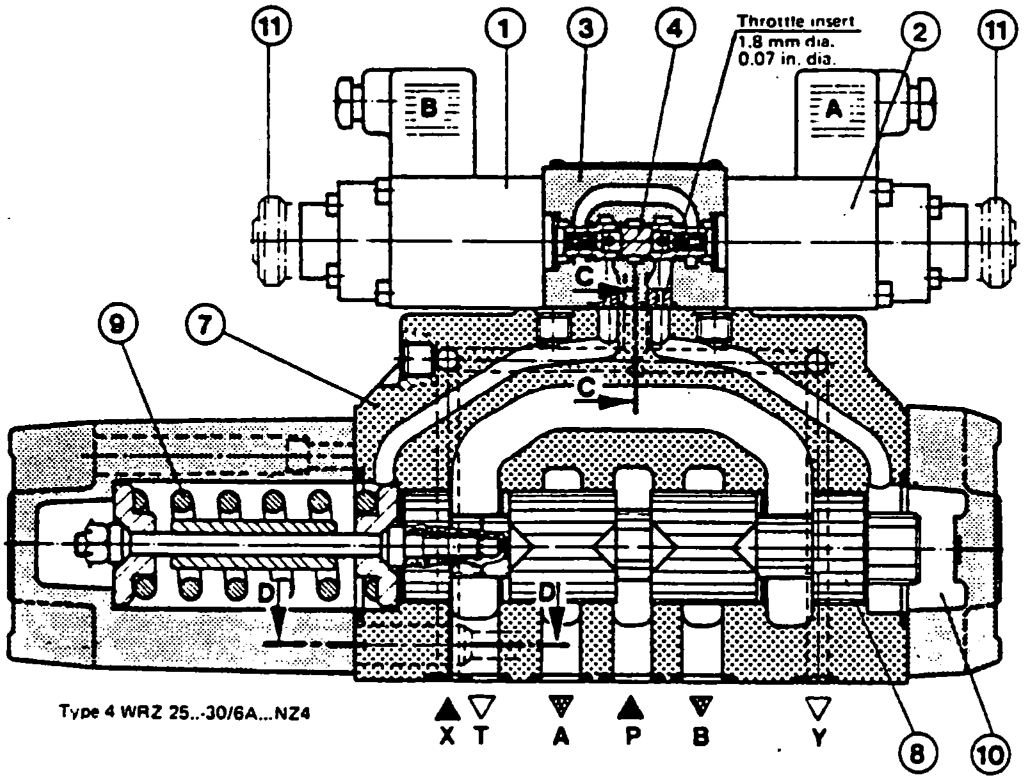
Rexroth model 4 WRZ valves are pilot operated proportional directional valves controlled by proportional solenoids, and are used to control both the volume and direction of a flow of oil.

Proportional directional valves consist of the pilot control valve (3) with its proportional solenoids (1) and (2) and the main valve (7) with the main spool (8) and its centering spring (9).

When de-energized, the main spool (8) is held in the center position by the spring (9).

With solenoid B energized, the pilot spool (4) is moved to the right. Pilot oil then passes internally from port P or externally via port X, via the pilot control valve (3), into the pilot chamber (10) and moves the main spool (8) to the left in proportion to the electrical signal given to the solenoid. In this way, the main spool is moved progressively, allowing progressive opening of the orifice type control grooves cut into the valve spool.

With solenoid B de-energized, pilot spool (4) is returned to it's center position. The main spool (8) is spring centered, with pilot chambers (10) drained to tank. Manual override (11) may be supplied if required. This allows proportional movement of the pilot spool (4) without energization of solenoids.



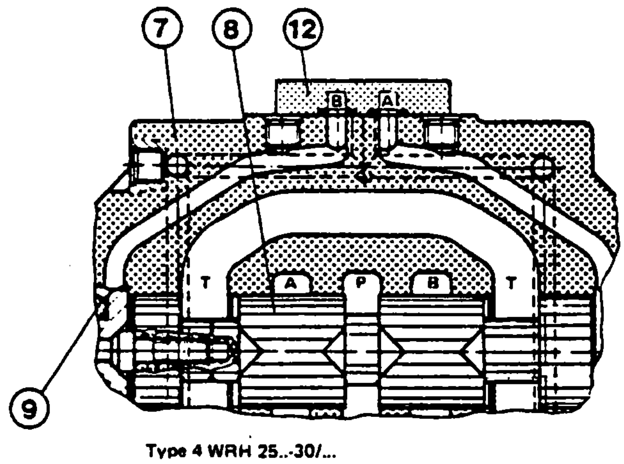
Type 4 WRZ 25..-30/6A...NZ4

Hydraulically Operated Proportional Directional Valves

Rexroth 4 WRH valves are hydraulically operated proportional directional valves which are externally operated by pressure control valves such as Rexroth's full line of foot pedal, joystick and proportional controls. Refer to Data Sheets: RA 29183, RA 64555, RA 64558 and RA 64581.

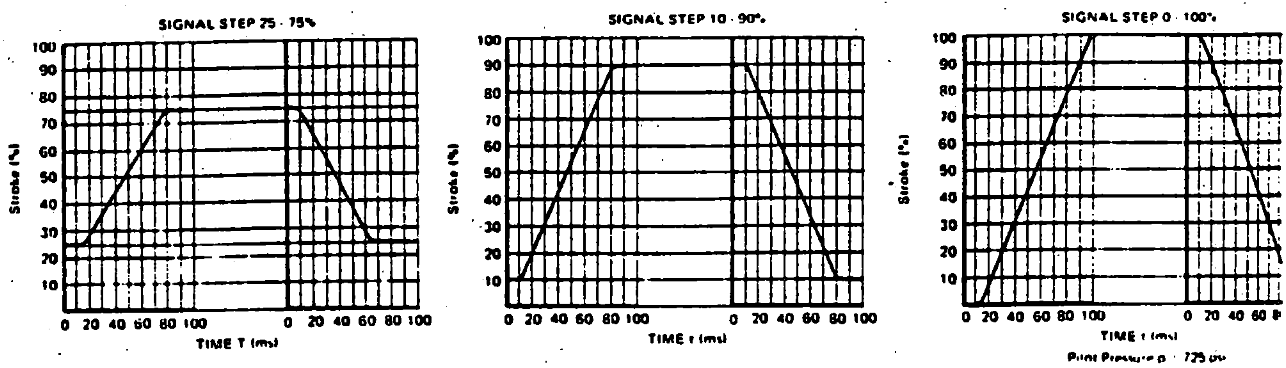
Proportional directional valves type WRH consist of the valve body (7) with its spool (8) and the centering spring (9). A connecting plate (12) is used to connect the pilot port A to port Y and pilot port B to port X. A pilot pressure between 21 psi and 365 psi at port X causes the operation of the spool to give P to B and A to T.

Movement of the spool is proportional to the control pressure providing progressive opening of the control grooves cut into the control lands of the main spool.



Type 4 WRH 25..-30/...

Spool movement with step function electrical input



Technical Data

HYDRAULIC

Minimum Pilot Pressure	To assure full opening of the main valve spool under all operating conditions, a minimum pilot pressure of 435 psi (30 bar) is r[illegible]d at the pilot valve inlet, (Port "X" when externally pilo[illegible] or Port "P" when internally piloted.
Maximum Pilot Pressure	The maximum operating pressure for the pilot stage is limited to 1450 psi (100 bar). For internally piloted valves, which operate above 1450 psi (100 bar), a sandwich mounted pressure reducing valve (Model No. ZDR6DP2-20/75YM, (ref: data sheet RA 26569), must be mounted between the main valve and the pilot section.
Main Valve Pressure Rating	5000 psi (350 bar) for petroleum and phosphate ester based fluids.
Maximum Return Line Pressure	The maximum pressure on the drain port of the pilot valve is limited to 435 psi (30 bar). To assure proper operation of the main valve, the back pressure on the pilot valve's drain port must be added to the minimum pilot pressure requirements of the pilot valve.
Maximum Pressure on Port "T"	435 psi (30 bar) with internal drain 3625 psi (250 bar) with external pilot drain
Pilot Oil Volume for Spool Movement 0 - 100%	0.6 in³ (10 cm³)
Pilot Oil Flow at Port X or Y for Stepped Electrical Input Signal 0 - 100%	1.85 GPM (7 l/min)
Flow Through Main Valve	231.7 GPM (877 l/min)
Filtration	≦ 20 micron
Fluid	Petroleum based hydraulic fluids, (*emulsions); phosphate ester
Fluid Temperature Range	-4 to 160°F (-20 to 70°C)
Viscosity Range	35 SSU to 1750 SSU (2.8cSt to 380cSt)
Hysteresis	6%
Repeatability	3%
Mounting Position	Optional
Weight — Spool Types	E, E1, E2, E3, M, W, W1, W2, W3: 40 lbs (18.2 kg) EA, MA, WA, EB, MB, WB: 38.6 lbs (17.5 kg)

(*Please consult factory)

ELECTRICAL

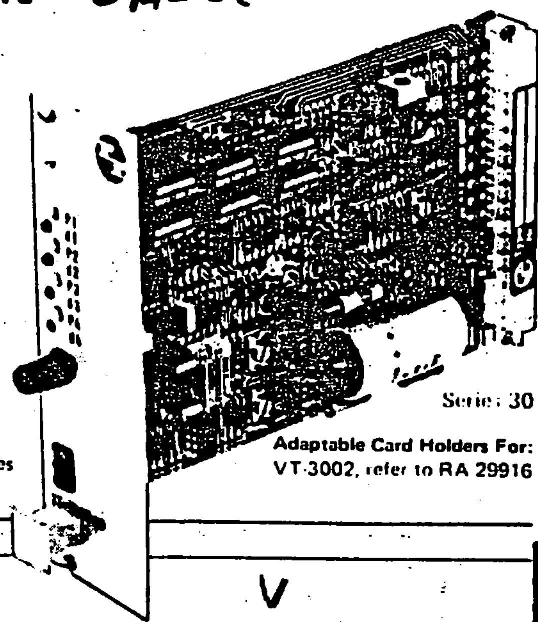
Type of Supply	Direct current (DC)
Nominal Current Per Proportional Solenoid	800 mA
Minimum Current	50 mA
Coil Resistance, Cold (68°F (20°C) Maximum Value, Hot	19.5 ohms 28.8 ohms
Coil Rating	Continuous
Maximum Ambient Temperature	122°F (50°C)
Maximum Coil Temperature	300°F (150°C)
Electrical Connection	Plug-in with ground type Z4
Insulation	Exceeds NEMA class B
Control Amplifier (24 V DC Supply) — With 1 Ramp	VT 3000 (see catalog sheet RA 29913)
Control Amplifier (24 V DC Supply) — With 5 Ramps	VT 3006 (see catalog sheet RA 29925)

INTERFACE BETWEEN Controller AND HyDraulic VALve

Electronics

Electrical Amplifier VT3000

The Control Of Proportional Directional Valves High Ambient Temperatures)



Series 30

Adaptable Card Holders For:
VT-3002, refer to RA 29916

...ifier Type VT-3000 is used for controlling proportional directional valves.
...unit consists of:

- ...oltage Stabilization
- ...Potentiometers for Presetting Input Signals
- ...Relays with Associated LED's for ...ecting Input Signals
- Ramp Generator
- Function Generator
- Differential Signal Input
- 2 Pulse Width Modulated Output Stages

...efer to RA 29935

...ering Code

V

VT–3000/S 30/R1 *

CONNECTOR CONFIGURATION
S = 32 pole plug-in card (DIN 41612)
(for installation in Euro card magazine)

DESIGN SERIES
30 = Design series 30

Further Details In Clear Text

RAMP TIME
R1 = 1 sec. max. ramp time
R5 = 5 sec. max. ramp time

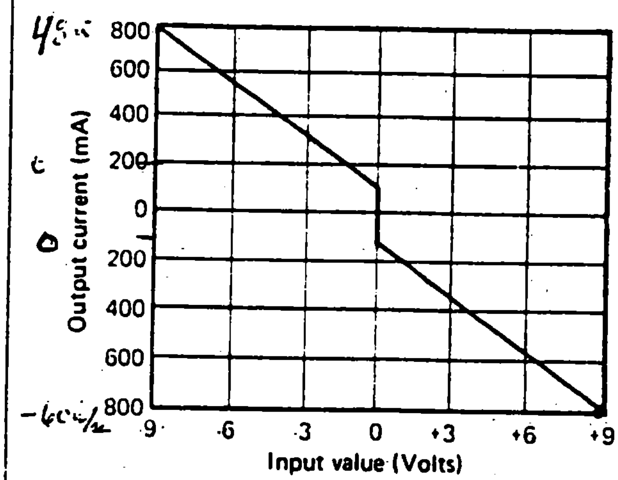
...nical Data

Weight	0.39 lbs (0.175 kg)
Supply Voltage Full Bridge Rectifier	24V DC ± 10%
Power Requirement	30 watts
Fuse	2.5 amp
Reference Voltage (Internal)	± 9V with center tap
Minimum Load Resistance of Reference Voltage	500 ohms
Maximum Output Current (Imax)	800 mA
Bias Current	50 mA
Maximum Load Resistance	30 ohms
Ambient Temperature Range	32 to 168°F (0 to 75°C)
Space Requirement	8 divisions 1.57" (40 mm)
Temperature Drift	0.5% (Imax) °C

For applications outside the above parameters, please consult Rexroth Engineering.

Performance Curve

Q AC



Appendix 5

JOIDES Downhole Measurements Panel Meeting - June 12-14, 1985, Halifax

Canadian Downhole Measurements program

Interest in downhole measurements is beginning to pick up in Canada.

The Canadian Well Logging Society, based in Calgary, is aware of the program and their Executive have suggested that some of their members might serve on the Downhole Measurements Panel and make their experience available. As yet the Society has not proposed any research programs. In discussions with their President, Lorne Slusarchuk, he pointed out to me that very few of their members are in a position to take part in cruises; the time required is generally too much. Possibly, some semi-retired log analysts could participate.

Involvement of graduate students from the University of Waterloo is a reasonable possibility. Staff and students there have particular interests in borehole geophysics, and downhole measurements of rock properties, strain relief, fractures, borehole morphology and fracture filling. Dr. John Greenhouse will co-ordinate their involvement.

In the Federal Government, P. Hill and K. Moran (Atlantic Geoscience Centre) are looking into logging geotechnical properties of surficially slumped sediments on Leg 109 as an extension of their work in the Beaufort Sea. Dr. P. Lapointe of Earth Physics Branch is preparing a proposal to take part in Leg 105. He would be interested in logging magnetic susceptibility and making measurements on the cores. Down the road, Dr. Lapointe is interested in running a modified MAGLOG tool in some holes. This tool is presently being tested and involves a total field measurement tool (Canadian) with a susceptibility instrument (modified Finnish tool).

Dr. A. Judge and colleagues in Earth Physics Branch have developed a permanent cable system for monitoring long term temperature changes in sub sea open holes. They recently deployed it in an Arctic Islands well drilled in 250m of water. The cable has 13 sensors spread over 800m and communicates its measurements by an acoustic telemetry link. It would require some redesigning to deploy in deep water (e.g., probe is 7" in diameter, acoustic telemetry link would need adapting or some other communication system used). Dr. Judge is interested deploying a modified system in AODP holes. A. Taylor will give more details at this meeting.

General Comments

I feel Canada's involvement needs boosting, but recognise that we cannot expect time-consuming research projects to emanate from the oil industry where most of the expertise resides. Apart from the University of Waterloo, Canadian Universities have not yet become involved in deep downhole measurements to any extent. This will change as onshore Deep Continental Drilling programs get underway.

One source we haven't yet tapped is graduate programs in Technical Colleges (T.U.N.S., N.A.I.T., S.A.I.T., etc.). There might be a reasonable level of interest there. Also the Navy may have research personnel who would like to become involved (O.B.S.?). The Canadian mining industry is another source of possible research personnel and instrumentation.

JSBell

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B2Y 4A2

Tel. 902-426-2730

Appendix 6a

OFFSHORE TEMPERATURE MONITORING SYSTEM INSTALLED IN CAPE ALLISON

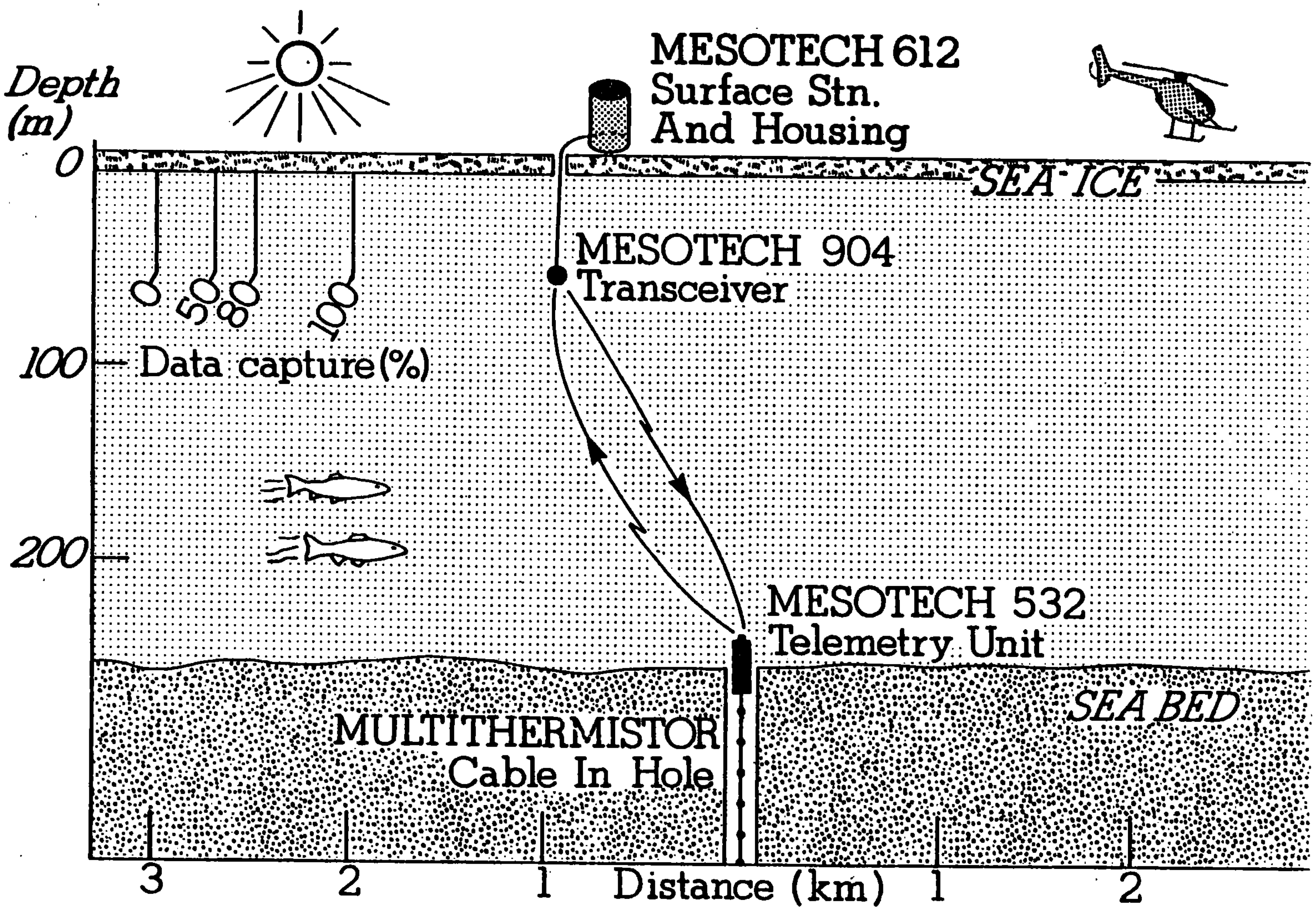
On May 8, a multithermistor temperature cable and data acquisition system was installed in Panarctic Oils' successful Cape Allison C-47 well, abandoned in 250m of water between Ellef Ringnes and King Christian Islands in the Sverdrup Basin, Canadian Arctic Islands. The sea-floor system is measuring precise temperature data to a resolution of 0.01°K over the upper 800m of the well several times a day and transmitting the data through an acoustic link to a data recorder left on the sea ice. Data recovery is planned for a couple of years, with the surface recorder removed only during the brief open-water season.

The temperature profiles measured over the first week are shown in the figure and illustrate the cooling of the well from the thermal effect of drilling. The cooling appears most rapid in the upper several hundred metres. Already two distinct temperature gradients are emerging.

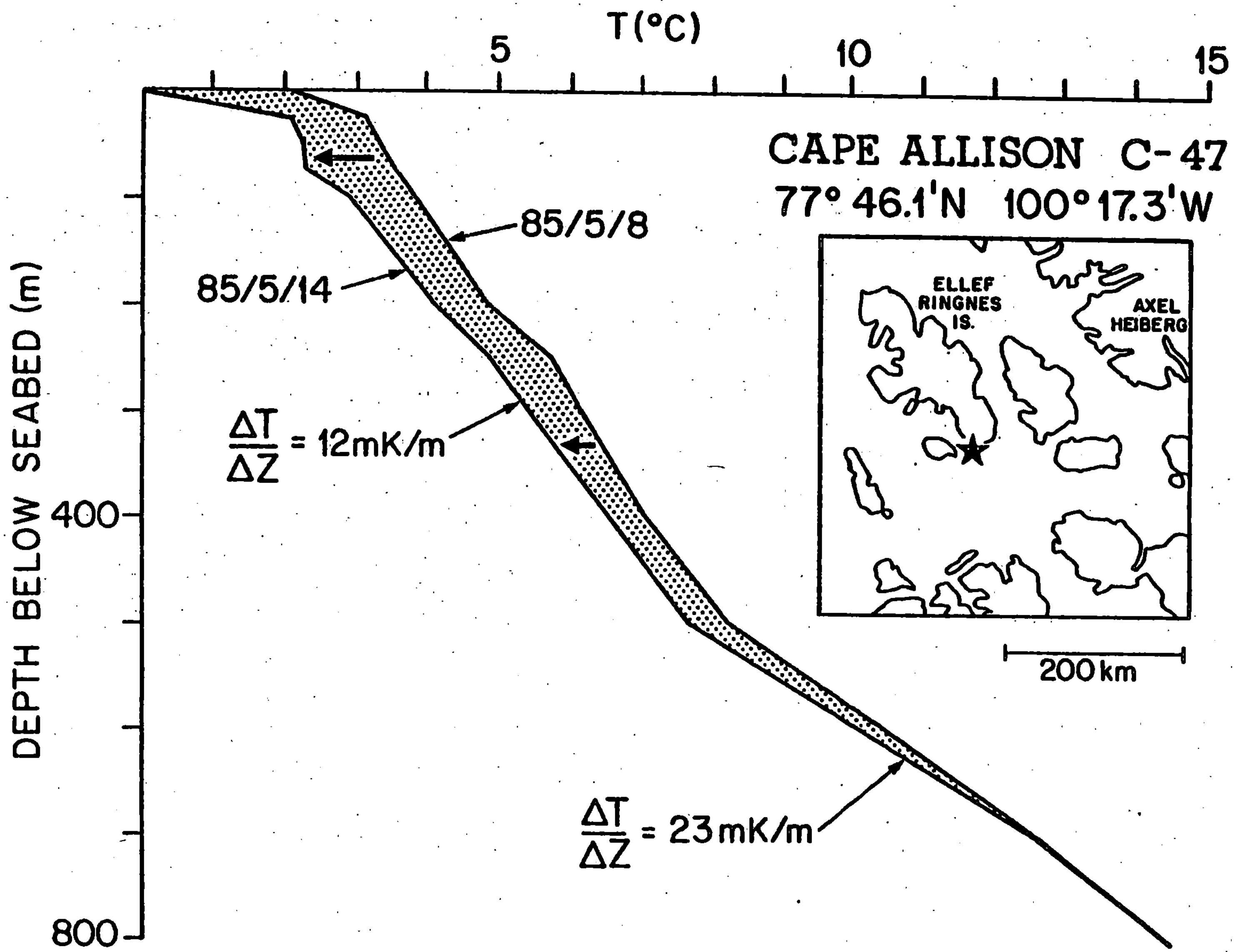
The deployment culminates several years planning by the Earth Physics Branch, Energy, Mines and Resources and Panarctic under funding from the Office of Energy Research and Development, EMR. The data now being recorded by the automated system will complement the permafrost temperature data gathered by the Earth Physics Branch at over 100 onshore exploratory wells during the past twenty years. The data will be of use to engineers in understanding the well thermal regime and in designing production programs. This is believed to be the first time a temperature cable and recording system have been installed in an abandoned offshore well.

The data acquisition system was designed and built by Mesotech Systems Ltd., Port Coquitlam, B.C.; Dobrocky SEATECH, Sidney, B.C., were project managers. Further information may be obtained from Alan Judge or Alan Taylor, Earth Physics, EMR Ottawa, Denis Baudais, Panarctic Oils Ltd., Calgary, or Mark Hill, Dobrocky SEATECH.

Canada



Depth (m)
0
100
200
MESOTECH 612
Surface Stn.
And Housing
SEA ICE
MESOTECH 904
Transceiver
0
50
80
100
Data capture (%)
MESOTECH 532
Telemetry Unit
SEA BED
MULTITHERMISTOR
Cable In Hole
3
2
1
Distance (km)
1
2


T(°C)
5
10
15
CAPE ALLISON C-47
77° 46.1'N 100° 17.3'W
ELLEF RINGNES IS.
AXEL HEIBERG
200 km
85/5/8
85/5/14
$\frac{\Delta T}{\Delta Z}$ = 12mK/m
$\frac{\Delta T}{\Delta Z}$ = 23mK/m
DEPTH BELOW SEABED (m)
400
800

Appendix 6b

OBTAINING PRECISE TEMPERATURE MEASUREMENTS IN ABANDONED OFFSHORE PETROLEUM EXPLORATION WELLS

Alan Taylor and Alan Judge
Earth Physics Branch
Energy, Mines and Resources Canada
Ottawa, Ontario
K1A 0Y3

Permafrost Geophysics workshop
Golden, Colorado 1984

OBTAINING PRECISE TEMPERATURE MEASUREMENTS IN ABANDONED OFFSHORE PETROLEUM EXPLORATION WELLS

Alan Taylor and Alan Judge
Earth Physics Branch
Energy, Mines and Resources Canada
Ottawa, Ontario.
K1A OY3

Precise, deep ground temperatures find widespread application in the earth sciences and engineering. Geophysicists use geothermal temperatures to calculate the terrestrial heat flux in the study of the geology and tectonics of a region. Petroleum engineers use the present and past ground thermal regimes to assess petroleum maturation possibilities in the quest for exploration targets. Geothermal energy as a resource is a manifestation of usually high ground temperatures; permafrost lies at the opposite extreme, reflecting unusually low ground temperatures. Being a temperature phenomenon, the distribution and thickness of permafrost is best studied through measured ground temperatures. Today, precise temperature profiles, to several hundredths of a degree accuracy and to a thousand metres or so, have been acquired at a good number of wells or boreholes on land (Taylor et al., 1982). Few, if any, measurements to this accuracy and detail have been made to depths of hundreds of metres in offshore areas. Precise measurements of seafloor sediment temperatures to depths of a few metres have been made at a broad distribution of offshore sites using traditional oceanographic techniques.

This paper describes a fully integrated system, currently under development, for the acquisition of precise temperatures from abandoned offshore petroleum exploration wells. Our design target was a system that would measure and record a dozen to twenty temperatures in the upper 1000m of an offshore well in up to 400m of water, at intervals of a day or less for at least two years. It was assumed that permission to omit the surface plug could be obtained or that an acceptable plug penetrated by the cable could be designed. The instrumented depth need only be limited by the location of the next, deeper regulatory plug.

Because of the highly technical nature of deployment of such a system from an offshore drill-rig and the variety of data acquisition systems currently available, we decided at the outset to contract the entire concept development and equipment selection to consulting companies who had the specialized experience of working with petroleum exploration companies in the offshore environment.

EBA Engineering Consultants Ltd., Edmonton, Alberta, were selected through a competitive bidding procedure to survey the available technology and to propose a methodology. Their report (1982) is given in the bibliography. For offshore areas with a substantial open water season, a multiconductor thermistor cable and data acquisition equipment would be deployed from the drillship or platform at completion of drilling, using the guide wire and sling system to re-enter the hole. The cable would be threaded into the well; the electronics packages would remain on the guide base at the seafloor. An acoustic release system would be used to recover the electronics and the stored data, but not the cable, at a later date. An optional acoustic data telemetry system might be incorporated to check the operation upon deployment and to recover the accumulated data periodically. In ice-covered areas, the telemetry mode would be an integral part of the system, as later recovery of the system and its data by ship might be impractical and not cost effective. The consultants recommended in this case that a seabed acquisition unit would telemeter data to a recording system left on the ice surface (Figure 1). This is practical for wells currently being drilled from ice platforms in the the channels of the central Canadian Arctic Islands, where the open water season is limited, at best, to July to September and where ice drift for the remainder of the year is minimal (often less than one kilometre). The seafloor unit would be written off; the surface station would be removed for the open water season, and data recovery could be undertaken at any time. Recognizing an immediate need for precise temperature data in offshore arctic areas, this system design for arctic wells has been further developed as a prototype phase.

Following this conceptual philosopy, the consultant assessed the data acquisition systems currently available or under development as to suitability to the task and operating environment. It was clear that the cable would be custom-manufactured. The engineers suggested a 20-conductor, multi-sheathed cable with a kevlar stress member sufficient to support the cable's own weight in air. The ability of the cable to withstand freeze-in in permafrost areas was inherent in this design specification.

The next phase was the procuring of the cable and the electronics followed by thorough bench and field testing of individual components and the integrated system. Government contracting regulations required us to hold another competition before awarding a contract for this next phase.

Dobrocky SEATECH of Sidney, B.C., won the competition and undertook to order the system. They worked closely with the suppliers during the manufacturing phase, as most components were custom built, using generally proven subsystems, to specifications developed in the first phase. For the 1000m, 16-thermistor cable, the consultant recommended an extensive suite of electrical, hydrostatic and pull tests and participated in these with Custom Cable Corp., and Maloney-Envirocon, the American manufacturers. All the electronics components were purchased from Mesotech Systems Ltd., of Port Coquitlam, B.C. Testing both on the bench and in water off the Canadian west coast was part of the acceptance procedures. The tests are described in their report (Dobrocky SEATECH, 1984).

As the demonstration deployment is planned for the Canadian Arctic Islands, EMR requested that an extensive arctic trial be undertaken. In May of this year, Dobrocky SEATECH tested the complete data acquisition and telemetry system from the sea-ice in 330m of water (Dobrocky SEATECH, 1984). A dummy load containing precision resistors was used in place of the cable. We wanted to assess the effect on data telemetry of the thermocline, halocline and ice-drift. Following a cycle of different seabottom and under-ice transducer depths, the surface recording unit was moved in increments of 500m along the ice to a final range of 3km. Full and repeatable data capture was attained to 2km range, with some channels lost at 2.5km, and essentially complete loss by 2.75km (Figure 2). For ranges under 2km, the heights of the underwater transponders were immaterial; for greater ranges, however, the surface station transponder should be lowered beneath the thermocline. The recording medium in the surface station is bubble memory; during the arctic trial, the unit was cycled several times below 0°C with no apparent loss of memory. For deployment, a specially designed, propane-heated housing will be used.

The first demonstration deployment is currently being planned for the winter of 1985 in an offshore Arctic Island well. For the completion envisaged for that well, we plan to run the cable and underwater station through the riser before all subsea well equipment is removed. The electronics package will be enclosed in a steel cylinder/cage and landed at the top of the well casing, about a metre above the seafloor.

Acknowledgements

This demonstration project is supported through funding from the Office of Energy Research and Development, Energy, Mines and Resources Canada. We thank the two consulting firms and the manufacturers for their innovative ideas and excellent work on our behalf. Panarctic Oils Ltd. have contributed their expertise to the methodology of deployment and Cominco Ltd. provided logistic support at their Polaris Mine during the arctic field trials.

References:

1) Dobrocky SEATECH Oceanographic Services Ltd., 1984. Acquisition and field testing of an integrated system to instrument an offshore well for the purpose of recording wellbore temperatures. Earth Physics Branch, EMR, Ottawa. Open file 84 - 25, 43 pp. plus 16 appendices.

2) EBA Engineering Consultants Ltd., 1982. Acquisition of geothermal data in offshore wells - Phase I. Earth Physics Branch, EMR, Ottawa. Open file 82-14, 142 pp.

3) Taylor, A.E., Burgess, M., Judge, A.S. and Allen, V.S. 1982. Canadian Geothermal Data Collection - Northern wells 1981. Earth Physics Branch, EMR, Ottawa. Geothermal Series no. 13, 153 pp.

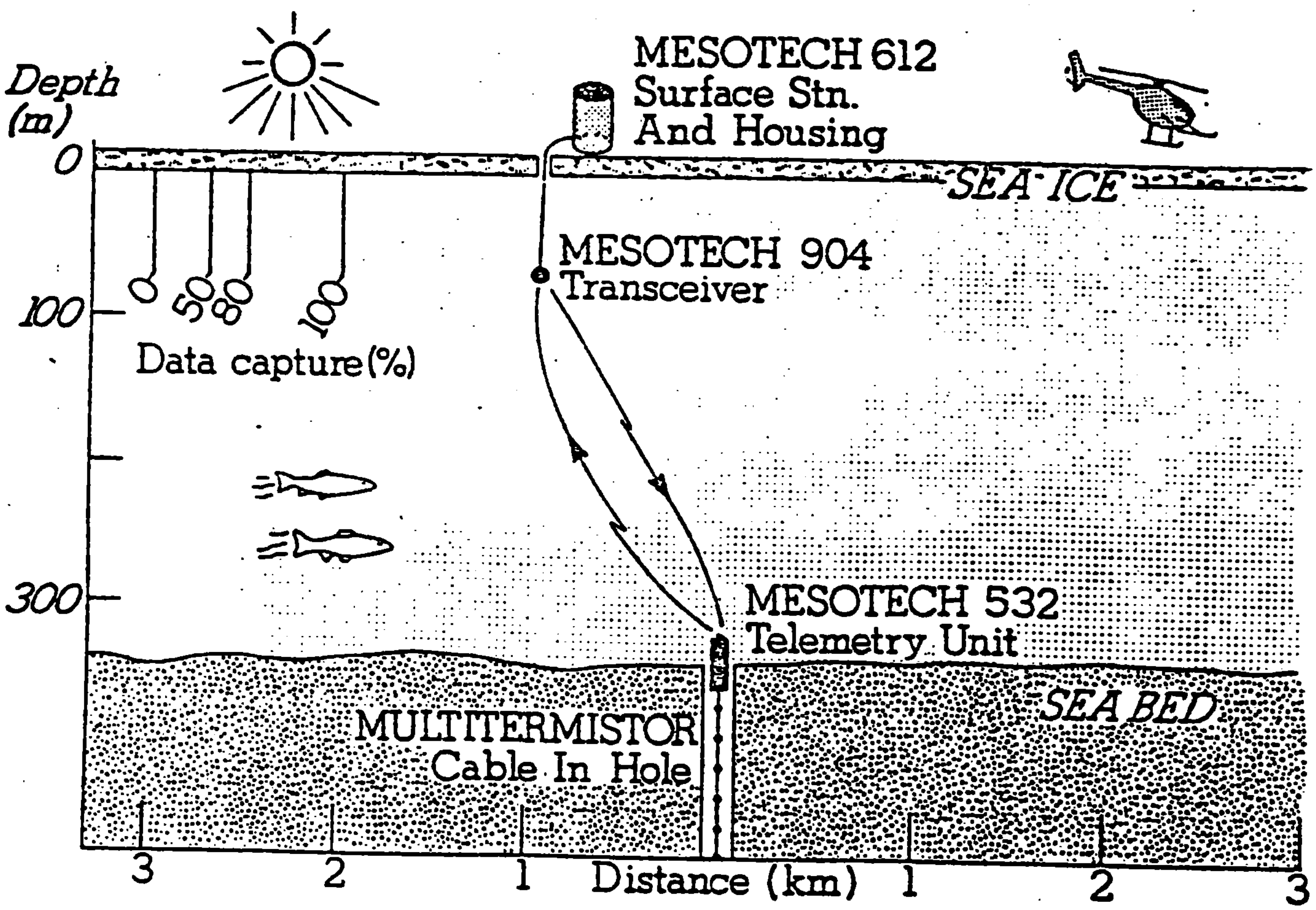


Figure 1 The acoustic telemetry system for measuring precise temperatures in an offshore well, using a technique originally proposed by EBA Engineering Consultants Ltd.. The hardware was procured by Dobrocky SEATECH Ltd. and tested in the Arctic; up to 2 km of ice drift can occur before data loss is experienced (Figure 2).

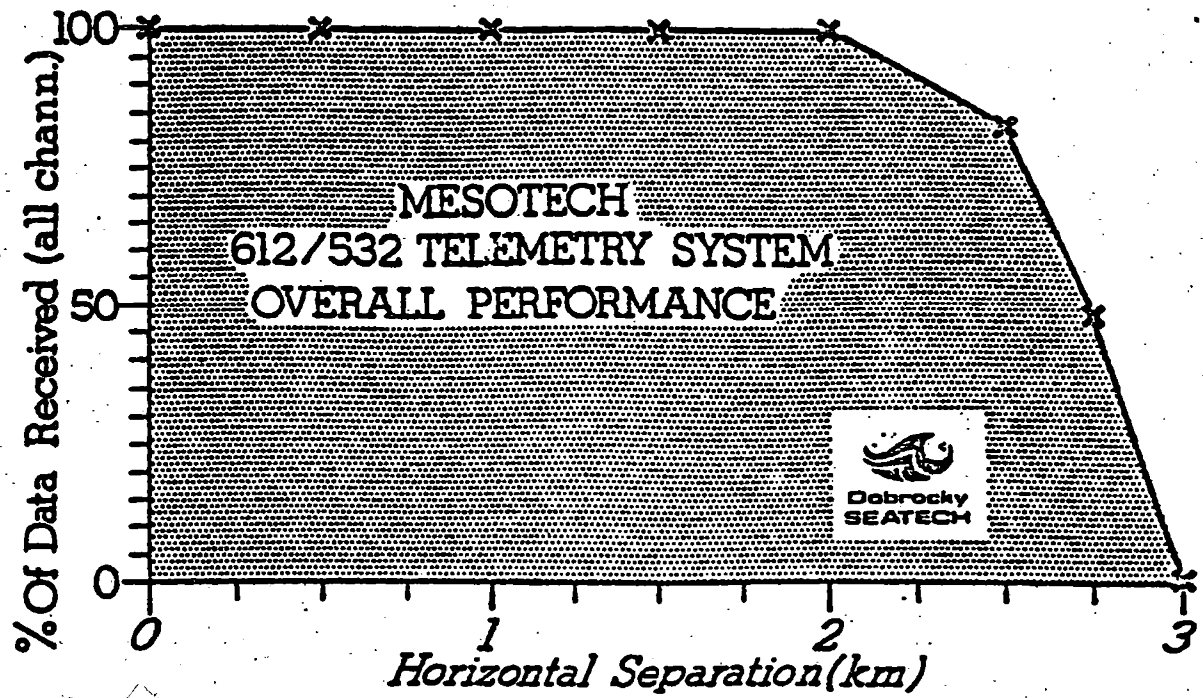


Figure 2 Performance of the Mesotech Systems Ltd. data acquisition module for various horizontal separations in 330m water.

Appendix 7

WIRE LINE REENTRY PROJECT

Wire line reentry (WLR) is not a new idea. The concept of lowering instruments in deep sea boreholes whithout the use of a drill string appeared within the DSDP five or six years ago. Two tentative experiments of catching up the reentry cone by mean of a cable ship linked system were unsuccessfully performed on board the Glomar Challenger.

Within the new Ocean Drilling Program, new technologic capabilities such as hard rock drilling will be available. The need for a reentry capability, performed from a conventionnal oceanographic ship (i.e. with no drill string and no dynamic positionning) is becomming more urging (cf. 'Opportunities for in situ downhole physical and chemical measurements within the deep sea crust', EOS article by the Lithosphere Panel, JOIDES).

Four main reasons for this claim:
1 the drill ship operating cost is high,
2 its programmation necessarily follows a long terme procedure and, then, cannot be flexible,
3 most of the ship time is devoted to drilling and coring, operations, what the ship is design for.
4 deep sea boreholes represent in situ natural laboratories which remains to be instrumented.

From these considerations, the interest for a mean of returning to the previously drilled holes, independantly from a drilling vessel appears clearly.

However, reentering a bore hole by mean of a WLR system presents three major difficulties:

1 The ship displacements can no longer be used to move the WLR system near the sea floor, the cable being much more flexible and lighter than a drill stem. The WLR system must be active (i.e. having its own propulsion) in order to be able to catch up the reentry cone and keep a stable position over it, during the reentry operation.

2 The longitudinal perturbations caused by the ship heave have to be filtered or dampened so that the near bottom equipment can stay at a constant altitude.

3 Reentering a bore hole, drilled a few years ago, whithout the help of the drill pipe to clear it of possible obstructions by rotation or fluid circulation is not proved to be feasible.

In an attempt to step toward a solution to these mentionned problems, a feasability program has been set up by IFREMER. The first phase, extending on 1985 and first semester 1986, will consists in tests and studies related to each of the three points here above mentionned.

1 <u>Station keeping of a deep sea wire line equipment</u>
A test frame, supporting two motors monted on perpendicular axis, instrumented for direction and position, will be used to test the station keeping capability of a cable linked load, from a non DP ship, at 2500/3000m depth.

2 <u>Heave dampering configuration</u>
A configuration of the lower 15/20m of the cable was studied and model tested. Called 'flexible arch configuration' (configuration arche flexible CAF), it consists in creating two loops in the cable (one n shaped, one j shaped) by adding buoyancy above the equipment.
Tests at sea will be conducted, first in shallow waters with a 1/20 scale model and next in deep water with a full scale model.
The objectives of these tests are twofold:
a- establish deploiment and retrevial procedures,
b- evaluate the efficiency of the CAF and its capability to reduce/suppress the longitudinal perturbations created at the surface by ship movements and transmitted down by the cable.

3 <u>Cable logging</u>
The third action planned in the feasability program, and may be the most important one, is related to the lowering of logging instruments into the bore hole.
A test in an existing deep sea hole, using a manned submersible to settle a frame in the cone (i.e. by pass the problems 1 and 2 mentionned early) is in preparation.
The frame is fitted with a winch, 1000m of cable and a 100Kg weight (100/200mm in diameter, 2m long). The test will consist in lowering the weight down hole, measering tension and cable length at the winch and recording these parameters in the submersible.
A secondary objective of the operation is to visualise a reentry cone and its immediate environment after the drilling operations which has never been done before.

Appendix 8

BOREHOLE SEISMIC EXPERIMENTS - ODP LEG 107

Preliminary proposal and scientific objectives proposed conjointly by

F. AVEDIK - IFREMER, Brest, France.

M. DIETRICH - Université de Bretagne Occidentale, Brest, France.

Vertical Seismic Profiling (VSP) and Oblique Seismic Experiments (OSE) can be presented as very useful tools for obtaining detailed subsurface structural and lithological information in the vicinity of a borehole. The basic idea of both techniques is to record and analyse the elastic wave field generated by a seismic source set off near the (sea) surface with clamped borehole geophones. The main advantages of VSP and OSE techniques over conventional seismic profiling are :

1. Good coupling between the seismic tool and the formation (and therefore improvement of the ratio of signal to noise) ;
2. The ability to "see" deeper in the earth since the receivers are buried within the earth rather than being located near the surface (i.e. the seismic structure around the borehole and beneath the total depth of the well is better resolved).

In addition, these techniques allow in-situ determination of some physical properties of the geological formation at seismic frequencies, which form a valuable link between conventional surface seismic data and logging results obtained at ultrasonic frequencies.

We briefly present here the scientific objectives of the borehole seismic experiments we propose to carry out during ODP Leg 107 in the deep central area of the Tyrrhenian basin (site near Mt Vavilov). The following objectives are constrained by some key parameters such as the time available for performing the experiments, the thickness of the sedimentary cover and the penetration depth at the well site. We shall therefore consider the ideal situation of a "deep" borehole extending at least 300 to 500 m into the basement with a sedimentary thickness probably less than 300 m. The borehole seismic experiments will then require 3 to 5 days and will be designed to :

1. determine the detailed seismic wave velocity and attenuation structure in the immediate vicinity of the borehole and beneath the total depth of the well from which the porosity and permeability of the crust at the well site may be estimated,
2. map the lateral extent of the reflectors intersecting the borehole and image a possible anomalous structure in the surrounding zone,
3. study the reflectivity of some seismic interfaces of the oceanic crust (layer 2 - layer 3, crust-mantle interfaces) at various angles of incidence,
4. look for anisotropy in the upper crust.

By using a three-component geophone, both transmitted and reflected P- and S-waves are recorded. The first objective involves vertical seismic profiling whereas the other objectives will require oblique seismic experiments.

In the former case (VSP), the elastic wave field is recorded at many levels in the borehole while the seismic source is located a small distance from the well axis. Because of the frequency content of the seismic sources available on board Joides Resolution, the geophone vertical spacing between two recording levels should not exceed 50 m in order to prevent aliasing phenomena when processing slow waves propagating along the well axis. A spacing of 25 m and utilization of seismic sources with a broad frequency band would give better results.
A complete profile can then be achieved by considering about 20 geophone levels.

Two vertical seismic profiles are planned to study the generation and propagation of Stoneley waves : a first profile with the seismic source on board Joides Resolution (zero offset case) and a second profile with the seismic source located on board an auxiliary vessel at a small range (1000 m). The goal of these experiments is to determine the P- and S-wave velocity structure as well as the seismic wave attenuation as a function of depth in the borehole, and to estimate some important lithologic parameters such as the porosity and permeability of the formations at the well site.

The OSE which are needed to meet objectives 2), 3) and 4) consist of a downhole geophone recording the earth's response to a wide traverse of shots centred above the geophone. Objectives 2) and 4) also need circular shooting patterns. The survey must be repeated for two or three different geophone depths for a detailed image reconstruction.

The OSE geometry allows to study the lateral extent of the reflector intersecting the borehole over a distance which is approximately equal to half the source offset under favourable conditions. It also provides an independant estimate of the primary reflection coefficients at various angles of incidence and allows a tomographic approach to be used for imaging a possible anomalous structure in the vicinity of the borehole. The latter application is based on the P-wave reflected off the crust-mantle boundary at the critical angle and implies shots being generated at the surface at ranges up to about 20 km.

It is important to note that a drilling penetration less than about 200 m into the basement will be inadequate for objective 1). Such large penetration depths into the basement require a reentry cone and a casing in the sedimentary part and the superior "brittle" part of the basement to be installed at the beginning of the drill. So equipped, the ODP site in the central Tyrrhenian basin will be useful for carrying out future reentry experiments (without drilling vessel) to be designed by the European scientific community.

Appendix 9

JOIDES Downhole Measurements Panel
Dalhousie University - 12-14 June 1985
Summary of Recommendations

1. Wireline Services:

The Downhole Measurements Panel finds the LDGO operation to be cost- and science-effective. The following recommendations for continuing activities are listed in order of decreasing priority.

1) Current personnel and contractual levels are minimal but effective; further reductions are not viable.

2) The existing Schlumberger effort and suite of logs must continue to be used without interruption.

3) The wireline heave compensator must be made operational as soon as possible.

4) Energy Systems log analysis software must be put on board the drill ship as soon as possible in order to allow the shipboard logging scientist to analyze the logging data in real time. Estimated cost - $40 K.

5) LDGO should acquire as soon as possible a reduced-size version of the TAM packer being modified by AMOCO for fluid sampling, pore pressure and permeability tests. AMOCO has agreed to share this new technology with ODP but cost-sharing would spur AMOCO to have the tool ready by Leg 110. Estimated cost - $40K now, $76 K later.

6) LDGO should acquire a second digital Borehole Televiewer (BHTV) for fracture mapping and borehole stress measurements. Estimated cost - $65K.

7) LDGO should acquire a second 12 channel sonic tool. Estimated cost - $90K.

8) The requested Masscomp conversion to color graphics and software development for backstripping analysis would be useful but cannot be supported given the present financial constraints. ($29K).

In sum, the DMP recommends that the LDGO budget be maintained at a level of at least $2.5M in FY86 (including Item 5, above) and that high priority be given to restoring funds for Items 4, 6 and 7.

2. Downhole Motion Sensor:

DMP recommends that TAMU and LDGO refurbish the Downhole Bit Motion Indicator (DBMI) so that it can be used to evaluate the wireline heave compensator on Legs 105 and 106. This will require extending the battery life to 16 hours and, if possible, changing the memory to one that retains data after the batteries are dead. Further, the timer should be upgraded to assure synchronization with ship's heave measurements to within one second. The panel requests that the Leg 105 and 106 co-chiefs run the tool with logging tools of various weights held stationary at several depths, with and without the wireline heave compensator, in order to establish the tool vs ship's heave algorithm. Estimated cost - $10K.

3. <u>TAMU Engineering Budget</u>:

The DMP regards the proposed cuts in TAMU engineering (Baker letter of 24 May, 1985) as potentially the most damaging to the future of ODP; if enacted, they will decrease the ability of the program to compete for funding. We thus urge that top priority be given to restoring funds to those engineering activities which will allow new classes of sites and new kinds of science to be pursued. We include among these:

Bare rock guidebases
Drill-in casing
High temperature drilling
Mud motor development
Oriented coring (hard rock)

4. <u>Publication of Logs</u>:

The DMP recommends that edited logs, along with explanatory notes and a logging operations summary be published in Part A of the <u>Initial Reports</u> and that detailed analyses be published in Part B. To reduce costs, the logs might be published at a reduced scale and the reader directed to LDGO for detailed logs.

5. <u>Archiving of Heat Flow, Thermal Conductivity (and other routine) Geophysical Data</u>:

The DMP recommends archiving all raw downhole temperature data, edited thermal condivity data and other routine borehole geophysical data along with explanatory notes and a summary of operating conditions.

6. <u>Archiving and Publication of Non-Routine Geophysical Data Collected by Funded Investigators</u>:

The DMP recommends that ODP (TAMU) offers to archive one complete set of raw borehole geophysical data for independently funded investigators for purposes of data security. Since the raw data from such experiments can rarely be interpreted by anyone other than the investigator in the absence of prohibitive documentation, the DMP does not recommend archiving it in perpetuity. The Panel does, however, recommend archiving the final results and requires that they be published in acccrdance with ODP policy.

7. <u>Pressure Core Barrel</u>:

The DMP requests that TAMU refurbish the pressure core barrel for use on Leg 110 (Barbados) and subsequent margin legs.

8. <u>Karig Proposal for Physical Properties Sites</u>:

The DMP endorses the concept of a physical properties site and concurs with Karig that the active margin off Japan is well suited to a major interdisciplinary effort involving geotechnical studies, sedimentology and structural geology.

9. <u>Krammer/Pohl Proposal for Magnetic Susceptibility Tool</u>:

The DMP encourages the development of a German magnetic susceptibility tool and recommends that it be deployed on Leg 109. If successful, it should then be incorporated in a combination tool with the BGR 3 axis magnetometer in order to save deployment time. The Panel further recommends that the digitization rate for the BGR magnetometer be increased so that data for all 3 axes can be recorded at the same depth.

10. McDuff/Barnes Proposal for HPC Water Sampler:

The Panel endorses the concept of a pore water sampler in the HPC cutting shoe since it would allow numerous samples to be taken at little cost in drilling time. The Panel further recommends that a pressure sensor be placed behind the stone in order to measure in situ pressure and that the water sampler be run in conjunction with the Von Herzen HPC temperature probe (in a parallel slot).

11. HPC Water Sampling Protocol:

If the McDuff/Barnes tool is funded, HPC water samples should be taken every 20 m for several holes. If warranted, DMP would then entertain a proposal for continued intensive studies leading to replacement of the current IW chemistry program.

12. Leg-by-Leg DMP Recommendations:

After reviewing the geologic setting and gecphysical data for each of the following legs, the DMP recommended the following measurements at each site:

Leg 104 Norwegian Sea

VOR 2A	VSP	24 hrs.
	LSS Combination	4
	LDT Combination	4
	GST	11
	MCS	5
	HTV	12
		2.5 d.
VOR 4	LSS Combination	4 hrs.
	LDT Combination	6
	GST	13
	MCS	7
		1.25 d.
VOR 5	-	-

Leg 105 Baffin Bay/Labrador Sea

BB 3B	VSP	24 hrs.
	LSS Combination	5
	LDT Combination	8
	GST	23
		2.5 d.

(plus 13 hrs MCS if time available)

LA 5	LSS Combination	5 hrs.
	LDT Combination	6
	MCS	10
		21 hrs.

(plus 12 hrs. GST if time available)

LA 9	LSS Combination	4 hrs.
	LDT Combination	6
	MCS	7
		17 hrs.

(plus 5 hrs. BHTV and 9 hrs. GST if time available)

Leg 106 Mark I

Assuming the guide base is set without incident, we estimate 100-200 m of penetration on Leg 106 at the bare rock site. Since this interval is likely to be low temperature and disturbed by drilling, we propose to conduct a minimal borehole measurements program on 106, but one which will let us evaluate the requirements for 109.

Bare Rock Site	LSS Combination	4 hrs.
	LDT Combination	4
	HEL T	3
	PFS	4
		15 hrs.

Kane Fracture Backup		
	LSS Combination	6 hrs.
	LDT Combination	6
	HRT	4
		16 hrs.

Legs 107, 108 will be discussed next meeting.

Leg 109 Mark II

Lithosphere and DMP both recommend deepening of the bare rock hole and completion of downhole measurements at Site 395A on Leg 109.

Bare Rock Site	T/H_2O samples	12 hrs.
	German HRT	12
		24 hrs.

drill 200 m deeper

If 150°C <T<300°C:

log with USGS high T suite	30 hrs.

If T<150°C:

Schlumberger suite	24 hrs.
BHTV	12
MCS	8
Packer	12
3 axis magnetometer	6
Magnetic susceptibility	6

and z ≥400 m:

	VSP	24
	Large scale resistivity	8
		4 d 4 hr.

395A	T/H^{2}O sampler	12
	German HRT	12
	Schlumberger suite	37
	BHTV	11
	MCS	11
	Large scale resistivity	8
	3 axis magnetometer	15
	Magnetic susceptibility	8
	Packer	48
	VSP	24
395D	HPC-T	6
		8 d.

(plus 2 d gravimeter if available)

13. Alternate Leg 109

If only 2 bare rock guidebases are available or 106 encounters major technical problems, DMP strongly recommends deploying 2nd base on EPR and restructuring 109 as follows:

395A	Logging and experiments (see above)	8-10 d.
418A	Deepen hole into dikes	20
	Logging and experiments as at 395A	10
Transit: Las Palmas - 395A-418A - San Juan		12
		52 d.

This will accomplish 2 major objectives of the Lithosphere and DMP programs: the deepening of a major hole into the dikes in old crust along the bare rock/395A/418A flowline and the geophysical characterization of Layer 2 in young and old crust through borehole measurements (proposal to follow).

14. Leg 110 Barbados Thrust

If drill-in casing will be available for LAF-1 and a practical wireline technique is available to measure pore pressure vs depth (this requires that either the TAM packer be funded by JOI or that the Briaud/McClelland geotechnical engineering proposal be funded by NSF), then DMP reccmmends drilling LAF-1 and conducting a major borehole geophysics/hydrogeology program at the site as follows:

LAF-1	Schlumbger suite	36 hr.
	Flowmeter	4
	Insitu pressure (straddle packer, TAM packer and/or geotechnical tool in various combinations)	5-6 d.
	Heat flow	6 hr.
	Fluid/pore water sampling	

(PCB, Barnes tool or TAM packer)	12
BHTV	8
Orientel coring	4
Borehole gectechnical studies	1-2 d.
	8-11 d.

15. Leg 111-112 (EPR/504B)

If only 2 guidebases are available to the program and both are used on Legs 106/109, DMP strongly recommends that 504B be deepened and studied as proposed by Becker.

In the event one guidebase is deployed on the EPR, a major high temperature borehole geophysics program is presently being designed using gear supplied by Sandia, Los Alamos, the USGS and Schlumberger.

MINUTES

ATLANTIC REGIONAL PANEL MEETING

Laboratoire de Géodynamique sous-marine

Villefranche sur Mer (France)

18th-20th September 1985

L. MONTADERT

P. MEYERS

J. WOODSIDE

J. AUSTIN

J. MASCLE

R. LARSON

R. KIDD

J. THIEDE

R. SPEED

J. MUTTER

Guests : G. BOILLOT

A. MASCLE

J.P. REHAULT

L. Montadert thanks J. Mascle for organizing this meeting and the field trip in Provence Alps.

Present schedule of ODP operations

R. Larson presents the present schedule of operations:

LAB.	105	61 d. (11 transit/50 drilling)
MARK I	106	57 d. (17 transit/40 drilling)
MED	107	46 d. (5 transit/41 drilling)
EQ. ATL.	108	59 d. (21 transit/38 drilling)
MARK II	109	57 d. (10 transit/47 drilling)
BARB	110	60 d. (8 transit/52 drilling)
504B	111	51 d. (4 transit/47 drilling)
PERV	112	62 d. (11 transit/51 drilling)

Leg 113 (Weddell Sea) is the boundary condition, starting 1 January 1987. 62 days is the maximum length of a leg for SEDCO, but short terms fluctuations from average are possible

Labrador Sea Leg 105

R. Kidd gives an update on leg 105. The re-entry cone is now set at site BB3. Joides Resolution left St Johns on 28 August, arrived on site on 3 september. Icebergs were common but the site open. The plan was APC hole first, then set core, then more APC'S. After problems with APC' on A, XCB on B until 300 m (upper Pliocene) (36 cores) when first large bergs sited. Back in with APC but stopped with ice problem, end of C hole after 3 cores. On hole D, only 22 cores cut, then new offset because of dropstones. Reentry core finally set at 2018 m water depth, thursday 17/9 was at 2463 a. Sediments are mostly barren.

Plan is to leave for LA-5 on 28 september, but this could change.

General informations: by R. Larson

ODP Membership

Australia will not be able to raise $ 1 million for 40 % membership this year, so ESF will not be in this year either. This impacts staffing from 107 on.

Great Britain, not in, either, but are interested in Weddell Sea, so this may change.

Soviet Union is interested. NSF has permission to negotiate; membership is probable.

China is also interested in participation. Members will come to Site Survey panel meeting in Japan (W. Pacific sites). A long term entry into the program is possible.

Financial situation:

FY 86 equation

$ 28,8 m	$ 10 m	+ const.	
NSF	intern	+ intern	
(operations + Us Science)	(operation)	(intern Science)	
$ 32,5 m	+ $ 2 m	+ $ 4.3 m	+ const.
ODP	+ DSDP	+ USSAC	+ Intern Science
TAMU	+ logging	+ Data bank	+ JOI + JOIDES
28,58	+ 2,6 m	+ 0,2 m	+ 1 m + 0,2 m

The $ 4.3 m for USSAC pay scientists for their time on and off the ship. Not enough because it does not pay for site surveys - 6 international members, not 4, would be necessary to insure a stable program.

For F.Y. 1986, only 2 bare rock drilling base instead of 6 will be available. No packer - drill in casing for leg 110, probably. 1985 ODP legs publications will be delayed especially Part B because publications budget is frozen and there not enough people on TAMU publications staff. This will not change if another partner comes through, because most if that 2,5 M $ will go to USSAC for site related activites. There are problems for site surveys in the Indian Ocean.

Leg 103 - Galicia margin:

Main scientific results are presented by G. Boillot (see Preliminary Report).

Leg 107 - Tyrrhenian Sea :

J. Mascle and J.P. Rehault presented the data. The priorities of leg 107 are:

. rifting and spreading history of a young back-arc basin in a context of collision,

. complete Plio-Pleistocene section to complement DSDP Site 132.

2000 km of new MCS data were collected in March 1985 using an IFREMER vessel and the IFP seismic equipment following the original ARP recommendations for regional and site specific data. A 96 channel streamer was used in a 48 trace configuration. Shot interval was 50 m for regional lines and 25 m for site surveys. Processing (stack) was made in real time on board and play back made onshore. Some lines were migrated, more will be done.

A long and detailed discussion followed.

Site IB is a tilted block on the Sardinian margin. The target is the Synrift section

Site IA is an alternate but less "typical",

Site IB', 2,5 km from IB could allow to get a lower section,

Site II, 2 HPC of 240 m penetration for the Plio-Quaternary section,

Site IIIA is a tilted block on the lower part of the Sardinian margin,

Site III A' is lower but with a potential problem with salt,

Site IV is on the back side of a tilted block (De Marchi Seamount) where hercynian phyllades have been observed. It is an alternante for III.

Site VA on a ridge, east of the last De Marchi tilted block. Could be an equivalent of the "lherzolite" ridge of the Galician margin,
Site VB for sampling the ocean crust of the central Vavilov basin
Site VB' idem but on top of a structure,
Site VII on the Central Marsili basin for sampling the Ocean crust,
Site VIII on the flank of Vavilov seamount.

The priorities proposed after the co-chiefs meeting, were:

Priority 1 II
IB/alt. IA
IIA/alt IV
VB

Priority 1A VA
VII

Priority 2 VI to VIII

RECOMMENDATION

The ARP recommends unanimously the following order of priorities for leg 107 in the Tyrrhenian Sea:

	Estimated Drilling Time	Logging
Site 2	4.0 d	-0-
Site 1b (alt. 1a)	6.0 d	1.5 d
Site 3a (alt. 3a', then 4)	10.0 d	1.5 d
Site 5b	7.5 d	1.5 d
Site 7a	7.5 d	1.5 d
	35 d	6.0 d

Designated backups are sites 5A, 6 and 8, in that order.

At both sites 5b and 7a, ARP supports a scientific rationale calling for penetration of both the oldest observable sedimentary sequences and basement in order to estimate minimum oceanic (?) basement ages in both the Vavilov and Marsili basins.

At sites 1b (1a) and 3a (3a'/4), ARP recommends penetration to the base of the postulated synrift sequences discerned on both regional and site-specific MCS profiles

The proposal by Avedik et al on a geophysical experiment on a site in the oceanic crust of the Tyrrhenian Sea was discussed but not taken in consideration for planning. The idea was considered interesting but the scientific return doubtful compared with the investment in drilling time necessary to penetrate several hundreds of meters in the oceanic crust. Moreover there is no support from the Lithosphere Panel.

Leg 104 - Norwegian Sea

J. Thiede exposed the main scientific results.

Approximately 60 % recovery in the volcanic sequence at site 642. Sedimentary section represents about 15-20 % of the section, almost all of which were volcanoclastics related to the intercalated flows.

The dipping reflector sequence was all deposited in Eocene time very near sea level: shallow marine, estuarive, fluvial as suggested from palynoporphs, dinocysts, etc. Flows display mostly a reversed polarity (reversal between anomalies 24 and 25?).

Reflector K is supposed to be linked to a thick sedimentary layer (20 m thick) resting on other volcanic flows but with xenolithes of continental material and some more dykes, althought not many. Depth to K have been estimated from logging and VSP.

A complete transect of HPC of the margin for paleoenvironment have been also performed.

The panel was particularly enthusiastic on the results of leg 108 which fulfills all its targets.

Leg 108 - W Africa

There is no change since the ARP Austin Meeting.

The time estimate seems to be irrealistic: about 200 m/day.

Prioritization has been done by the co-chiefs. The panel consider that logging is not needed. It is a waste of money for so short holes.

As shown by the following table there are potential problems considering the occupation order VS the priority order.

Occupation	Priorities		W.D.	Penet.	April estimate(d)	New estimate(d)
3	1	Mav 5	4023	250	2,9	4,1 + 0,74
2	2	Mav 6	2662	300	3,5	3,2 + 0,5
4	3	Mav 4	3053	300	2,9	3,7 + 0,51
10	4	Eq 9	3706	180	2,1	3,0 + 0,6
6	5	Eq 3	2650	400	4,6	3,0 + 0,6
8	6	Eq 5	4300	150	1,7	2,5 + 0,75
7	7	Eq 4A	3900	150	1,8	2,8 + 0,7
5	8	SLR 1	4300	300	3,4	4,8 + 0,75
11	9	Eq 7	3899	150	1,8	3,0 + 0,62
1	10	139 R	2887	350	4,1	3,7 + 0,61
9	11	Eq 6	4800	150	1,7	3,6 + 0,79
						38 d

There are presently 59 days allocated, including 38 days for drilling and 21 days for transit.

After discussion the panel made the following recommendation unanimously.

RECOMMENDATION

ARP has examined again the leg 108 proposed sites and their recently revised drilling estimates. Estimated times seen unrealisticaly short, and all eleven sites may not be achieved. Better times are needed in order to allow the sites to be prioritized in an order which will satisfy as many scientific objectives as possible. ARP recommends:

1. **All sites be double-cored to maximize resolution and recovery, even if fewer sites can be occupied.**
2. **Logging not be done at any sites.**
3. **Better estimates of drilling times be provided by ODP**
4. **Sites be occupied in order of priority, rather than in order of geographic proximity, as much as feasible**
5. **Cochiefs should provide a prioritized ranking of all eleven sites to ARP and SOHP.**

Leg 110 - Barbados

The PCOM asked the ARP to discuss about a back up plan because:

1. The wire line packer for pore water sampling will not be available
2. Drill-in casing for protection against overpressures near decollement may also not be available

K. Becker's packer may be available. Pressure measurements are possible at multiple levels but pore water sampling at only one level.

The strategy would be:

1. Drill single bit hole first as deeply as possible -probably will cave-in at

or near the decollement.

2. Drill again, placing the casing all the way to the base of the hole. Drill in casing would allow to case and drill at the same time, as opposed to drilling ahead, placing casing, and drilling ahead again.

A. Mascle, designated co-chief of Leg 110, exposed the different sites with their objectives.
LAF 1, LAF 2, LAF 3 constitute a transect on the North Barbados ridge near the previous sites 541-543 of leg 78A.
LAF 1 should try to penetrate the decollement through the basement. 20 days would be allocated for it.
LAF 2/3 are single bit holes to study the accretionary prism higher than LAF 1 on the ridge. They would not penetrate the decollement which is too deep. LAF 2 would try to reach it.

Above the decollement sediments are of Middle Miocene and younger age, below they are Cretaceous to lower Miocene. It is recalled that during leg 78A recovery was good and also with a well preserved biostratigraphy.

Major goals:

1. What are the ages of sediments involved in the deformations? Are they always younger above the decollement than below, or are they "duplexing-ramping", thereby creating vertical age inversion.

2. What are the changes in porosity and permeability associated with the deformation?

3. Geometry of the upper part of the wedge. How does internal structure cause external morphology. How does it thicken?

LAF 4/5: There are 2 sites simular to LAF 2/3 further south but also near front of the prism.
LAF 12 a: is on the westward side of the deformation front. It will allow comparison of onland Barbados stratigraphy with the forearc basin, control on intervals of deformation.

R. Kidd - There will be no high resolution equivalent to site 543, the rotary-cored reference hole seaward of the deformation front drilled during leg 78A.

J. Mutter - VSP on LAF 1 would be desirable. ARP agreed on this suggestion.

R. Larson gave the time estimates:

1. LAF 1 - 20 d
2. LAF 2/3 - 10 d
3. LAF 4/5 - 14 d
4. LAF 12A - 8 d

In conclusion the ARP position on leg 110 is the following: ARP reaffirms its previous position that ODP proceed with Barbados leg 110, sites LAF 1-6, regardless of the availability of advanced technology such as wireline packer or drill-in casing. ARP believes that the first priority objective is to penetrate the decollement to oceanic crust, but the value of the leg as proposed does not hinge on this target. ARP strongly advocates the scientific objectives of sites LAF 1-6 proposed by Mascle and Moore, also by Tectonics Panel and Caribbean Working Group, that embody a partial transect across the Lesser Antilles forearc to investigate the changes in physical properties and deformation rates and mechanisms in the progressive growth of an accretionary prism. ARP recommends immediate review of all proposed sites by Safety Panel and that HPF cores on Leg 110 be oriented.

The non bare-rock drilling option should be an alternate lithosphere objective. 418 A is still an option with a typical Atlantic slow spreading old crust.

Nevertheless ARP recommends that: if bare rock drilling does not work Kane FZ is still a priority leg.

Workshops

The South Atlantic workshop will be convened by Austin, Hayes and Sibuet.

It will be a JOI workshop.
It will be International but only US funded.
It could be in June or October 1986 for 3 days at Rhode Island or Woods Hole with about 25 US, and 25 non US participants.
Austin asks for participants to send a paper with their ideas and give names of people to invitate.
ARP will propose an Arctic Ocean workshop for 1987.

Sub antarctic drilling

Recommendation

The ARP, after reviewing the subantarctic drilling plan submitted by SOHP to JOIDES, and while acknowledging its importance in providing potentially necessary "extra" time for Weddell Sea drilling, recommends that this drilling be considered within the broader perspective of South Atlantic drilling targets.
Unanimous.

ARP Membership

Assuming than UK or ESF do not join the program, plans are made for filling vacant seats. Will be discussed at the January 86 meeting of EXCOM.

ARP recall recommendations of the last Austin meeting:

Priorities 1. Petrology: Karson/Honnorez/Fox
2. Sedimentology: P. Vail
3. Sedimentology: Bernovlli/Enos/Normark/Mutti/Kowsmann.

L. Montadert would stay in the Panel but resign as chairman. He will go to the January PCOM meeting.

Suggestions for next chairman: Tucholke/Austin.

Next meeting

15th-29th April 1986 at Barbados or Woods Hole
Casey More/ Alain Mascle should be invited.

Summary of Red Sea Working Group Meeting

The Red Sea Working Group met at IFREMER, Brest, France on September 23-25, 1985. A proposed drilling program for one leg of work in the Red Sea (~ 60 days including transit) was developed. This program is based around four themes, two of which can be uniquely addressed in the Red Sea and are of general interest in understanding the Earth.

These two are:

1. Evolution of the lithosphere through the transition from continental rifting to seafloor spreading as expressed by the nature of the igneous rocks produced at different stages in this process.
2. Hydrothermal activity and metallogenesis. The Red Sea offers an opportunity to establish a "natural laboratory" in an active hydrothermal system, as well as to investigate fluid hot rock interactions and the basement alteration.

Two other themes are related to priorities established by OPD panels. These are:

1. Miocene and holocene paleoenvironments and paleo-oceanography. The particular objective is a study of Red Sea sapropels.
2. Mantle Section. The Red Sea presents an opportunity to obtain an unserpentized and undepleted mantle section.

A program was developed around those themes consisting of about 10 holes and about 50 days of on-site drilling. Roughly eight days of transit are required for a Djibouti-Djibouti leg so that the program consists of a standard length (57-60 days) O.D.P. leg.

The sites which are proposed are as follows:

1. Transition from continental to oceanic drilling.
   a) 17°-18°N - Axial trough (1, possibly 2 holes)
      4-5 m.y. old sea floor (1st hole)
      2-3 m.y. old seafloor (2nd hole)
   b) Nereus Deep - Northernmost seafloor spreading cell of propagating rift - This is an active brine deep and thus the basalts are likely to be altered and more useful for hydrothermal and metallogenesis studies.
   c) Bannock Deep - Southernmost of the small northern Red Sea deeps that have not reached the stage of seafloor spreading.
   d) Shaban (Jean Charcot) Deep - The most northern of the small northern deeps at which igneous rocks can be sure to be reached.
   e) Mahabiss Deep - seafloor spreading cell initiated under different circumstances then the southern deeps (nucleation point as opposed to propating rift tip.
      2 sites: one on SW side, one on NE side

2. Hydrothermal activity and metallogenesis.
   a) Nereus Deep - An active hydrothermal system in which a re-entry cone will be placed to establish a natural laboratory. Objective here is not sediments, but rather to drill 200m into basement rock to study plumbing of a hydrothermal cell and rock fluid interactions.
3. Pliocene-Holocene paleoenvironment - Paleooceanography.
   a) Main trough 24°21'N - high resolution biostratigraphy and sedimentology through the Holocene-Pliocene sedimentary sequence.
   b) Sudanese delta - second site in shallower water to test origin of Red Sea sapropels.
4. Mantle Section - Fresh, unserpentinized mantle periodotites are exposed on Zabargad Island and the submarine ridge extending away from the island presents an opportunity to obtain a section of unserpentized, undeplated mantle.

Priorities

The working group prioritized its sites in terms of where they would be carried out on a leg from Djibouti to Djibouti with higher priority sites on the way north and lower on the way south. They are listed geographically in the order they would be done on such a program with estimated times and some details.

Northward Leg Sites	Water Depth	Site Days	Penetration (m) Sed.	Bsm't	Hole Type
1. 17.5°N 1st hole 4-5 m.y. seafloor	1800 m	7	100-300	50-100	Rot. Core
2. Nereus Deep "Natural Lab."	2300	8(+)	30-50	200	Rot. Core Re-entry site
3. Bannock Deep	1500	5	100	100	Rot. Core
4. Main Trough 24°21'N	1125	5	200-300	---	Double HPC
5. Mahabiss - SW	1000-1100	4	200	150	Rot. Core
6. Mahabiss - NE	1500	5	400	100	Rot. Core
7. Shaban Deep	1500	5	100	100	Rot. Core
Southward Leg Sites					
8. Zabargad Mantle Site	500	4	200	150-200	Rot. Core
9. Near Zabargad off axis basement site (lowest priority site)	500	4	200	150-200	Rot. Core
10. Sudanese Delta	500	5	200-300	---	Double HPC
11. 17.5° 2nd Hole 2-3 m.y. seafloor	1800	7	100-300	100	Rot. Core

Minutes

Attendees:

Panel Members	Guests	Members Missing
Bonatti	P. Guennoc (BRGM)	Arthur
Cochran	B. Harding (TAMU)	Coleman
Juteau	M. Richardson (URI)	Bäcker
Miller		
Pautot		
Whitmarsh		

The meeting began with a discussion of the themes and priorities developed at the March 1985 meeting. In addition to the three listed in that report, the discussion included the possibility of obtaining a section of mantle rocks near Zabargad and of investigating the nature of the off-axis basement rocks, particularly in the southern Red Sea.

The results of the discussion are included in the summary along with a list of sites. More details on the sites are in the appendix.

Discussion of a specific program began with the hydrothermal theme since it presents the most technical difficulties and the possibility of being the most time consuming site. Juteau pointed out that establishing a "natural laboratory" in an active hydrothermal site is the Lithosphere Panel's single highest priority for the Red Sea. This is particularly true since it appears that the East Pacific Rise site will not be drilled and the Red Sea offers the next opportunity. Two sites have been proposed; Atlantis II Deep, an active high temperatue (63°C bottom water) hydrothermal system and Nereus Deep, an active lower temperature (30°C) hydrothermal system. The Atlantis II Deep is considered an extremely attractive site because it is quite active, the sediments are very well understood (>600 cores have been taken) and it will likely be the first such site mined for the metal rich sediments. However, Harding pointed out that there are tremendous technical difficulties involved and that new technology might be required. The main difficulty at the AII deep is the presence of about 15 m of extremely soft, semi-liquid sediment. The sediment is thin enough that it would have to be treated as a bare rock site. However, the sediments are too weak to support the bare rock apparatus, which they would engulf. The sediments in Nereus Deep are somewhat thicker reaching 30-50 m in places. There is also some indication that they are also somewhat stronger and could support a re-entry cone. If this is the case, Harding indicated that it might be possible to establish a hole without a bare rock apparatus, although it is not yet clear what is the minimum amount of sediment needed. Physical properties data from the sediments are needed to evaluate both sites as to whether they are feasible. This data can be obtained from Bäcker, who is at sea presently. A second technical difficulty is corrosion from the hot brines. It is not believed that this would be a serious problem during drilling, but will have to be considered if a re-entry cone is to be left for ten years as needed for a "natural laborabory".

The decision reached was that Nereus Deep is a more feasible target if a re-entry cone can be set. It will satisfy the requirements of the Lithosphere Panel and actually is more representative of typical mid-ocean ridge hydrothermal activity than is the AII Deep. Cochran is to write Bäcker and request that he contact TAMU concerning physical properties and also Preussag's experience with corrosion. The Working Group also requests that Planning Committee ask the TAMU engineering staff to undertake a feasibility study (not a full engineering study) of drilling in the AII deep.

Richardson reported on paleoenvironmental and paleo-oceanography objectives largely on the basis of letter proposals from Arthur and Richardson and from Taviani. The main objective in both cases is the Pliocene to Recent sediments above the evaporites and in particular the organic-carbon rich sapropel layers. The major objectives would be to determine the origin of the sapropels (for which different mechanisms were suggested by the two proposals), and to use the sapropels and their intercalated microfossil rich sediments to study possible correlations of the Red Sea sequence with East Mediterranean sapropels and with the monsoonal upwelling record obtained from proposed drilling along the Arabian Sea margin (Neogene Package). These objectives would require double HPC sites through the upper few hundred meters of post-evaporite sediments. Miller pointed out the value of continuing the holes to the top of the evaporites to determine the nature of the Miocene-Pliocene evaporite-normal marine sediment contact.

There was discussion of various possible sites, including the possibility of "piggybacking" this project with sites drilled for other purposes. This proved unfeasible and a site for the primary hole was chosen at 24°21'N, 36°30.6'E on an IFREMER seismic line within an existing seabeam survey area. Pautot agreed to provide this site data to the Data Bank. A second lower priority site was chosen on the "Sudanese delta" near 18°50'N, 38°45'E. Exact site location will depend on examination of seismic lines and detailed bathymetry from the Saudi-Sudan Joint Commission to be obtained through Bäcker.

Discussion of the set of holes to study the transition from continental rifting to seafloor spreading centered on which of two proposed sites were more suitable for the southernmost site on oceanic crust created soon after the initiation of well organized spreading and on the status of site surveys at the proposed sites. It was determined that the region near 17°30'N where a deep-tow study was carried out by Ken MacDonald is more suitable than the region further north at 18°N which was the subject of a detailed Russian study. It was uncertain, however, whether MacDonald collected seismic reflection data along the deep tow line. If not, a line must be run. Cochran is to contact MacDonald. Status of site surveys at other sites will be included in the appendix.

The possibility of drilling to determine the nature of the crust in the marginal areas, particularly in the southern Red Sea, was not included in the final set of themes even though it is an important tectonic question with relevance to the process of lithospheric rifting. However, the extreme thickness of the evaporite sequence (2-5 km) and the fact that the Red Sea margins are an active hydrocarbon exploration region, probably mandating use of a riser, make this extremely difficult. Bonatti identified a region northeast of Zabargad Island where basement may be within reach. A discussion followed concerning the tectonic setting of this region, specifically whether the basement is "typical" and whether it is too far north to address the main problems. It was decided that additional surveying would be necessary before a decision could be made on how attractive and feasible this really is. It is included on the final plan as the lowest priority site in order to keep the possibility alive.

Territorial Considerations: All of the sites proposed are in regions over which economic jurisdiction is exercised by Sudan, Saudi Arabia or Egypt. It is, therefore, important to alert these countries to the possibility of drilling as soon as possible. Possible channels of initial contact were discussed and it appears that it would be appropriate to contact the Saudi-Sudan Joint Commission and the E.G.P.C. (Egyptian General Petroleum Co.)

Appendix

Drilling Proposal

The following rather brief write-ups are presented for each of the projects and sites proposed. In each case, the rationale and objective are briefly discussed along with the status of site selection and surveys.

Theme I Transition from continental rifting to oceanic seafloor spreading.

The axial trough, carpeted by oceanic crust, is more or less continuous in the southern Red Sea where seafloor spreading started about 5 m.y.b.p. In the central Red Sea, it is replaced by discontinuous axial trough segments which become more and more subdued morphologically and magnetically moving from south to north. The axial trough disappears altogether in the northern Red Sea.

The evolution from continental rifting to a stage where well organized seafloor spreading segments are established is probably paralleled by systematic changes in the nature of the basaltic crust. Thus, basalts from the southern Red Sea continuous axial trough are likely to be similar to MORB in composition while basalts from the discontinuous trough segments in the central and northern Red Sea may be more transitional in composition. A drilling program is suggested to monitor changes in composition of the axial basaltic crust from south to north in the Red Sea. These spatial changes are probably related to a time evolutionary progression from continental extension to organized seafloor spreading. The geometry of rifting in the Red Sea allows the sampling of basalts generated 5 m.y. after initiation of spreading (dredging on active ridge), a few m.y. after initiation of drifting, during the transition and during late stage continental rifting.

Site 1-A. 17°-18°N axial trough

Objectives:

A well-formed axial rift valley and lineated magnetic anomalies are observed in this region. Seafloor spreading started about 5 m.y.b.p. in the 17°00'N-17°30'N area, but more recently to the north and south. A detailed morphotectonic study has been carried out by the Russians (Zonenshayn, et al., 1981) at 18°N and a deep-tow study has been made at 17°30'N by K. MacDonald (Miller et al., in press). Basalts have been sampled from the ridge crest at 18°N. They are most highly envolved ferrobasalts with F_eO/M_gO ratio higher than average mid-Atlantic Ridge basalts (Juteau et al., 1983).

Operations and site. One site to be located on oldest well identified magnetic anomaly in order to sample a section of oldest oceanic crust. Second site on younger crust to sample crust generated at well developed mid-ocean ridge very soon after initiation of spreading. At present, we have two locations where these holes might be placed. One is 18°N area studied by Russians, second is 17°30'N area where Deep Tow survey was carried out. The 17°30'N area is preferred because the anomalies extend to 5 m.y. there as opposed to 3 m.y. in the 18°N area. Spreading at 17°30'N is highly asymmetric (5mm/year east side, 10mm year west side). Proposed site for first hole is along deep tow line on Arabian side in about 4-4.5 m.y. old crust and second site is 3 m.y. old crust. Both are located in 200-300 m of sediment. MacDonald needs to be contacted to find out if a seismic line was run along the Deep tow line. Otherwise a single channel seismic survey is needed (could be done on Conrad or possibly Darwin) or the site could be located on a Glomar Challenger seismic line slightly to the south.

Site 1-B Nereus Deep

Objectives:

Nereus Deep is the northernmost of the well developed transition zone deeps with a well developed central volcanic zone with MORB-type and F_e-rich basalts, lineated magnetic anomalies and with hydrothermal activity and related warm brines and metal rich deposits. Other deeps to the north lack the well developed axial valley morphology and lineated magnetic anomalies. This site thus provides an opportunity to sample the earliest basalts erupted in one of the nucleation cells that link up to form the propagating rift. It also provides, as discussed earlier in the minutes, probably the best opportunity to establish a Natural Laboratory in an active hydrothermal system and to investigate the plumbing of that system and the nature of the rock-fluid interactions.

Operations and Site. The exact siting of a hole will depend on study of seismic reflection and P.D.R. records to determine the thickest possible sediment pocket. The central part of the deep has been surveyed with Seabeam (Pautot, 1983) and has fairly good single channel seismic reflection and heat flow coverage (Bonatti et al., 1984). These data need to be examined and some additional high resolution seismic data would be useful.

Site 1-C Bannock Deep

Objectives:

Bannock Deep is the southernmost south of the smaller, non-seafloor spreading northern Red Sea deeps. It is an elongated shallow deep in the western side of the Red Sea central depression. Sediment cover is continuous across it, except on one profile where an igneous body protrudes from the sediment. The igneous body is associated with a large magnetic anomaly. Although a small dolerite fragment was recovered from the peak, consolidated carbonate crusts make dredging for igneous rocks very difficult.

Operations and Site: Drilling is proposed close to this igneous body through 200-300 m of sediment to obtain a thick (100 m) section of igneous rocks generated in very last phases of continental extension before nucleation of an organized spreading center. A Seabeam and SCS survey of site is needed for final site selection.

Site 1-D Shaban (Jean Charcot) Deep

Objectives:

Shaban (or Jean Charcot) Deep is the northernmost Red Sea Deep from which it can be certain that igneous rocks can be obtained. Conrad Deep, 100 km further north has a large magnetic anomaly and appears to result from an igneous intrusion. However, at Conrad Deep, the igneous body is not exposed and it is unclear whether a reflector at 0.6 sec represents the top of the body (Cochran et al., in press). Shaban Deep is approximately rhombic in shape, has a maximum depth of 1490 m (roughly 250 m deeper than the surrounding seafloor) and is 10 km long by 6 km wide. It is bisected by a volcanic ridge which is the northernmost outcrop of the Red Sea basement in the axial region. There are the same difficulties dredging this peak as that in Bannock deep, but a basalt fragment was recovered in a core taken at the foot of the ridge. A hole drilled in Shaban Deep would allow recovery of a section of igneous rocks produced during an earlier stage of advanced continental rifting than at Bannock Deep.

Operations and Site: A hole is proposed in the basins flanking the volcanic peak in Shaban Deep through about 200 m of sediment into volcanic basement. The area has been the subject of a Seabeam and single channel seismics survey by IFREMER and at least one MCS line by the Saudi DMMR. It would be helpful if that line could be released, but if not IFREMER can run MCS line in 1986 to determine exact sub-bottom geometry of igneous body.

Site 1-E Mababiss Deep

Objectives:

In the general scheme of progressive opening of the Red Sea, the Mababiss Deep represents an early oceanic spreading center that was initiated perhaps 3-4 million years ago. It, thus, represents a different system than the cell which nucleated at 17.5°N and propagated to form the present southern Red Sea mid-ocean ridge. It has, rather, remained as a localized cell of seafloor spreading. Evidences for oceanic crust and sea-floor spreading are: axial morphology (volcanic seamount, depression 2200 m deep), strong linear magnetic anomalies, basalt sampled at the axis end on the flanks, Red Sea deep hydrothermal sequences in recent sediments.

The scarps bordering the axial structure are different in nature. On the SW part (Red Sea side), the volcanic basement is largely outcropping and covered on top by a thin Plio-Quarternery series. On the NE part (Arabian side), the volcanic basement is still present as indicated by the strong linear magnetic anomalies, but rarely outcrops as it is covered by thick layered Plio-Quaternery series.

The objectives of drilling on each flank would be:

Southwest Flank (Site MA3a - French Red Book)

1. To date, the oldest crust created at this spreading center (not covered by evaporites).
2. To determine the nature of first magmatism.
3. To have a comparison (age and nature) with southern well known sea-floor spreading processes (17° - 18°N). Applications for kinematic models for Red Sea opening.

Northeast Flank (Site MA3b - French Red Book)

1. To compare the plio-quarternery sequences, (different on each side: pelegic and terrigenous).
2. On the NE part to date the compartmentization of the marginal basin in tilted elongated blocks (active tectonics).
3. To determine the age and nature of the basement in the vicinity of the axial depression (asymmetric rate of spreading?, evolution of the magmatism?).

Targets

MA3 a (SW side): 25° 16,4'N
36° 01,8'E ~ 1000 m depth

sediment thickness: 200 m
total penetration: 300 m

MA3 b (NE side): 25° 17,7'N
36° 12,5'E 1550 m

sediment thickness: 300-400 m
total penetration: 400-500 m
(minimum penetration in basement: 50 M)

Status of site surveys

Done: Seabeam map (Charcot)
Single Channel Seismics: watergun (more than 50 profiles with crossed profiles on sites) (Charcot)
Magnetics and gravity data (Charcot)
Cores and dredges near the sites (Noroit)

Projected: MCS on sites by IFREMER
Driving program with photographs and sampling

Theme 2 Hydrothermal circulation and metallogenesis.

Hydrothermal circulation in young Red Sea axial crust and related metallogenesis are a theme which have held the interest of the scientific community for almost two decades. Although a great quantity of research has been carried out on this theme in the Red Sea, particularly in the Atlantis II area, some fundamental questions remain often, which can be addressed uniquely by drilling - while the physical and chemical properties of the brines and of the metal-rich deposits have been studied extensively in the Atlantis II area and in other axial deeps, including Nereus Deep, very little is known of the deeper part of the system, i.e. the sub-seafloor thermal structure and how it is affected by the hydrothermal circulation; the nature of the solutions circulating within the crust and of the crustal rocks whence the metals are extracted, and the processes of alteration of the crustal rocks by the circulating fluids.

The working group feels that a "natural laboratory" should be established in order to monitor periodically one of the Red Sea axial hydrothermal systems. Attention has been focused on two systems, the Atlantis II system and the Nereus System. The Atlantis II area has ~60°C brines and evidence of 350°C fluids actively circulating at present. Sediment thickness is limited to a few meters. A consensus was reached that a feasibility study should be carried out to determine if drilling is possible in this area with present technology.

The Nereus Deep contains an active hydrothermal system with brine temperatures ~30°C, extremely variable heat flow reaching > 2,000 mW/m^2, a strong CH_4 anomaly, metal-rich deposits, etc. It was felt that in the present phase of the ODP, the hydrothermal/metallogenesis objectives can be achieved at low risk by drilling into the Nereus trough, away from the axial neo-volcanic zone. Sediment thickness > 30 m may exist within the trough floor, where a re-entry cone may be placed.

Drilling at Nereus Deep, in addition to fulfilling hydrothermal/metallogenesis objectives, would also contribute to the transition from continental to oceanic rift theme. More information on site and operations is contained in discussion of Site 1-b.

Theme 3 Pliocene-Holocene Sedimentary History of a Young Rifted Margin and Nature of the Pliocene-Miocene Boundary.

Site 1: Main Trough

Objectives:

High resolution biostratigraphy and sedimentology through the Pliocene-Holocene sedimentary sequence to study the influence of climatic changes on Red Sea sedimentation, circulation and productivity. Origin of the Red Sea sapropels and their possible correlation to East Mediterranean sapropels and monsoonal record of the Arabian Sea margin. Continuation of biostratigraphic and sedimentologic studies down section to determine the nature of the Miocene-Pliocene evaporite-normal marine sediment contact.

Operations and Site. Double HPC through 200-300m of sediment ending in the top of the Miocene evaporites. Water depth ~1125m. Site location 24°21'N, 36°30.6'E in the main trough between Vema and Kebrit deeps relatively distal from the sedimentary effects of the shelf areas.

Site Survey

French data available includes:
- Several SCS lines crossing
- Coring
- Seabeam - detailed survey of site has been done.
- Other: Detailed bathymetrics of Bäcker et al. (Preussag Germany)
- Note: French data will be in package from IFREMER to data bank

Site 2: "Sudanese Delta"

Objectives:

High resolution biostratigraphy/sedimentology through the Pliocene-Holocene sequence to monitor changes in the sediment flux and fresh water input to the Red Sea in response to fluctuations in monsoon intensities over Africa during the Quaternary. Part of the link in understanding the Red Sea sapropel record and climate forcing of the Milankoitch hypothesis. Continuation of biostratigraphic and sedimentologic studies down section to determine the nature of the Miocene-Pliocene evaporite normal marine sediment contact.

Operations and site. Double HPC through 200-300m of sediment ending in the top of the Miocene evaporites. Water depth ~ 500 m. Site location approx. 18°50'N, 38°45'E - "Sudanese Delta".

Site Survey

Data available from the Saudi-Sudan Red Sea Commission, includes:
- SCS/MCS
- Gravity
- Detailed bathymetry
- Coring

Data required: possible seabeam study for precise drill site.

Theme 4 - Mantle Section

Objectives:

Understanding the compositional evolution of the periodotitic upper mantle during the transition from a continental to an oceanic rift is an objective complimentary to that of understanding the evolution of the crust. Periodotites of upper mantle evolution are exposed on the small island of Zabargad (St. John), located about 50 km west of the axis in the central Red Sea. Prevalent among these peridotites are very fresh, undepleted spinel lherzolites; they could be considered upper mantle material before extraction of oceanic basalt (Bonatti et al., 1981; 1983; and 1985, in press). A broad positive gravity anomaly suggests that this mantle body extends at shallow levels below the sea floor over a N-S elongated wide area around the island. This offers an opportunity to acquire a thick (~ 200 m) section of upper mantle.

Operations and Site. It is proposed to drill a > 100 m section into mantle periodotites, in an area to the south or to the ENE of Zabargad Island, in water depth between 500 and 1,000 meters and where sediment thickness does not exceed a few hundred meters. Drilling a m 100-200m section into the mantle body could permit sampling at levels deeper (by about 1 km) than the level exposed on the island, and would allow a study of vertical heterogeneities of upper mantle composition within the sp-lherzolite facies.

Selection of a site requires further site surveys including in particular seismic and gravity studies. The primary reason why this site was placed on the southern rather than northern leg on the priorities listing given in the summary is the need for surveys to completely document that it is feasible and to locate a site.

JOIDES Tectonics Panel Meeting
Ocean Research Institute, Tokyo, Japan
30 September - 2 October 1985

Panel members present:	Darrel Cowan (USA), Chairman Keir Becker (USA) Rene Blanchet (France) Karl Hinz (FRG) David Howell (USA) Bruce Marsh (USA) Kazuaki Nakamura (Japan) Robin Riddihough (Canada) Jeff Weissel (USA)
In attendance:	Christian Auroux (ODP) K. Fujioka (Japan) T. Ishii (Japan) A. Taira (PCOM liaison; Japan) T. Seno (Japan) H. Tokuyama (Japan)
Absent:	John Ewing Peter Vogt

AGENDA

1. Minutes of previous meeting
2. Reports from liaisons: PCOM,ODP, CEPAC, WPAC, IOP, SOP
3. Report on drill-string and wire-line packers
4. Drilling plan for Leg 110, Barbados Ridge
5. Recommendations for specific drilling programs in Indian Ocean
6. Western Pacific thematic problems and drilling proposals
7. Report on Peru margin site survey
8. Next meeting

EXECUTIVE SUMMARY
TECTONICS PANEL MEETING

September 30 - October 2, 1985
Ocean Research Institute, Tokyo, Japan
* * * * *

1) **RECOMMENDATIONS FOR LEG 110 DRILLING ON BARBADOS RIDGE**

We endorse the drilling plan submitted by Moore in a memo dated May 17, 1985. Specifically, most of the drilling time should be expended at LAF-1 to: a) drill through the decollement; b) measure in situ physical properties using a drill-string packer; and c) set drill-in casing if necessary. After LAF-1, sites LAF-2 and 3 should be drilled upslope to complete the transect begun on Leg 78A. We do not support drilling completely new sites, such as LAF-5, 6, or 7 in the Caribbean Working Group proposal, on this leg.

2) **IN SITU FLUID PRESSURE MEASUREMENTS**

In view of the importance of documenting in situ fluid pressures and fluid properties at convergent margins, we recommend:

A) Immediately modifying the Barnes-Uyeda temperature probe so it can be used to measure in situ fluid pressures in the bottom of holes to be drilled on Leg 110;
B) Proceeding with the engineering required to modify the TAM drill-string packer so it can be included in a rotating ("hole-making") drill string, preferably before Leg 110; and
C) Developing a wire-line packer as soon as is technologically possible.

3) **INDIAN OCEAN DRILLING**

A) From the Chinese menu of possible legs for May-June 1987, we recommend drilling the Southwest Indian Ridge fracture zone (SWIRFZ). As is clear from our earlier ranking, we think both SWIRFZ and Makran address thematic problems of global significance. On balance, the panel (by a 5-4) vote) feels that new information concerning fracture zone tectonics and structure is more important at this stage than additional drilling in an accretionary prism, especially in view of the fact that drilling is scheduled on Barbados Ridge and off Peru.

Regarding SWIRFZ, we insist on using at least 2 holes to study transverse variations in the fracture zone instead of placing all holes along the trend of the zone as proposed. Finally, the sites proposed for other items on the menu - Davie Ridge and Somali Basin - do not merit drilling from a tectonic standpoint.

B) Kerguelen: Basement must be sampled on the north, central, and southern parts of the plateau. Of the existing proposed sites, we give highest priority to KHP-3, as a re-entry hole if necessary.

C) Drilling into "basement" beneath the dipping reflectors off the Caird Coast of Antarctica is of high priority because of the non-conclusive results of Leg 104 concerning seismically equivalent rocks.

4) **WESTERN PACIFIC**

From a thematic standpoint, drilling in the Western Pacific offers an outstanding opportunity to address these global tectonic problems:

A) The evolution and constitution of arcs and fore-arc basement; the process of rifting in and near arcs; vertical tectonics in arcs

B) The origin and evolution of back-arc basins, including nascent and more highly evolved examples

C) The tectonics of collisions in the broad sense: The arrival of seamounts, aseismic ridges, plateaus, and continental plates and microplates at active convergent margins.

We plan to devise a drilling program aimed at these topics at our next meeting.

MINUTES

The meeting began at 9:00 a.m.

1. MINUTES OF THE PREVIOUS MEETING

The minutes of the last meeting were approved without changes.

2. REPORTS FROM LIAISONS

2.1 PCOM

Taira (substituting for our new PCOM liaison, Hussong), briefly reviewed how the shortage of funds in ODP, caused by the lack of the fifth and sixth participants, is going to have an impact on operations. For example, hard-rock guidebases will only be available for Mid-Atlantic Ridge holes, and, as a result, site 504B will be drilled rather than new sites on the East Pacific Ridge.

2.2 ODP

Auroux reviewed drilling results so far on Leg 105 (Baffin Bay), and results from Leg 103 (Galicia) and Leg 104 (Norwegian Sea). The dipping reflectors consist of interlayered volcanic flows and tuff. Hinz noted that possible basement rocks below the dipping reflectors were insufficiently sampled, so seismically equivalent rocks off of Antarctica should be drilled on the appropriate Weddell Sea leg.

2.3 CEPAC

Cowan reported on the meeting just held near Seattle. The panel identified 22 drilling objectives in the region, and Cowan listed the six that were given highest priority in a preliminary ranking. Among these, the following address primarily tectonic problems: past and present convergence along the Aleutian system; accretion and transcurrent displacements along the British Columbia-Washington-Oregon margin, and the Chile triple junction.

2.4 WPAC

Nakamura distributed a list of 20 potential legs that the panel had identified at its August meeting in Santa Cruz. The panel also ranked these to show its drilling priorities. Some potential legs are regional; others are transects. The panel wants to meet in Miami next February to study proposals hole by hole. WPAC is very interested in the thematic priorities of TECP and we agreed to try to meet again just before WPAC.

Blanchet reported on a SW Pacific workshop just held in Suva, Fiji.

2.5 SOP & IOP

Weissel gave a detailed review of the sites recommended by the SOP. Of particular interest to TECP, SOP whittled down the N. Kerguelen drilling campaign to two holes, KHP-1 and 3. SOP asked for re-entry at KHP-3 to get through Upper Cretaceous into "basement". Weissel then presented a new Indian Ocean drilling plan that IOP formulated in response to the schedule PCOM adopted at its June meeting. He also distributed IOP's evaluation and recommendations for each of its proposed drilling projects. Weissel noted that the Makran was not among these. IOP tabled Makran because of concerns about safety, BSR, and the lack of adequate site surveys.

Our panel's discussion of Indian Ocean drilling is continued under item 5 below.

3. REPORT ON DRILL-STRING AND WIRE-LINE PACKERS

Becker gave a timely, detailed review of shipboard logging operations and packers - how they work and which kinds are available. Packers are devices with inflatable seals that can isolate fluids in part of the section penetrated by the drill. They are used to measure in situ pore pressure, and possibly permeability, and if properly equipped, for sampling formation fluids.

The wire-line packer isolates a 20 cm section of hole (it may eventually be able to isolate as much as 1-2 m) for measurements and sampling. It is an ideal device for these purposes, but is not yet available to ODP. Funding problems have impeded its development by Anderson at Lamont. Becker said it probably won't be ready for 2 years, and definitely not before Leg 110. Another type of packer is the drill-string packer. Rather than refurbish the old DSDP Lynes packer, Becker bought a new TAM packer. It measures fluid pressure over a long interval of hole, above the bottom of the hole. At present, the TAM packer must be introduced through a re-entry cone after drilling a hole has ceased, because the packer cannot be made part of a rotating, "hole-making" drill-string. Becker feels, however, that the TAM packer can be modified to be rotatable, thus saving a pipe trip and re-entry.

A third way of measuring fluid pressure in the botton of the hole is by using the stinger on the Barnes-Uyeda probe. This probe also measures the bottom-hole temperature and can obtain fluid samples.

Several panel members commented that is is absolutely essential to obtain fluid pressures and samples from active accretionary prisms. TECP therefore recommends that PCOM implement:

A) An immediate modification of the Barnes-Uyeda temperature probe so it can be used to measure in situ fluid pressures in the bottom of holes to be drilled on Leg 110;

B) The engineering required to modify the TAM drill-string packer so it can be included in a rotating ("hole-making") drill string, preferably before Leg 110; and

C) The development of a wire-line packer as soon as is technologically possible.

4. DRILLING PLAN FOR LEG 110, BARBADOS RIDGE

PCOM had asked TECP to discuss the drilling program for Leg 110 in light of the fact that a wire-line packer will not be ready for the leg, nor are there likely to be any major modifications and improvements in the available drill-in casing. Cowan reviewed the recommendations that TECP reached at our September 1985 London meeting and located the sites as prioritized by the Caribbean working group. He also distributed a memo from Casey Moore dated May 17, 1985, which contains a detailed prospectus for drilling a transect comprising sites LAF-1, 2, and 3.

The panel weighed the potential drilling problems at these sites (difficulty or impossibility of penetrating the decollement) and the second-best equipment available for measuring fluid pressures against the alternative plan of completely new drilling in different parts of the Lesser Antilles forearc. Our consensus clearly is that drilling to complete the transect begun on Leg 78A has overwhelming priority. We feel that Moore is aware of the diverse drilling scenarios that depend on hole conditions and equipment, and we prefer to let the co-chief scientists alter their plans as they deem best on board the ship. Even drilling using available equipment should tell us much of scientific and engineering value that can be used in future campaigns on accretionary prisms.

> TECP endorses the drilling plan submitted by Moore in a memo dated May 17, 1985. Specifically, most of the drilling time should be expended at LAF-1 to: a) Drill through the decollement; b) Measure in situ physical properties using a drill-string packer; and c) Set drill-in casing if necessary. After LAF-1, sites LAF-2 and 2 should be drilled upslope to complete the transect begun on Leg 78A. We do not support drilling completely new sites, such as LAF-5, 6, or 7 in the Caribbean working Group proposal, on this leg.

5. RECOMMENDATIONS FOR SPECIFIC DRILLING PROGRAMS IN INDIAN OCEAN

For this meeting, PCOM asked TECP to: A) Thematically prioritize the Chinese menu of possible legs for the May-June 1987 time slot; and B) Fine-tune specific drilling programs in diverse parts of the Indian Ocean, including Kerguelen, the Red Sea, and the central Indian Ocean, according to their potential for solving tectonic problems.

5.1 May-June 1987 Chinese Menu

The four potential legs we considered were: Makran, SW Indian Ridge fracture zone (SWIRFZ), Somali Basin (Tethyan sediments), and Davie Ridge. We reaffirmed our conclusion, expressed in the minutes of the Lamont meeting, that the sites proposed in the Somali Basin and on Davie Ridge are of distinctly lower priority than either Makran or SWIRFZ. Cowan read a letter from Ewing stating that a new proposal from Segoufin et al. for drilling on Davie Ridge deals mainly with ocean sediments rather than tectonic problems.

We began an intense discussion of the relative merits of the Makran and SWIRFZ. In our March 1985 rankings, Makran was first and SWIRFZ third. Cowan (watchdog for Makran) briefly reviewed Leggett's drilling proposal and highlighted the putative advantages of drilling at this particular active margin: Determining rates of uplift; tying together on-land and offshore studies; probing well-defined slope basins; drilling a thickly sedimented descending plate. Several panel members questioned the feasibility of determining uplift rates and why the Makran was particularly suited for this goal. Nakamura noted that the high sedimentation rate and abundance of imbricate slices promise good time resolution. Taira pointed out that slope basins are much better developed here than on other margins (e.g. Nankai, Barbados Ridge). Both the proponents and TECP recognize that more site survey data are required before any drilling campaign. Cowan read a telex from Leggett dated 12 Sept. 1985 reaffirming UK plans for an extensive site survey in November 1986, but some panel members noted that abundant geophysical and bathymetric data are already at hand for other margins such as Nankai and Barbados Ridge.

TECP is intensely interested in the structural fabric of fracture zones; we believe that information from the oceans can establish diagnostic criteria for interpreting the origin of ophiolitic complexes on land. The consensus of the panel is that the drilling proposed for SWIRFZ is potentially an important step in this direction (as noted in the Lamont minutes). In response to the question of whether SWIRFZ is the best fracture zone to drill, panel members noted that while there are undoubtedly other attractive drilling targets world-wide, we have a proposal in hand for a target that can be drilled soon.

With regard to specific sites in H. Dick's proposal, panel members noted that it calls for placing all of the holes along the strike of the fracture zone, in part to test for periodicity in magma chamber location. For comparison with ophiolites, we feel it is necessary to obtain samples in a profile transverse to the trend of the zone. We recommend that at least one of the "along-strike" sites be re-located within the fracture zone for this purpose.

In summary, as is clear from our earlier ranking, we think both SWIRFZ and Makran address thematic problems of global significance; our rationale is explained in the minutes of our March 1985 meeting. Because PCOM asked us to choose between them, Cowan called for a vote. We now favor (by a 5-4 vote) SWIRFZ.

- **From the menu of possible legs for May-June 1987, we recommend drilling the Southwest Indian ridge fracture zone (SWIRFZ). TECP feels that new information concerning fracture-zone tectonics and structure is more important at this stage than additional drilling in an accretionary prism, escpecially in view of the fact that drilling is already scheduled on Barbados Ridge and off Peru.**

- **Regarding SWIRF, we insist on using at least 2 holes to study transverse variations in the fracture zone.**

- **The sites proposed for Davie Ridge and Somali Basin do not warrant drilling from a tectonic standpoint.**

5.2 Kerguelen

Blanchet (wsatchdog for this area) reviewed the sites in proposal 136/C by Schlich et al. He also briefly summarized the drilling program in a new Australian proposal that Cowan brought to Tokyo. Weissel noted again that SOP recommended that KHP-3 be a re-entry hole into basement. He also said that IOP recommends drilling into basement on the north, central, and southern parts of the plateau. TECP views the nature of basement in oceanic plateaus like Kerguelen as an outstanding tectonic problem that can only be addressed by drilling and we strongly endorse the recommendation of IOP. Of the sites in proposal 136/C, KHP-3 (re-entry) could reach basement. Perhaps other sites in the Australian proposal could as well, but we received the proposal too late for an adequate evaluation. Hinz pointed out that most of the holes in both proposals are designed to penetrate great thicknesses of sediment, but according to the seismic interpretations, sediments are much thinner on the flanks of the plateau. Drilling there might sample basement directly.

TECP's view is that basement must be sampled on the north, central, and southern parts of the plateau. Of the existing sites (proposal 136/B); we give highest priority to KHP-3, as a re-entry hole if necessary. Some additional sites should be re-located to assure basement penetration.

5.3 CAIRD COAST OF ANTARCTICA

Hinz emphasized that planned drilling in this region is of high prioity in light of the findings of Leg 104 in the Norwegian Sea. An important tectonic problem at passive margins is the identity of basement below the seismically defined interval of dipping reflectors. Hinz noted that results from Leg 104 are inconclusive concerning the basement there. Weissel reported that site W-4 offers an opportunity to drill below the dipping reflectors on the margin of the Weddell Sea.

TECP views drilling into rocks beneath the dipping reflectors at site W-4 (or its equivalent) as a high-priority objective.

5.4 OTHER INDIAN OCEAN DRILLING PROGRAMS

Weissel distributed a list of program-by-program recommendations prepared at the last IOP meeting. We considered each program in turn after Weissel summarized the IOP recommendations.

5.4.1 Fossil Ridges

From a tectonic standpoint, the sites as proposed do not merit a drilling campaign at this time.

5.4.2 Laccadive-Maldive-Chagos-Mascarene Ridges

Hinz said that the existing proposal for drilling on the Mascarene Plateau is interesting, but the proponents failed to present alternative hypotheses in addition to the "hot spot" hypothesis. More geophysical data are required to formulate and test additional hypotheses.

5.4.3 Indus fan

The sites as proposed will satisfactorily address tectonic objectives (see minutes of March 1985 Lamont meeting).

5.4.4 Red Sea

Nakamura commented that drilling in the Mabahis and Charcot deeps may provide some results of tectonic interest. The main tectonic problem - the nature of transitional basement-cannot really be addressed by drilling because of thick sediment cover (see Lamont minutes).

5.4.5 Broken Ridge

We endorse both sets of sites from the standpoint of our thematic interest in passive and conjugate margins.

5.4.6 Exmouth Plateau

Both sets of sites address the general problem of the evolution of passive margins.

6. WESTERN PACIFIC THEMATIC PROBLEMS AND DRILLING PROPOSALS

On Tuesday, October 1, we reviewed all of the Western Pacific proposals that the chairman had received up to about August 29th and distributed to the panel. At our March meeting, we appointed watchdogs for various regions in the Western Pacific, and each watchdog summarized the contents of relevant proposals and pointed out the important thematic problems addressed in his region. The following is a list of watchdogs and the topics that each covered

Nakamura:	New plate boundary between Eurasian and American plates along E side of Sea of Japan; paleomagnetically determined rotation of SW Japan; drilling proposals for Sea of Japan
Riddihough:	Japan trench and forearc; TTT triple junctions; Zenisu Ridge; Nankai trough and forearc
Marsh:	Izu-Bonin and Mariana arc-forearc systems; Amami Plateau and Daito Ridge
Blanchet:	Okinawa Basin
Hinz:	S. China Sea and Sulu Sea; geology of Palawan and environs
Weissel:	Lau Basin; Solomon region; Mussau and Manus trenches
Howell:	New Zealand ridges
Hinz:	S. Tasman Rise
Cowan:	Sunda-Banda arc; collision of Australia

At the end of the above presentations and discussions, Cowan prepared the following list that was meant to group existing proposals under preliminary thematic headings. This list was distributed at the end of Tuesday's meeting for evaluation and criticism by the panel (note that these are not listed in any rank order):

Back-arc basins: Sea of Japan; Lau/Valu Fa
Nascent back-arc basin: Okinawa trough; Izu-Bonin
Trench and accretionary prisms: Japan trench; Nankai trough; Mussau/Manus "new subduction"
Forearc volcanism, structure, petrology: Manus, Izu-Bonin, Marianas
Arc evolution: Izu-Bonin, Marianas
Terrane accretion and collision: Palawan (proposal in preparation by Hinz
Effect of collision by accretionary prism: Timor region
Effect of collisions on sedimentary record: Sea of Japan; Toyama fan; Nankai trench
T-T-T triple junction: NE Japan; Japan-Izu-Sagami; four-plate downhole experiments
Deformation of descending plate: Zenisu Ridge
Passive margin rifting: S. Tasman rise
Dating of magnetic anomalies: Shikoku Basin; S. China Sea
Finding out what it is by drilling: Amami Plateau/Daito Ridge; New Zealand ridges; crust in Sulu, Celebes, Banda Seas

On Wednesday morning, when we reconvened, Marsh and Riddihough commented that yesterday the panel had been educated about the marine geology and geophysics of the Western Pacific and that we had learned which problems of local, regional, or thematic interest drilling proponents deem interesting. Both panelists recommended that TECP make a clear statement about which thematic problems we see as the most important and that we focus our attention on these at the expense of others. Cowan asked each panelist in turn to identify his own selection of key thematic problems. In an effort to precipitate discussion and reach a consensus, Cowan listed the three broad thematic issues that are apparently of greatest interest to TECP (not in rank order):

A) The evolution and constitution of arcs and fore-arc basement; the process of rifting in and near arcs; vertical tectonics in arcs;
B) The origin and evolution of back-arc basins including nascent and more highly evolved examples; and
C) The tectonics of collisions in the broad sense: The arrival of seamounts, aseismic ridges, plateaus, and continental plates and microplates at active convergent margins.

A spirited discussion followed on how TECP should offer advice to both PCOM and WPAC on scientific problems to be addressed in the Western Pacific. Marsh suggested that we adopt the list above and try to design the best drilling campaigns to address each problem, even if it means tackling, say, arc evolution in several systems rather than on a single transect in just one. Others supported Marsh's plan, which would basically prompt a radical change in the way TECP operates. Until now, we have simply ranked all the proposals we have been asked to review.

In the future, we would concentrate primarily on proposals that address problems in A, B, or C above. Hinz argued that we should not change our way of doing business but rather continue to evaluate all parts of the Western Pacific on the basis of a more comprehensive list of tectonic problems, not just those in the list above.

Cowan sensed that TECP desires to make a strong statement about which thematic problems we see as most important in the Western Pacific. In effect, we see drilling in the Western Pacific as an outstanding opportunity to shed light on the three problems listed above and feel that drilling should be devoted to these at the expense of other thematic issues. At our next meeting, we will further evaluate proposals falling into these categories and suggest some specific drilling targets. A start was made at designing 3 sub-committees of panel members that would each take primary responsibility for evaluating each group of proposals.

7. **REPORT ON PERU MARGIN SITE SURVEY**

In Hussong's absense, Cowan briefly summarized the results of the site survey in support of Leg 112 and displayed some copies of new multichannel lines Hussong had given him the week before.

8. **NEXT MEETING**

Nakamura said that WPAC plans to meet again in Miami February 17-19, or possibly the succeeding week. Cowan said that a check with the JOIDES office revealed the PCOM's spring meeting, to formulate a preliminary Western Pacific schedule, would probably be held in April. He wondered whether TECP's advice should be directed primarily to PCOM or WPAC. Blanchet, on behalf of France, kindly invited TECP to meet in Toulon, France between February 15-21, when the JOIDES RESOLUTION will be in Marseilles. The panel would finally be able to inspect the ship and also examine two French submersibles. Our meeting would just precede the WPAC meeting and Nakamura could report to them directly. Alternatively, we could meet in Miami, just before WPAC. Becker offered to make local arrangements if necessary.

The meeting was adjourned at noon on Wednesday, October 2.

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DENVER FEDERAL CENTER
DENVER, COLORADO 80225

IN REPLY
REFER TO:

Office of Energy and Marine Geology
Branch of Oil and Gas Resources

November 5, 1985

TO: Chairman, JOIDES Planning Committee

FROM: Chairman, JOIDES Pollution Prevention and Safety Panel

SUBJECT: Report of the JOIDES Pollution Prevention and Safety Panel Meeting, 22-23 October 1985, Paris, France

The JOIDES Safety Panel met in Paris on October 22 and 23, 1985 to review ODP Legs 107, 108, 109 and 110. Present at the meeting were:

JOIDES Panel Members:
G. Claypool (Chairman)
M. Ball
R. Byramjee
R. Larson (PCOM liason)
D. MacKenzie
B. MacLean (for G. Campbell)
G. Stober

ODP/TAMU Safety Panel
L. Garrison
T. Thompson
H. Wories

ODP/JOIDES DATA BANK
C. Brenner

Co-chief scientists and visitors
K. Kastens (Leg 107)
J. Mascle (Leg 107)
J. Reahault (Leg 107)
A. Mascle (Leg 110)
H. Munsch (CFP-Total)

1. Leg 107 (Tyrrhenian Sea):

TYR-2 - Approved for double APC to 250 m on condition that location is moved to shotpoint 2590 on line ST08.

TYR-1B - Site located at shotpoint 4790 on line ST06 (alternate at SP4855 on line MS 1) is tentatively approved to proposed 800 m penetration with the following restrictions: (1) that the line is reprocessed; (2) that hydrocarbons are monitored by gas chromatography in cores of the Plio-Quaternary section on both sites TYR-2 and TYR-1B, and that drilling is terminated prior to penetration of the Upper Miocene if hydrocarbons significantly greater (200X) than background are encountered (background is defined as 10^{-8} to 10^{-4} standard volumes of C_1-C_6 hydrocarbons per volume of sediment, or the levels observed in cores at Site TYR-2); (3) that drilling be terminated if evaporites capable of serving as a seal (i.e., bedded evaporites) are encountered.

TYR-1B′ - Approved as proposed (to 500 m).

TYR-1A1 - Approved as proposed (to 800 m).

TYR-1A2 - Not approved because of possible structural trap.

TYR-3A - Approved to a depth of 900 m on condition that location be moved to shotpoint 4250 on line ST01 (Downdip and away from possible fault).

TYR-3A′ - Not approved because of structural trapping possibilities.

TYR-3B - Not approved because of structural trapping possibilities.

TRY-3C - Approved (to 900 m) on condition that location be moved to a position equivalent to shotpoint 1690 on line ST10. Recommend that a crossing line be obtained before drilling.

TYR-4 - Approved as proposed (to 800 m).

TYR-5A - Approved as proposed (to 100 m).

TYR-5B - Approved as proposed (to 500 m).

TYR-7A - Approved as proposed (to 500 m).

TYR-7B - Approved as proposed (to 500 m).

TYR-8 - Approved as proposed (to 400 m).

TYR-6 - Approved as proposed (to 600 m).

2. <u>Leg 108 Eastern North Atlantic):</u>

Note: Seismic records submitted were inadequate for safety review. Better records are being obtained for scientific purposes, but in the future, safety review should await adequate site surveys. An exception was made for Leg 108 because it involves only shallow (350 m) piston coring.

139-R - Approved as proposed.

MAU-6 - Approved as proposed.

MAU-5 - Approved as proposed.

MAU-4 - Approved as proposed.

SLR-1 - Approved as proposed.

EQ-3,
4a,5 - Approved as proposed.

EQ-6 - Approved as proposed.

EQ-7 - Approved as proposed.

3. <u>Leg 109 (Mid-Atlantic Ridge):</u>

Safety Panel was briefed on the plans for Leg 109 and approved deepening of the Leg 106 MARC I site.

4. <u>Leg 110 (Lesser Antilles Forearc):</u>

LAF-1 - Approved as proposed (to 860 m).

LAF-2 - Approved as proposed (to 850 m).

Note: Safety Panel advises that special engineering methods may be required to drill the high-pressure zone encountered at Holes 541 and 542 on Leg 78A. The Panel assumes that natural gas will not be encountered, based on previous drilling.

LAF-3 - Approved as proposed (to 500 m).

LAF-3A - Approved as proposed (to 600 m).

LAF-4 - Approved as proposed (to 600 m) with the restriction that drilling should be stopped at 500 m if enough gas is present in cored sediments to indicate that gas hydrates are present (BSR is suggested on seismic records).

LAF-5 - Approved as proposed (to 400 m).

LAF-6 - Approved to a depth of 700 m. Penetration of lower Pliocene-upper Miocene unconformity is not approved at this site.

5. <u>Date and Venue of Next Meeting:</u>

The next meeting will be held during the period 24-26 June 1986. The first choice for a site is Denver (to be hosted by G. Claypool, USGS) with Houston and Washington D.C. as alternate sites.

G. E. Claypool

G. E. Claypool

cc: JOIDES Safety Panel
TAMU Safety Panel
C. Brenner
K. Kastens
J. Mascle
A. Mascle
JOIDES Panel Chairmen
Canadian ODP Office

PANELS

EXECUTIVE SUMMARIES

EXECUTIVE SUMMARY
JOIDES SEDIMENTS AND OCEAN HISTORY PANEL ACTIVITIES, 1985

1) MEETINGS

The SOHP met twice in 1985, the first in Cambridge, U.K., Feb. 21-23 and the second at LDGO, Palisades, N.Y., July 25-26; we will meet a third time on Jan.6-7 at SIO, La Jolla, CA. prior to the Jan.20-24 PCOM meeting.

2) PANEL MEMBERSHIP

In the event that new member countries are not added, we recommended the following people to serve as members of SOHP, filling critical subject areas left vacant as the result of the withdrawal of our ESF and UK colleagues:

A) John Barron (USGS; diatom biostratigraphy--Pacific paleoceanography) (alternate: R.C. Thunell, Univ. South Carolina; foraminiferal biostrat.-paleoceanography)

B) Pierre Biscaye (LDGO: clay mineralogy, sedimentary processes) (alternate: R.E. Garrison, UCSC; carbonate and silica diagenesis, sedimentary processes).

Assuming that JOIDES panel structure remains the same, we have also recommended formal liaison between SOHP and several regional panels as follows (liaison was lost due to several resignations):

A) P. Meyers to ARP (replaces Sarg)

B) R. Sarg to WPAC (replaces Shackleton)

C) L. Tauxe may want to be replaced on IOP (to be considered at Jan.,1986 SOHP mtg.)

M. Arthur has also resigned as SOHP Chairperson; SOHP will provide a recommendation to PCOM for a replacement from within panel at Jan., 1986 SOHP mtg.

3) TECHNOLOGICAL DEVELOPMENTS

We continue to recommend as highest priority (approximate order of priority) the following technological improvements and/or acquisition and deployment of equipment already available for ODP:

<u>TECHNOLOGY</u>

1. Heave compensation for the APC system (developed and tested on ODP Leg 105).
2. A core-catcher system that would improve recovery in friable formations such as sand (recognizing that drilling in such formations is also a challenge).
3. Improved bits and drilling techniques that would allow better penetration and recovery in sequences characterized by pronounced lithologic contrasts (e.g., chert-chalk sequences that will be encountered frequently in the Pacific program).
4. Improved core liners (shattered or twisted during APC coring; is this quality control problem?)
5. Further improvement and routine availability of pressure core-barrel and <u>in situ</u> pore-water sampler to take advantage of unanticipated geochemical anomalies (gas-hydrates, salinity-alkalinity gradients, etc.).

<u>CORE HANDLING AND ARCHIVING</u>

1. Improve color core photography, including routine deployment of continuous strip photography (using Tom Chase system as deployed on DSDP Leg 64).
2. Recommend that "Palynologist" be considered as a routine staffing matter on all legs.
3. Reconsider core flow and decision to allow thermal equilibration of cores prior to opening: in conflict with needs and recommendations for organic geochemical and interstitial water sampling.

4) LONG-RANGE PLANS--RISER TARGETS

We were asked to consider our high-priority plans for riser drilling in 1992 or later should the riser system be deployed (assuming 1800m depth limitation); these are:

1. Penetration, dating and characterization of major evaporite sequences, including the upper Miocene of the Mediterranean, the Miocene of the Red Sea and the lower Cretaceous of the South Atlantic--these are important for global geochemical mass balances, paleoclimate, hydrocarbon source bed and other considerations.
2. Penetration and recovery of gas hydrates and other gassy sediments such as in the Sea of Japan, Black Sea, Sea of Okhotsk and Cariaco Trench.
3. Penetration of continental slope structures and sequences, such as in the Niger Delta, the

Gulf of Mexico, and offshore Northwest Africa.

4. Deeper riser drilling capability would significantly expand both the number of riser targets and their scientific attractiveness (3000m water depth).

5) MAJOR THEMES

SOHP continued to endorse and develop scientific ocean drilling for the first 3 years of ODP designed around the following major, high-priority themes:

1. Neogene-Quaternary high-resolution sealevel, paleoclimatic, bio-magneto-chemostratigraphic records, global oceanic fluxes (carbonate, organic carbon, etc.), and land-sea interactions (Norwegian Sea; Baffin Bay-Labrador Sea; Northwest Africa; western Mediterranean; Peru margin; Weddell Sea and southern South Atlantic traverse; Kerguelan Plateau; Somalia and Oman margin; Mascarene-Chagos-Laccadive).

2. Cretaceous-Neogene high-latitude paleoceanography-paleoclimatology and biotic evolution (Norwegian Sea; Baffin Bay-Labrador Sea; Weddell Sea and southern South Atlantic; Kerguelan Plateau-Amery margin).

3. Mesozoic-Cenozoic sea level changes, seismic stratigraphy, major global unconformities and global mass balances-- deep stratigraphic tests (Moroccan Basin; Somali Basin; Exmouth-Argo Abyssal Plain). **This is one of our major themes for the entire PROGRAM!** Detailed proposal for additional sites in preparation.

6) SPECIFIC RECOMMENDATIONS / PRIORITIZATION OF REGIONAL DRILLING TARGETS

SOHP ranked individual sites within PCOM-approved drilling legs of major interest to SOHP and prioritized specific legs within regional drilling programs. The specific prioritizations and rationale can be found in our minutes; only a listing is supplied here*:

A. Baffin Bay-Labrador Sea (Leg 105): 1.)BB-3B, 2.)LA-5 or 5A, 3.)LA-9, 4.), 4.)LA-2A

B. Mediterranean (Leg 107): 1.)TYR 2, 2.)TYR 3A.(Recommend R. Thunell, M. Cita, K. Kastens, J. Mascle as co-chiefs)

C. Northwest Africa (Leg 108): 1.)139R, 2.)MAU-6, 3.)MAU-5, 4.)MAU-4, 5.)SLR-1, 6.)EQ-3, 7.)EQ-4A, 8.)EQ-5, 9.)EQ-6, 10.)EQ-9, 11.)EQ-7.(Recommend M. Sarnthein and W. Ruddiman as co-chiefs).

D. Hole 504B (revisited; Leg 111): urge double-APC coring of pelagic section--beautiful eastern Pacific late Neogene-Quaternary sequence.

E. Peru Margin (Leg 112): Specific sites not yet identified--strongly endorse depth transect of margin for fluctuations in climate, productivity, oxygen-minimum zone, accumulation rates, and study of dolomite and phosphorite problems.(Recommend E. Suess, L. Kulm as co-chiefs).

F. Weddell Sea (Leg 113): 1.)W1, 2.)W2, 3.)W4, 4.)W5, 5.)W10, 6.)W6, 7.)W7, 8.)W8. (Recommend J. Kennett and D. Futterer as co-chiefs).

G. South Atlantic Traverse (Leg 114--ranks second priority to W1,W2,W4,W5 in Weddell Sea and Kerguelan-Amery objectives):(ranking sites in order SA-8, SA-2, SA-3, SA-5W).

INDIAN OCEAN PROGRAM

1. *Southern Kerguelan Plateau-Amery margin* (high latitude paleoclimates-paleoceanography with Amery margin highest priority)(3-5 sites)

2. *Oman margin-Owen Ridge-Somali margin-Indus Cone* (with Oman-Owen Ridge highest priority)(ca. 5 sites, monsoon paleoclimate-upwelling-human evolution-Himalaya tectonics)

3. *Somali Basin deep stratigraphic test* (anomaly M-25; 1 site)--part of deep stratigraphic tests program (multiple objectives incl.Tethys connections, black shales, African uplift)

4. *Northern Kerguelan Plateau-southeast Indian Ridge transect* (4-5 sites for Paleogene-Neogene paleoclimate transect--high latitude carbonate record)

5. *Exmouth Plateau-Argo Abyssal Plain* (passive margin sequence to oldest Jurassic crust)(2 sites)

6. *Mascarene- Chagos- Laccadive* (latitudinal-paleodepth transect)(6-8 sites)

(*Red Sea*)--if ship goes there, recommend APC coring on flanks of ridge for hydrothermal sediments and site for paleoenvironment of sapropel sequence and evaporite-normal marine sediment sequence. Recommend waiting for Red Sea with riser/BOP and high-T tools.

WESTERN PACIFIC PROGRAM

SOHP targets remain unranked until Jan., 1986 meeting, but those objectives of high interest are: 1.) Great Barrier Reef program, 2.)Queensland Plateau and environs, 3.)Sulu Sea, 4.)Japan Sea, 5.)Sea of Okhotsk, 6.)Bering Sea (Sounder Ridge), and 7.)Shatsky Rise

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

Department of Geological Sciences, AJ-20

November 26, 1985

M E M O R A N D U M

TO: PCOM

FROM: Darrel S. Cowan Darrel S Cowan
Chairman, TECP

SUBJECT: Executive Summary of 1985 Activities of the Tectonics Panel

1) CHAIRMANSHIP

I stood in for Jeremy Leggett (UK) at our March meeting and was formally named Chairman in April.

2) MARCH MEETING AT LAMONT

Most of the meeting was devoted to a review, discussion, and ranking of drilling proposals in the Indian Ocean and Southern Oceans. Our procedures were largely those established at our September 1984 meeting in London. We had divided the oceans geographically and assigned a watchdog to each region. In March, each watchdog systematically summarized the thematic problems in his region and how extant drilling proposals would address them. We also heard a report from the chairman of the Red Sea Working Group (J. Cochran). We then prioritized IO and SO targets using the voting system we devised in London: 0 (lowest) to 10 (highest). Our top four priorities were: Makran accretionary prism and slope basins (1); Indian Ocean intraplate deformation and fluid flow (2); SW Indian Ocean Ridge fracture zone (tie for 3); Bengal-Indus fans (tie for 3).

3) OCTOBER MEETING AT OCEAN RESEARCH INSTITUTE, TOKYO

a) Leg 110 Barbados Ridge: We recommended expending every effort to drill through the decollement at LAF-1 and then proceeding upslope to drill LAF-2 and 3 if time permits.

b) Indian Ocean drilling: We reversed our March ranking and chose SW Indian Ridge fracture zone over Makran as our top priority on the menu for May-June 1987. We also insisted that basement be sampled on all parts (north, central, and south) of the Kerguelen plateau.

c) Western Pacific: Prior to the meeting, I distributed copies of all existing proposals to each panelist. In Tokyo, the watchdogs we appointed in March reviewed the drilling proposals for each region. We began this review in preparation for a formal ranking in Spring 1986 along the lines of our March 1985 prioritization of Indian Ocean proposals. However, we decided instead to identify those prime global thematic problems that can best be studied in the Western Pacific. In the future, we will critically evaluate the proposals that address these problems, and at our February 1986 meeting we will prepare specific drilling plans focused on our thematic objectives: i) The evolution of arcs and fore-arc basement; ii) The origin of back-arc basins; and iii) The tectonics of collisions.

4) TECP PHILOSOPHY

We have evolved from a reactive panel that simply ranked <u>all</u> proposals in a region according to their thematic content, to one that will independently advocate a Western Pacific drilling program focused on what we view as the key thematic problems in the region.

DSC/scb

CEPAC Summary, 1985

March 11-12, 1985, Menlo Park, California.

A) Liaison reports from other panels PCOM, ODP, and USSAC; workshop report from INPAC and plans for others.

B) Considered plans and proposals for 1986 drilling in the east Pacific and evolved the following ranking:
   1) Peru margin tectonics and paleoceanography
   2) EPR 13°N (2 Legs)
   3) 504B with Motti proposal, as backup to 13°N work if no bare-rock drilling

C) Presentation by H. Okada of topics of interest to the Japanese community. Those in the CEPAC domain are:
   1) Cenozoic paleoceanography
      a) Oyashio-Kuroshio interaction
      b) tephrochronology
      c) major west Pacific hiatus
   2) Old Pacific
      a) Mesozoic geologic history and paleoceanography

D) Review of Pacific Ocean geologic history by several presenters.

September 25-26, 1985, Roche Harbor, Washington

A) Liaison reports from other panels, PCOM, ODP, and USSAC; workshop results from INPAC and NORPAC (held Sept. 22 to 24).
   1) CEPAC expressed formal concern over delay in staffing the publications group at TAMU

B) Panel discussed the return to 504B, scheduled because enough bare-rock guide bases were not available to complete 13°N program.
   1) CEPAC recommended that the sedimentary section near 504B be double-HPC cored to recover the outstanding paleoceanographic record there.
   2) Several suggestions for Co-chief Scientist for 504B work were made.

C) Data and proposals pertinent to the Peru program were presented by D. Hussong.
   1) CEPAC recommended that the entire Leg be devoted to the Peru effort and that the high latitude sites suggested by J. Hays be deferred.

D) Panel entered into a long discussion of the general objectives of Pacific drilling that resulted in a listing and ranking of significant problems that can be resolved by ocean drilling (attached).
   1) CEPAC emphasizes that:
      a) the list and rankings are preliminary and will change;
      b) multi-objective sites are strongly encouraged and several of the listed problems can "piggy-back" at one location;
      c) enough first-rank problems exist to keep the ship in the Pacific beyond its scheduled departure time.

E) The fall meeting ended with discussions of membership.
   1) CEPAC repeats its request to have a Cenozoic biostratigrapher/paleoceanographer appointed to it.
   2) D. Rea agreed to serve as next CEPAC chairman pending PCOM approval.
   3) T. Shipley was given a vote of thanks for getting CEPAC organized and running smoothly.

Preliminary CEPAC Ranking of Major
Pacific Drilling Themes
26 September 1985

The following list was compiled of the major Pacific problems relevant to the drilling program. The list is a collection of themes rather than discrete drilling legs. Site selection should provide some economy by locating holes for multiple objectives. Even so, it is clear that the number of important objectives far exceeds time presently allocated for drilling in the Central and Eastern Pacific.

The list and rankings (low points equals high rank) are subject to revision as the themes become more defined. We have indicted the approximate time needed for each theme and the extent of surveying still required.

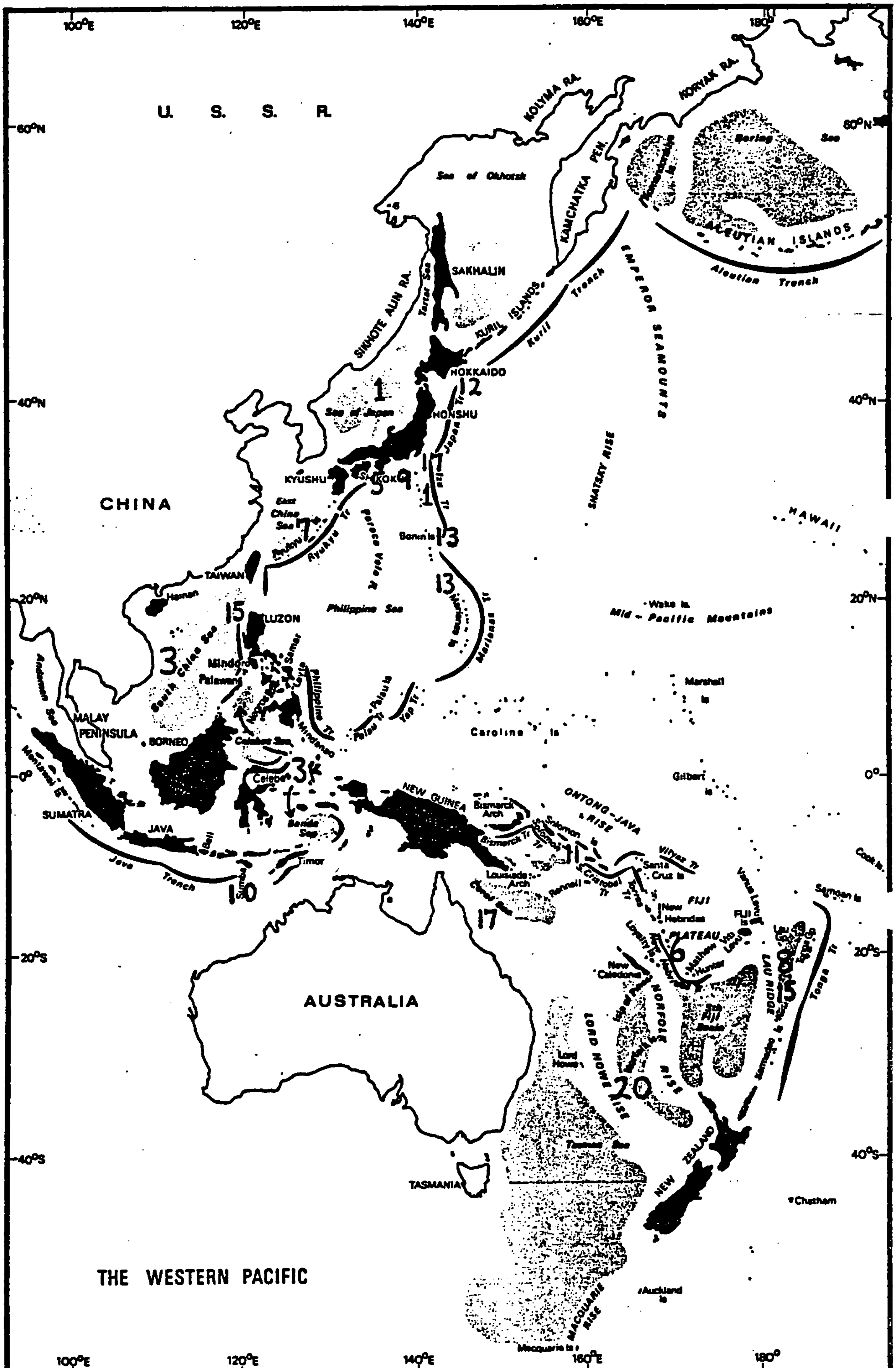
	Total Points	Months	Surveys
EPR 13°N - Crustal formation at fast-spreading (115 mm/y) ridge. Hydrothermal processes (high temperature tools needed). Bare rock site. LOBO site.	11	4	OK
Juan de Fuca-Gorda sedimented ridge - sulfide mineralization, organic diagenesis, vertical tectonism, crustal alteration (high temperature tools necessary). LOBO site.	13	2	
Old West Pacific - Sedimentary record of Mesozoic oceans. Mid-plate, mid-Jurassic to mid-Cretaceous plate evolution and history, especially volcanism.	14	2	MG&G and MCS needed
Superchron plate rearrangements - M-series to Anom 32 tectonic shifts, Hess-Emperor-Chinook. Ridge jumps in Mendocino-Murray and Clarion-Clipperton regions. Ages and extents.	14	2	MG&G needed
Oregon/Washington/British Columbia margin - Queen Charlotte terrace and northward transport. Landward vs. seaward dipping thrusts. Dewatering, diagenesis, physical properties & mechanics of subduction.	15	4	OK, +MCS needed
North Pacific Pelagic Problems - Mesozoic ocean equatorial productivity record - Paleogene carbonates, Neogene onset of siliceous deposition. Boundary currents and upwelling. High latitude biostratigraphy to provide "link to the land". Piggy-back studies include ice-rafting, hydrothermal history, eolian deposition, tephrochronlogy.	16	4	MG&G needed
Aleutian convergence, past and present - Underthrusting and accretion. Arc development vs. modeled history.	16	2	OK

Emperor encore - hopping hotspots. Magma variation and age at North end. Shift in hotspot paleolatitude.	17	2	MG&G needed
Juan de Fuca-Gorda simple linear ridge - Crustal formation at moderate spreading (60 mm/y) ridge. Hydrothermal processes (high temperature tools needed). Bare rock site. LOBO site.	17	2	OK
Chile triple junction - Tectonics and evolution of sedimented ridge-trench-trench triple junction.	17	2	MCS needed
Gulf of California, pelagic pressure cooker - Sills, organic diagenesis, hydrothermal circulation.	17	2	OK
Carbonate banks and atolls - old Darwin rise, late Cretaceous subsidence.	20	4	Fair, MCS needed?
Pacific plateaus - What is basement and its age, magma evolution, paleolatitude.	20	2	?
Bering Sea tectonics and sedimentation history - Sounder ridge, Umnak Plateau, Komandorski and Kamchatka regions.	20	2	Fair
Cenozoic equatorial carbonates - Ontong-Java depth transect, $CaCO_3$ to opal latitudinal transition, acoustic interpretations, paleoproductivity.	22	2	Fair, needs digital seismics
Gulf of Alaska sedimentation and tectonics - Yakutak block accretion, TACT extension, Shumagin subsidence.	23	2	OK
EPR 20°~~N~~S - Crustal formation and super-fast (160 mm/y) spreading ridge. Hydrothermal processes (high temperature tools needed). Bare rock site. LOBO site.	24	4	MG&G needed
South Pacific Plate evolution - south of island chains. Tectonic and volcanic history.	24	2	MG&G needed
Costa Rica margin - deep hole in accretionary prism, examine underplating styles of accretion, Duplex test (drill-in casing required).	25	2	3-D MCS survey scheduled in 1987
High southern latitude pelagic problems - Paleoceanography and polar cooling.	25	4	MG&G needed
Alaskan clastics - Aleutian/Alaskan plain turbidites and fan chronology, Meiji sediment tongue.	26	2	OK
California margin - Borderland basins, transform margins, fan facies.	29	2	OK

EXECUTIVE SUMMARY OF WESTERN PACIFIC PANEL ACTIVITIES, 1985

There are now more than 60 proposals for drilling in the western Pacific. The panel evaluated each of these individually and then grouped the better ones into 20 "legs". The panel ranked the legs by allowing each of the 11 voting members to choose only 9 legs, with three legs each of highest (3), middle (2), and lower (1) priority. Panel members who were proponents of any leg, or portion thereof, were not allowed to vote for that leg (*). The results are tabulated below:

RANK	LEG	VOTES	(VOTE/11-*)
1	BONINS (Island arc rifting, arc & forearc evolution, diapirism)	* 3 3 3 3 3 2 2 1	2.0
1	JAPAN SEA (Continental back arc spreading, back arc thrusting, paleoceanography)	3 3 3 3 3 3 3 1	2.0
3	BANDA/SULU (Trapped marginal basins, silled basin paleoceanography)	* * 3 3 3 2 2 2 1	1.78
3	SOUTH CHINA SEA (Passive margin and marginal basin evolution)	* * 3 3 3 2 2 2 1	1.78
5	NANKAI (Accretionary processes)	3 3 2 2 2 2 2 1 1	1.64
6	VANUATU (Ridge collision, arc rifting, arc reversal)	* 3 3 3 2 2 1 1	1.5
7	OKINAWA-RYUKYU (Continental arc rifting, forearc tectonics)	3 3 3 3 2 1 1	1.45
8	LAU-TONGA (Back arc spreading, arc & forearc evolution, Louisville collision)	3 2 2 2 1 1 1 1 1	1.27
9	ZENISU-SHIKOKU (Intraplate thrusting, back arc basin evolution)	* 3 2 2 1 1	0.9
10	SUNDA (Accretion vs nonaccretion, slump fans, lower-slope basins)	* 3 3 1 1	0.8
11	SOLOMONS (Plateau collision, arc reversal, intra-arc basin evolution)	2 2 1 1 1 1	0.73
12	KURIL-JAPAN TRENCH (Continental forearc evolution, arc-arc collision)	2 2 2 1	0.64
13	N. MARIANA (Island arc rifting, arc & forearc evolution, diapirism)	* 3 1 1	0.5
13	FOREARC DIAPIRS (Petrology, structure, hydrogeology: 19,26,31°N Mariana-Bonins)	* 3 2	0.5
15	VALU-FA (Zero-aged backarc spreading center)	2 1 1 1	0.45
15	MANILA-TAIWAN (Forearc basin evolution, accretionary processes)	2 2 1	0.45
17	CORAL SEA/G. B. REEF (Passive margin evolution, carbonate-epiclastic sedimentation)	2 1	0.27
17	TTT-SAGAMI TRENCH (Triple junction sedimentation, deformation & tectonics)	2 1	0.27
17	WPAC DOWNHOLE (Monitor 3-plate crustal deformation south of Tokyo)	2 1	0.27
20	LORD HOWE/NORFOLK/3 KINGS		0



THE WESTERN PACIFIC

Report of the Information Handling Panel meeting,
College Station, Texas, September 9-11, 1985

Summary

1. Publications policy. The IHP restated its firm committment to a strong ODP publication program, and concluded that the two-part program adopted last year by PCOM still best meets the needs of the scientific community. To deal with the current financial shortfall the Panel endorses the conclusions and recommendations of the PCOM Publications Review Subcommittee. We recommend that (1) post-cruise conferences proceed on schedule; (2) all necessary material for Part A volumes be ready at the post-cruise conferences; (3) as a temporary expedient basic, cheaply-printed Initial Core Descriptions be produced for the early legs; (4) as Part A volumes can be completed, they are shelved to await funding for publication; (5) Part B. manuscripts be scheduled as originally planned, and shelved when received to await funding for editing and printing. The Panel concluded that ODP must maintain responsibility for publication of "Part B" peer-reviewed scientific reports by some means, and our proposal for a Part B volume seems ultimately to serve best the scientific community at a cost no higher than alternative proposals.

The IHP feels that the proposed "steady state" publications costs of $2.1 million are reasonable and in line with percentage publication costs of other large science programs. We recommend that publications be given a very high priority when and if additional funding becomes available, to facilitate earliest possible publication of Part A volumes. If anticipated improvement in funding does not occur, IHP asks to meet on an emergency basis to evaluate further options.

In our assessment, if the results of the ODP are not published in an adequate and coherent form, the Project loses its only universally visible product.

2. Logging data. IHP recommends that the routine wireline logging results be published, as edited and selected by the logging operator in consultation with the science operator, in Part A at the scale of the barrel sheets. If financial or production constraints preclude this, representative logs should be published and the presense of all logging data indicated on the core descriptions. Non-routine downhole measurements should appear as individual scientific experiments in Part B.

3. Other subjects. The following matters were also considered at the IHP meeting, and are covered in the attached report.

(a) Logging data distribution policy
(b) Appointment of a liaison to IHP from the logging operator.
(c) Sample curation policy, especially regarding requests for whole round core samples for destructive shipboard analysis.
(d) Status of ODP data bases and data aquisition
(e) Status of Micropaleontology Reference Centers
(f) Status of ODP computer services
(g) Need for representative sampling for consistent correlation

of various measurements.

(h) Relation of ODP Data Bank at LDGO to other data banks and services.

(I) Request for a Japanese representative on IHP.

1985 ANNUAL REPORT OF SITE SURVEY PANEL

J.W. PEIRCE, CHAIRMAN

DECEMBER, 1985

During 1985 the Site Survey Pannel (SSP) met in June in Halifax and in November in Tokyo.

In order to provide a consistent set of guidelines for the planning and assessment of site surveys, the SSP finalized and refined the Site Survey Data Standards matrix (p.65 in the special issue of JOIDES Journal). Further amplifications to it are being written, based on our experience from hands-on assessment of site surveys this year.

The site survey data for the Chile Triple Junction was formally reviewed in April and found to be clearly inadequate. As no additional site survey was possible, plans for drilling there have been dropped.

At the June meeting the SSP agreed to take on the responsibility of formally assessing the site survey data sets for each drilling package, beginning with Leg 110. Because of the extra work load of this responsibility, the SSP requested a second member from the U.S. (Langseth and Duennebier have now replaced Orcutt) and have asked the U.S. and Japan to fill their vacant alternate positions.

To date, preliminary assessments have been done for the Peru Trench, Weddell Sea and North Kerguelen. Shortcomings have been identified, and the SSP and the Data Bank are working with the parties involved to get these gaps filled.

Advance input on site survey plans has been given for the Sub-Antarctic, Southwest Indian Ridge, Neogene Package, and Makran areas. Detailed site by site assessment forms are compiled for mature drilling proposals which have completed site surveys with the data deposited in the Data Bank. A general summary is available for the site survey status in the Indian Ocean and a panel member has been assigned responsibility to follow each major drilling package. A similar summary is in the initial stages of preparation for the Western Pacific.

The Data Bank budgeting situation is a matter of great concern to the SSP. The cuts which were imposed in FY1986 were illogical in concept and arbitrary in administration. The result will be that the Data Bank will not be able to support the ODP community to the extent demanded, and most of the cuts will be related to requests for drilling proposals and for post-cruise science. First priority needs (SSP, PPSP and Science Operator) will not be affected directly.

The SSP considers the maintenance of a well organized, centralized data base to be essential to optimize the science of ODP. The ODP Data Bank must be funded adequately for SSP and PPSP to function properly. The SSP feels that PCOM has not supported the Data Bank as strongly as it should have in 1985. We trust that more support for the Data Bank will be forthcoming from PCOM and the ODP community now that the JOI Review Committee has submitted its positive report.

JWP/ms
JWP#1

ANNUAL REPORT OF THE POLLUTION PREVENTION AND SAFETY PANEL

G. Claypool, Chairman, reported that during 1985 the PPSP met in New Orleans, La. in March and in Paris, France in October.

At the March meeting the Safety Panel discussed potential safety considerations for drilling in hydrothermal areas and agreed that advice should be sought from experts (e.g. Los Alamos Laboratories) in the area of hot rock drilling. In addition, the panel examined proposed drilling sites for Legs 104 (Norwegian Sea), 105 (Baffin Bay) and Leg 106 (MARK).

Leg 104: PPSP reviewed 7 sites, approved 3 as proposed and placed conditions on the remaining 4 sites. The panel also expressed concern that previous drilling during DSDP (Site 341) demonstrated the presence of shallow biogenic gas and fluorescence suggestive of migrated hydrocarbons. For that reason rotary drilling was not approved in this area.

Leg 105: Having approved all Baffin Bay sites at the August 1984 meeting, the Safety Panel reviewed 8 prospective Labrador Sea sites. PPSP approved 4 as they were proposed, 3 with conditions and rejected 1.

Leg 106: PPSP approved both MARK-1A and MARK-1B as they were proposed.

At the Paris meeting, PPSP reviewed proposed drilling sites for Legs 107 (Tyrrhenian Sea), 108 (NW Africa), 109 (MARK II) and 110 (Barbados).

Leg 107: PPSP reviewed 16 possible sites, approved 9 as they were proposed, approved 4 with conditions and rejected 3.

Leg 108: PPSP reviewed 8 possible sites and approved all as they were proposed.

Leg 109: PPSP approved deepening of the Leg 106 MARK I site.

Leg 110: PPSP reviewed 7 proposed sites, approved 5 as they were proposed and approved 2 with conditions. The Safety Panel also advised that special engineering methods may be required to drill the high-pressure zone encountered during DSDP Leg 78A drilling.

During 1985, the PPSP has also revised and rewritten the Safety Manual. This manuscript has been submitted to the JOIDES Office for publication.

ENGINEERING PRIORITIES

October 4, 1985

University of Rhode Island
Narragansett, Rhode Island
02882-1197

ATTN: Dr. Roger Larson
SUBJECT: Engineering Workshop held at TAMU on September 4th/5th, 1985

Roger,

The engineering workshop held by ODP's Engineering and Operations Group last month in College Station was from all comments extremely beneficial both to the attendees and to ourselves. This year's workshop really was not so much a working session to discuss specific engineering/drilling problems as it was a general orientation.

One of our objectives, prior to having that meeting, was to get science community input to help ODP set what the short-term goals for future engineering projects should be. As we continually accentuated during the meeting, at the present time our engineering department is understaffed, and during FY '86 the budget for engineering development has only minimally been funded.

The responses to prioritizing the list of projects for future engineering development work clearly fell into 2 distinct groups:

GROUP I - HIGHER PRIORITY

- Bit Development
- Heave Compensator Compatibility for Piston Coring
- Hard Rock Spud System
- High Temperature Drilling/Coring Adaptations

GROUP II - MEDIUM PRIORITY

- Lockable FLAPPER (FLOAT VALVE)
- Drill-in Casing (Compatible with Re-entry)
- Pressure Core Barrels (Insitu Samplers)
- Drill String Dynamics
- Upgrade Hydraulic Bit Release
- Core Liner Improvements

Ocean Drilling Program
Texas A&M University
College Station, TX 77843-3469
(409) 845-2673

Roger, while the above priorities represent only a small sample from the scientific community, it could be considered representative to a degree. I wanted to get the above results to you prior to the PCOM meeting in order that it may be of some use during that meeting. Most of the projects through Leg 109 requiring engineering are underway or are nearly finished. Remember that expensive projects require 12 months from conception, to design, to detailing, to fabrication and testing prior to sending to the ship.

Any direction that you or PCOM can give to us is appreciated.

On Behalf of the
Ocean Drilling Program,

B W Harding

Barry W. Harding
Mgr. of Engr. & Drilling Operations

BWH:lc

cc: Lou Garrison
Phil Rabinowitz
Dan Hunt

REVIEW

OF THE

JOIDES

SCIENTIFIC ADVISORY STRUCTURE

EVOLUTION OF THE JOIDES SCIENCE ADVISORY STRUCTURE (SAS)

1. Since its inception in 1968, the JOIDES Science Advisory Structure has evolved from what were initially rather ad hoc panels through a thematic panel structure to the present mix of thematic and regional panels.

2. In 1968, the advisory panels had their main emphasis on regional and technical matters but within two years these had developed to cover a number of thematic issues. By 1974, the IPOD thematic panels had been formed and the regional panels were being phased out. The thematic panels (covering smaller scientific areas than the present thematic panels) operated successfully during the IPOD period and into the initial planning for ODP. Regional matters, during IPOD, were covered by the formation of ad hoc regional working groups, which contrasts with the standing regional panels of ODP.

3. In September 1982, the Executive Committee asked PCOM to devise an advisory structure more appropriate for achieving the objectives of the ODP and to phase-out the existing IPOD structure. Following extensive discussions, a new panel structure was accepted by PCOM in 1983, and in January 1984, the present structure was instituted. The history of the panels' evolution from 1968 to the present is shown in the attached diagrams. The full terms of reference of the present structure can be found as Annex 1 in the PCOM Policy document.

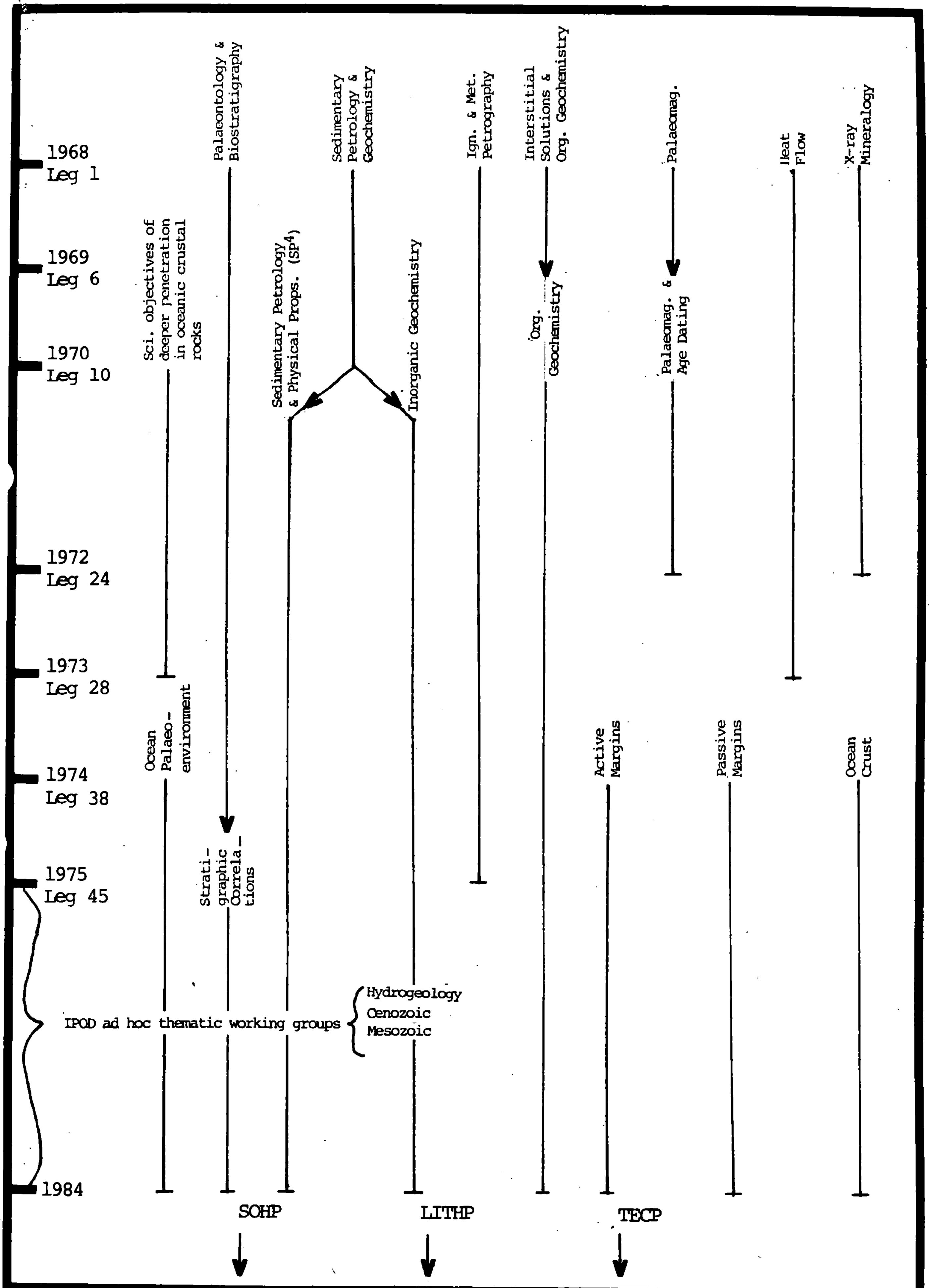
4. At the October 1985 meeting, members of PCOM expressed concern at the effectiveness of the current structure in developing well-balanced programs. Some concern was also expressed at the apparent predominance of the regional panels and the breadth of the thematic panels in devising a drilling program to meet the essentially thematic objectives of COSOD.

5. Correspondence has been received by the JOIDES Office from G.M. Purdy (LITHP Chairman) and from M.A. Arthur (SOHP Chairman) and M. Leinen (WPAC and LITHP member) criticising the present structure and advocating a revised panel system. This correspondence is also included in the papers.

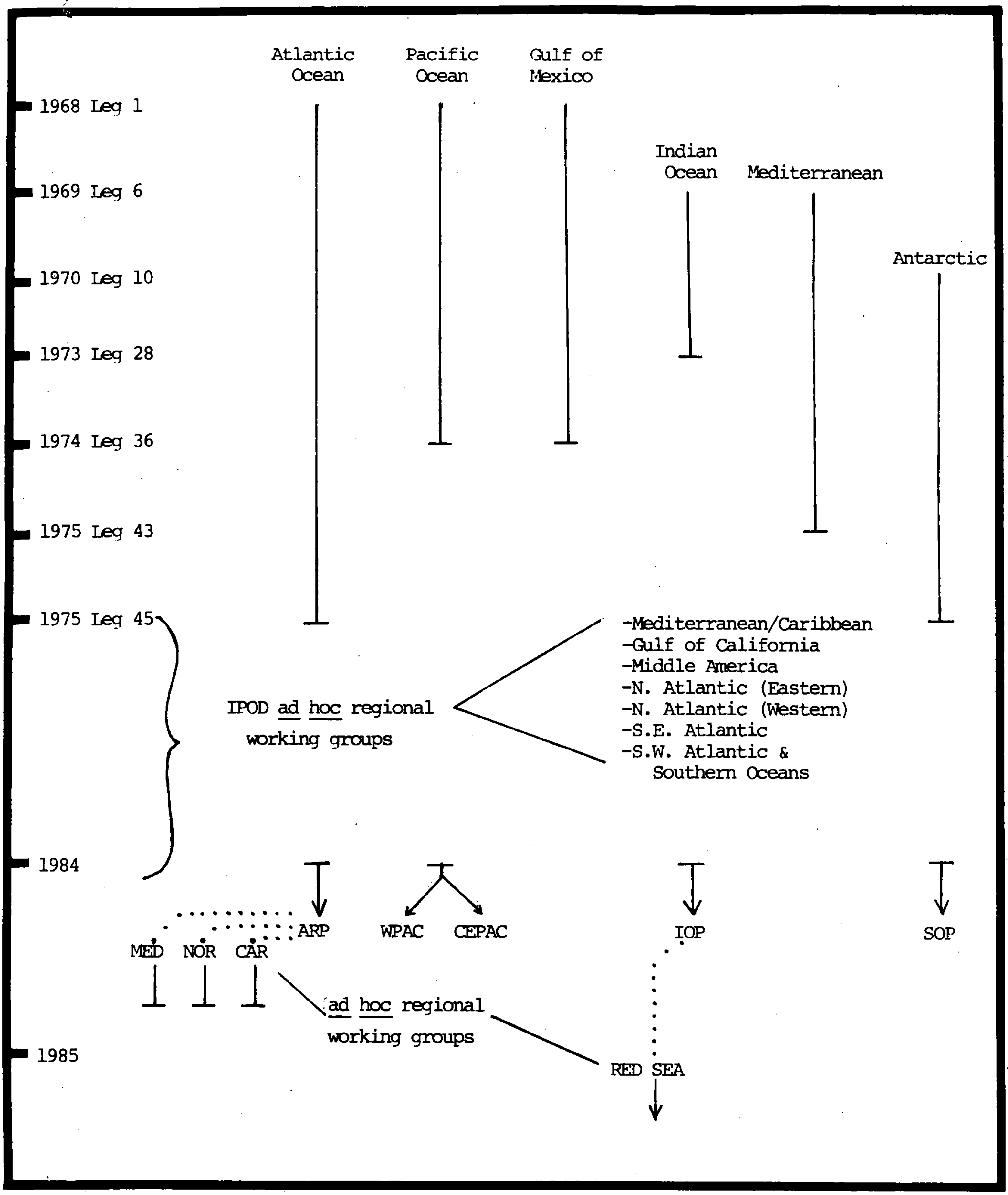
6. It was agreed that the present Science Advisory Structure should be reviewed at the Janaury 1986 meeting of PCOM.

AESM 12/85

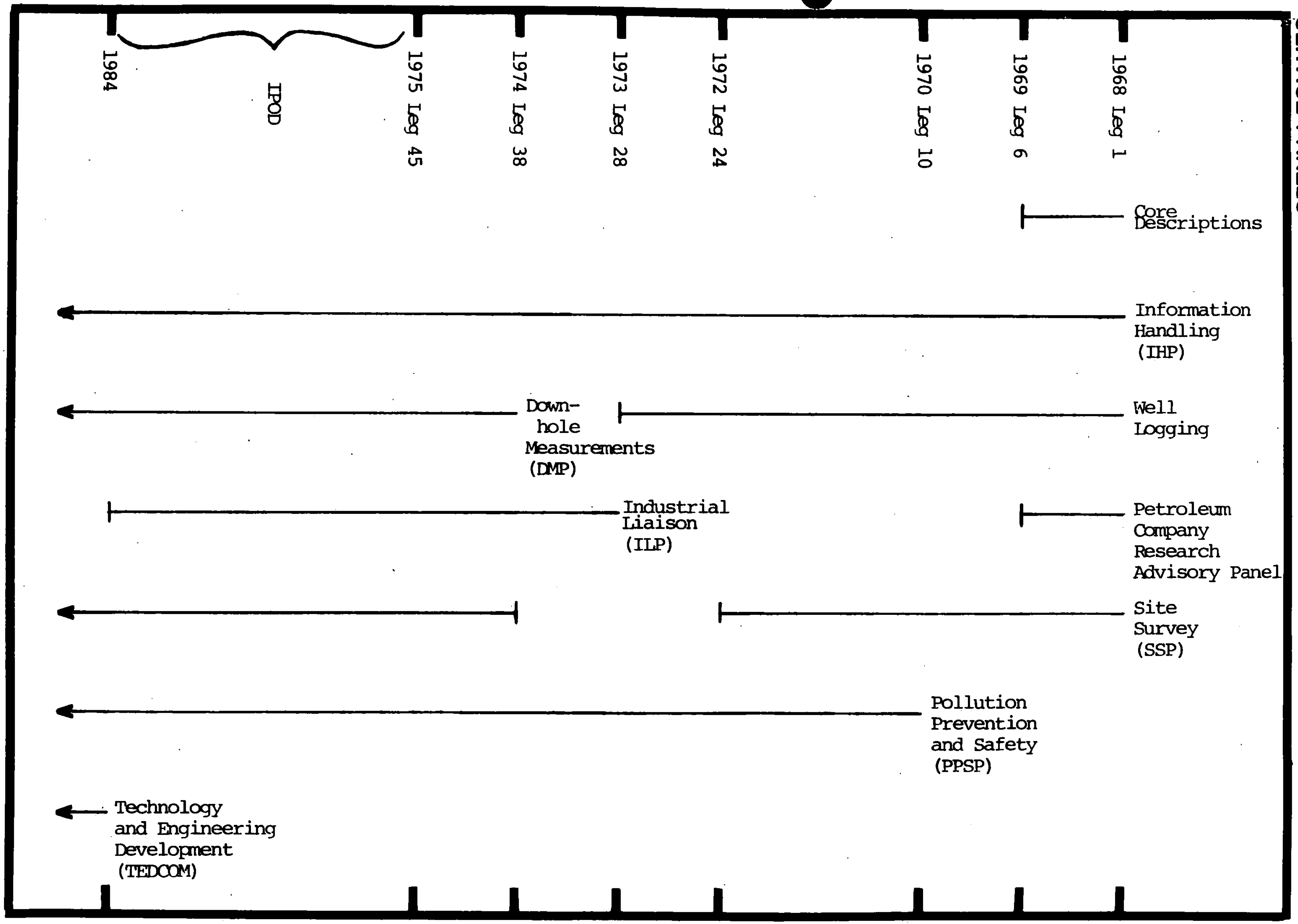
THEMATIC PANELS



REGIONAL PANELS



SERVICE PANELS



Woods Hole Oceanographic Institution
Woods Hole, MA 02543
Phone: (617) 548-1400
Telex: 951679

November 18, 1985

Dr. Roger Larson
JOIDES Office
Graduate School of Oceanography
University of Rhode Island
Narragansett, RI 02882-1197

Dear Roger,

I wish to inform you of my intention to resign from the chairmanship of the Lithosphere Panel effective following the January PCOM.

Next year will be a vitally important year for LITHP objectives and my commitments to field programs in 1986 will require my absence during times of crucial decision-making. I think the drilling project would be better served by a chairman able to devote more time to his responsibilities during the exciting times of 109 and EPR/504B. Also, I am experiencing significant funding difficulties and unless I reduce my extra-curricular activities and focus on generating (even) more proposals, my group will be in serious difficulties in the months to come.

There is little doubt, however, that my willingness to give up the chairmanship is strongly influenced by my considerable disillusionment with the Drilling Project. I strongly support the conclusions of COSOD and my perception is that PCOM only pays 'lip-service' to the COSOD document by supporting a few high-visibility projects like bare rock spud-in and high latitude drilling. The emphasis on processes, however, is lost; the concept is ignored of focussing the drilling resource on the few fundamental problems that are sufficiently well-posed to justify the use of such a costly tool. The existing drilling plans represent the drilling vessel as a globally-wandering, miscellaneous problem-solver.

Along with studies of the earth's climate, I view the determination of how the material is generated that covers two-thirds of our planet (i.e. oceanic lithosphere) to be the most crucial issue in marine sciences. There are a number of vital objectives towards this end (clearly outlined in the COSOD report and repeatedly enumerated by LITHP) that can be attained <u>only</u> by drilling. These will not be achieved because of the PCOM's apparent policy of sharing the drilling resource between the various competing proposals on the basis of time. This is illogical. The cookies in the jar that PCOM hands out should be solutions to problems, not drilling legs or drill holes. <u>If</u> it takes one year of drilling to achieve a lithosphere objective compared with one month to solve some climatic problem, then so be it. It is a sad fact that drilling hard rock takes longer than drilling sediment - it is, thus, unreasonable to apportion comparable amounts of drilling time to the achievement of such widely differing objectives.

I disagree with the overall context within which the drilling proposals are reviewed - insufficient attention is paid to the 'big' priorities - time is wasted drilling second-order and/or regional objectives. COSOD and the Thematic Panels have defined the priorities: why not devise a schedule based on the first priorities of SOHP, TECP and LITHP? And then concentrate on achieving these objectives - I am sure our resources will be stretched to their limit even in achieving this - we cannot afford to squander effort on anything other than the absolute highest priorities. I see the very limited drilling resources divided between attempts to achieve so many objectives that too few will be satisfactorily attained.

I know that you are well aware that, despite the realities of funding limitations, the ODP is a powerful force capable of exciting progress in the next few years. But, it has to focus on first-order objectives and drilling must be apportioned among the disciplines on the basis of solving problems, not naively on the basis of time.

If you should so wish I will be happy to remain as a regular member of LITHP during 1986.

Yours sincerely,

Mike

G.M. Purdy

GMP:mc

November 27, 1985

MEMORANDUM

TO: Roger Larson, Chairman, JOIDES Planning Committee
FROM: Michael A. Arthur, Chairman SOHP and member Red Sea Working Group,
Margaret Leinen, member Lithosphere Panel and Western Pacific Panel

RE: JOIDES Panel Structure

It has now been over 2 years since the present JOIDES panel structure was initiated for ODP and we believe that there has been sufficient time for the community to judge how well the system functions. We believe that it is time to re-evaluate the structure, particularly in light of the fact that several panel chairmen have resigned during the last year, some of them because they felt frustrated in their attempts to promote and represent their panel's views.

The rationale for the new ODP panel structure seems to have been based on at least two views in the community: one was an underlying impression from reviews of the program that the JOIDES advisory panel organization during the days of the Deep Sea Drilling Project was not optimum for setting and prioritizing objectives for the new Ocean Drilling Program; another that it was an opportune time to present a new face to the community. We believe that the organization that evolved ignored the fact that the panel structure during DSDP did work very well overall and there were aspects of it that were quite good. We believe that the present panel structure invites conflict between thematic and regional panels as well as forcing a substantial duplication of effort. In addition, we believe that it creates obstacles for effective long-term planning. Herein we offer our unsolicited opinions about the shortcomings of the present structure and some suggestions for improvements to be made.

We believe that the fundamental problem is that the present structure places the thematic and regional panels on an equal footing. We wholeheartedly believe that substantial input from geologists and geophysicists with expertise in specific regions is required to develop reasonable drilling targets, but we believe that the fundamental problems that all of us would like to answer by drilling are process-oriented, not geographic. We note that COSOD was not organized to examine problems in specific ocean basins, but instead dealt with its broad mandate by highlighting important scientific problems of global significance within certain fundamental thematic areas. In our view it was essentially this document (which provided the evidence of consensus in the marine geology community for drilling to solve geologic problems) that launched ODP, not the need for further regional reconnaissance.

One of the best illustrations of the ineffectiveness of the present structure for planning purposes is the evolution of the proposed drilling program in the Indian Ocean. After months of discussion by all panels, PCOM requested that the IOP put together the drilling program. In the resulting plan many top-ranked priorities of thematic panels, which were based on problems identified by COSOD, were essentially ignored. For example, the first priority Indian Ocean objective of TECPAN, the Makran accretionary prism and slope basins, has been dropped entirely from the program outlined by IOP for reasons that are not apparent in the minutes of either panel. A high-priority objective of SOHP was a deep stratigraphic test in the Somali Basin. This objective was proposed as part of the broad global theme of correlating paleoceanographic events with margin acoustic signatures. This theme was identified in the COSOD document as having fundamental importance, but was also dropped from the drilling program with this comment : "...and [we] are especially opposed to devoting one plus leg to the deep north Somali Basin site. Single-site legs are a luxury not yet possible in the reconnaissance phase of drilling in the Indian Ocean." We believe this is a pre-emptory attitude about appropriate use of the drilling tool, and would hate to see a return to the"cover the globe" philosophy of drilling that typified much of DSDP. In addition, we have been told that we must spend some time in the Red Sea for "logistic" reasons, although many of the proponents believed that it would be wise to await availability of drilling tools that would withstand the rigors of penetrating hot, corrosive hydrothermal fluids and for deployment of the riser/BOP system that will allow penetration of evaporites and associated strata before bringing the *Resolution* into the Red Sea for one or more legs.

The above examples serve to illustrate the competitive functioning of the multiheaded structure that we now have. Our intent is not to throw stones at the Indian Ocean Panel, its members, or any other regional panel. Having been on regional panels we know for a fact that they view themselves as geologists first, regional experts second. The regional panels are frustrated by the lack of clarity in the panel structure as well. For example, after hours of trying to decide how to respond to PCOM insistence for a regional drilling plan for the Western Pacific, the panel rejected a regional approach and finally decided that the only course that would result in a drilling plan with integrity was to identify thematic objectives and design a drilling plan around them. This planning precisely duplicated that being done by TECPAN and LITH panel. In this situation with many interests competing for a piece of the temporal pie, the ultimate prioritization of drilling targets is being left to the regional panels. We believe that this is inappropriate for a program that is trying to understand geologic processes in an global context.

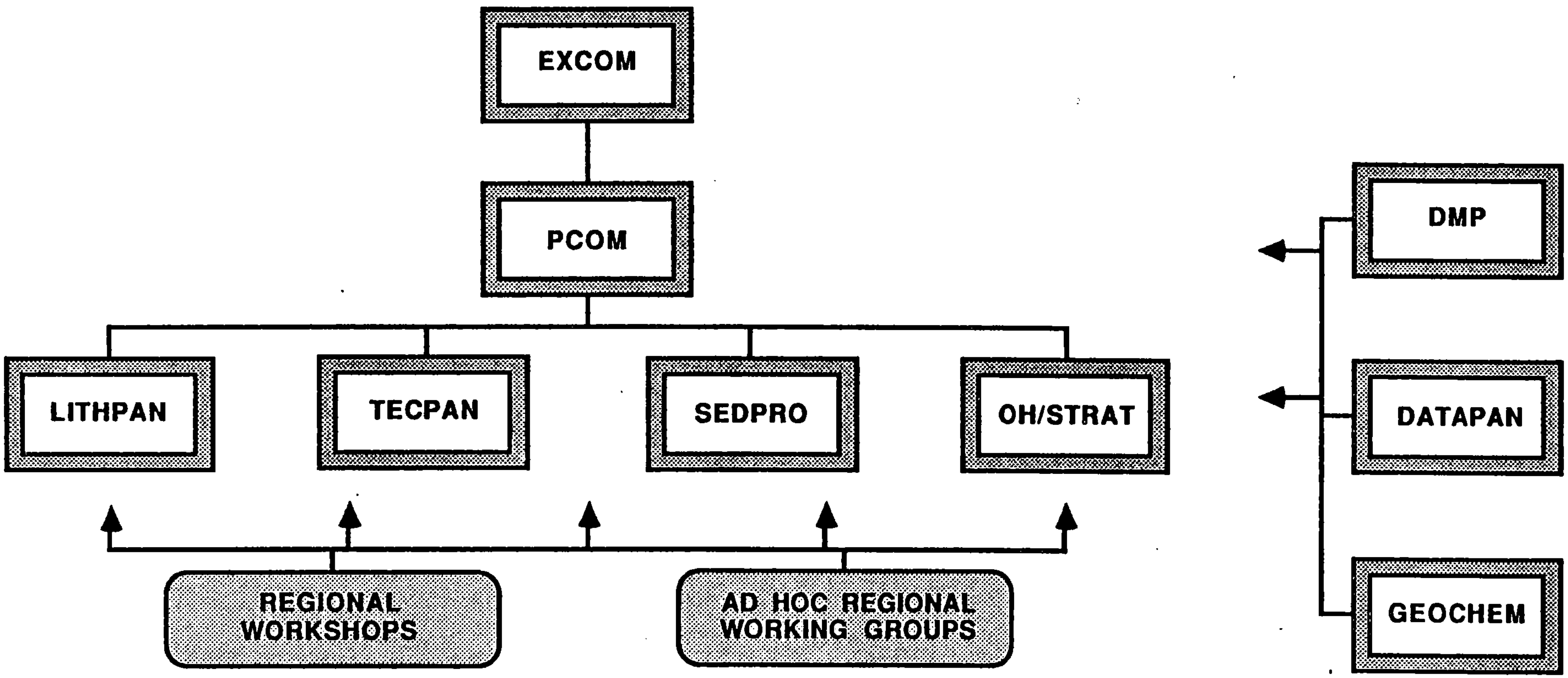
In the case of DSDP, the short-term objectives resulted from the pressure of short-term planning. Every two years a new "fundamental contribution to the science" had to be featured to ensure that the project would survive. With ODP we had the opportunity, and were asked, to consider a set of more focussed objectives with which we could develop a long-term plan for in-depth study. We believe that attempts to do such planning have been frustrated by the infrastructure. For example, the response of LITH panel to the ODP mandate was in the spirit of COSOD; they focussed on several significant problems confronting researchers on the ocean lithosphere, and identified a few highest priority targets in which to study them, including but not restricted to,their "natural laboratories". Yet, some of their highest priority objectives have been passed over to include drilling of "ocean crustal objectives" in other areas that were not promoted or endorsed by the LITH panel until it was clear that they would be on the schedule with or without LITH panel support and that some priorities for sites should be discussed.

We also see substantial duplication of effort between the JOI-USSAC sponsored workshops and similar non-US workshops on regional objectives and the regional panels. In effect, the workshops have performed the job of a regional panel for large areas, like the Indian Ocean, and smaller subregions, like the northeast Pacific. They have provided a forum for discussing thematic concerns and have contributed site-specific proposals and data for consideration and prioritization by the advisory panels. We believe that such workshops provide a good alternative to regional panels. While the JOI-USSAC workshops were established to provide a forum only for U.S. interests in these regions, we believe that the regional workshop concept could certainly be expanded to provide opportunities for other member nations as well. For example, similar workshops could be requested from other countries instead of regional panel participation. Another option would be for JOIDES to hold international workshops instead of separate workshops in different countries. It would seem to be much simpler and less expensive to continue such workshops prior to planning for each ocean basin or region and to allow them to feed directly into thematic panels, eliminating the necessity for the regional panels to meet continuously for the life of the program.

We emphasize that we do not believe that it is appropriate to discontinue all regionally organized input during the planning process and that we most definitely do not want to limit participation in the planning process. During DSDP scientists on the thematic panels often did not have access to the necessary regional geological and geophysical data required in order to develop specific site locations. However, with the approval of PCOM, the thematic panels were able to convene small regional (or topical) working groups as necessary. This process was efficient and responsive to the needs of the thematic panels. We favor a more flexible, ad hoc, arrangement like that one, in which thematic panels could request temporary regional working groups, or could request that they have experts with specific regional interests meet with them for a few meetings while planning for a specific region is being done. We believe that there will be less conflict and duplication if those with regional expertise work with the thematic panels rather than parallel to them.

It is also our opinion that the themes outlined in the COSOD document suggest the optimum organization and hierarchy of advisory panels. These themes are Ocean Lithosphere, Tectonics, Sedimentary Processes, and Ocean History. We suggest that these foci be represented by thematic panels. We recognize that certain technical panels, like the Downhole Measurements Panel and the Information Handling Panel are also necessary to serve as advisors to both the thematic panels and PCOM. We suggest that a Geochemistry Panel be revived and added to these two. Miriam Kastner has called attention to the fact that many important geochemical processes like diagenesis and crustal alteration "fall between the cracks" in the present structure. The problem is not that there are no geochemists on the panels, but that 1) multidisciplinary geochemical problems like diagenesis are not appropriately handled only by panels which are primarily concerned with the themes of ocean lithosphere formation and ocean history, and 2) that one geochemist on a such a panel has little ability to have geochemical problems considered routinely. A typical example is in the field of organic geochemistry, which is represented in its entirety by one person on SOHP. We suggest that the Geochemistry, Downhole Measurements and Data panels be formed as technical panels to advise PCOM and the thematic panels. One conceptual arrangement of these panels is attached.

As a closing comment we emphasize that we hope that PCOM will accept our suggestions in the spirit they were offered -- as the prelude to an open discussion of the panel structure and genuine retrospective on the last two years of planning. They do not represent "sour grapes" and our specific comments on the drilling proposal are included to illustrate specific points and certainly are not meant to denigrate our fine colleagues on regional panels who have wrestled with the problem of how to plan drilling and have tried to solve it as best they could.


EXCOM
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TECPAN
SEDPRO
OH/STRAT
REGIONAL WORKSHOPS
AD HOC REGIONAL WORKING GROUPS
DMP
DATAPAN
GEOCHEM

SUGGESTED PANEL MANDATES

GEOCHEMISTRY PANEL (Service)-CHEMPAN

The JOIDES-ODP Geochemistry Panel will be staffed by approximately 10 geochemists, more or less equally divided between organic and inorganic geochemical specialties. The primary responsibility of the Geochemistry Panel is to provide advice and recommendations to ODP, JOIDES thematic panels and PCOM on special methods of sampling, sample handling, and curating required for specific organic and inorganic geochemical analyses; these include, but are not restricted to, recommendations for development, maintenance and deployment of special devices needed for sampling (in situ or on board ship), storage and handling of samples, and distribution of samples to the geochemical community. In addition, the Geochemistry Panel will consider and recommend specific research and sampling plans to be implemented within the drilling program recommended by other panels and implemented by PCOM. These might include recommendations for acquisition of special "dedicated cores", such as third APC sequences where there is intense interest in the geochemistry of sediments and organic matter, and/or "high resolution" sampling and sediment squeezing for pore waters where interesting interstitial water geochemical gradients are expected; recommendations might also include deployment of the pressure core barrel or in situ pore water sampler where gas hydrates are possible or expected, special instrumentation of drillholes in hydrothermal systems, etc.

OCEAN HISTORY-STRATIGRAPHY PANEL (Thematic)-OH/STRAT

The Ocean History-Stratigraphy Panel will be staffed by 14 specialists and generalists in the area of paleoclimatology, paleoceanography, geochemistry (inorganic, organic, isotopic) seismic stratigraphy and biostratigraphy (see below). The primary responsibility of the OH/STRAT Panel is to formulate and prioritize major themes for drilling that relate to the history of surface-and deep-water circulation, chemistry, thermal structure and biota of the Mesozoic-Quaternary oceans, and to identify and to develop or to endorse proposals for drilling in the regions that would best lead to an understanding of the major paleoceanographic and paleoclimatic problems. In particular the panel would consider drilling objectives that would help to understand causes, consequences and rates of global changes in climate and their impact on ocean circulation, ocean chemistry and biotic evolution using geochemical-isotopic, paleontologic and other stratigraphic criteria. This charge understandably involves the interactions of plate motion, volcanism, sea level, climate and oceanic circulation-chemistry, and it is anticipated that some drilling targets will be formulated to test models of these interactions. In addition, the OH/STRAT Panel will be responsible for developing and endorsing programs that lead to improvements in stratigraphic resolution and global correlation of sequences (bio-magneto-tephro-chemostratigraphy), and for providing advice to ODP on questions of a stratigraphic nature, appropriate sampling, technological developments related to magnetostratigraphy, etc.

The OH/STRAT Panel will have the ability to convene relatively small thematic or regional working groups that will be staffed and will meet as approved by PCOM. The regional working groups could be formed in conjunction with one or more thematic panels. The primary regional input to the thematic panels, however, will be in the form of proposals that result from regional working groups mandated by PCOM or through sponsored national or international workshops.

Panel Membership (type of person suggested--more than one indicates several desirable)
(mix of Mesozoic-Cenozoic workers)

1. Paleoceanographer-stratigrapher-isotopes (N. Shackleton; M. Arthur)
2. Paleoclimate Modeller (E. Barron)
3. Paleoceanographer-stratigrapher (H. Thierstein; C. Sancetta or J. Barron; R. Thunell)
4. Geochemist-sedimentologist-paleoceanographer (W. Dean or M. Leinen)
5. Seismic stratigrapher-phys. props.-paleoceanographer (L. Mayer)
6. Magnetic stratigrapher (D. Kent or L. Tauxe)
7. Generalist-mass balances-models (W. Hay)
8. Biostratigrapher-paleoceanographer-evolutionist (J. Kennett or W. Berggren)
9. "Paleometeorology-atmospheric transport"-paleoceanographer (D. Rea or M. Sarnthein)
10. Chemical stratigraphy-chemical diagenesis (M. Bender or P. Baker)
11. Organic geochemist-paleoceanographer (J.-P. Herbin or P. Meyers)

SEDIMENTARY PROCESSES PANEL (Thematic)--SEDPRO

(alternative name SEDIMENTARY FACIES PANEL--SEDFAC)

The Sedimentary Processes Panel will be staffed with 14 specialists and generalists in the fields of sedimentary processes, sedimentary facies and lithostratigraphy, seismic stratigraphy, and chemical diagenesis (see below). The SEDPRO Panel's primary responsibility will be to develop priority thematic objectives related to marine sedimentary processes and their relative importance in construction of marine stratigraphic sequences through time, particularly, but not limited to, those processes that transport clastic material from shallower water environments into the deeper ocean basins and transportation and reworking of sediments within ocean basins and their seismic expression. These processes include redeposition by slumps, slides, debris flows and turbidity currents and erosion, entrainment and transport by bottom currents. The mandate includes construction of drilling programs that investigate the composition and geometry of sedimentary facies on modern and ancient deep-sea fans, archipelagic aprons, current-influenced depositional ridges, atolls and guyots, and carbonate banks and slopes in order to develop a better understanding of the controls on composition and facies distribution exerted by tectonics and basin geometry and sea level. In addition, the SEDPRO Panel will consider problems of sediment diagenesis related to initial composition, burial depth and compaction, and thermal regime.

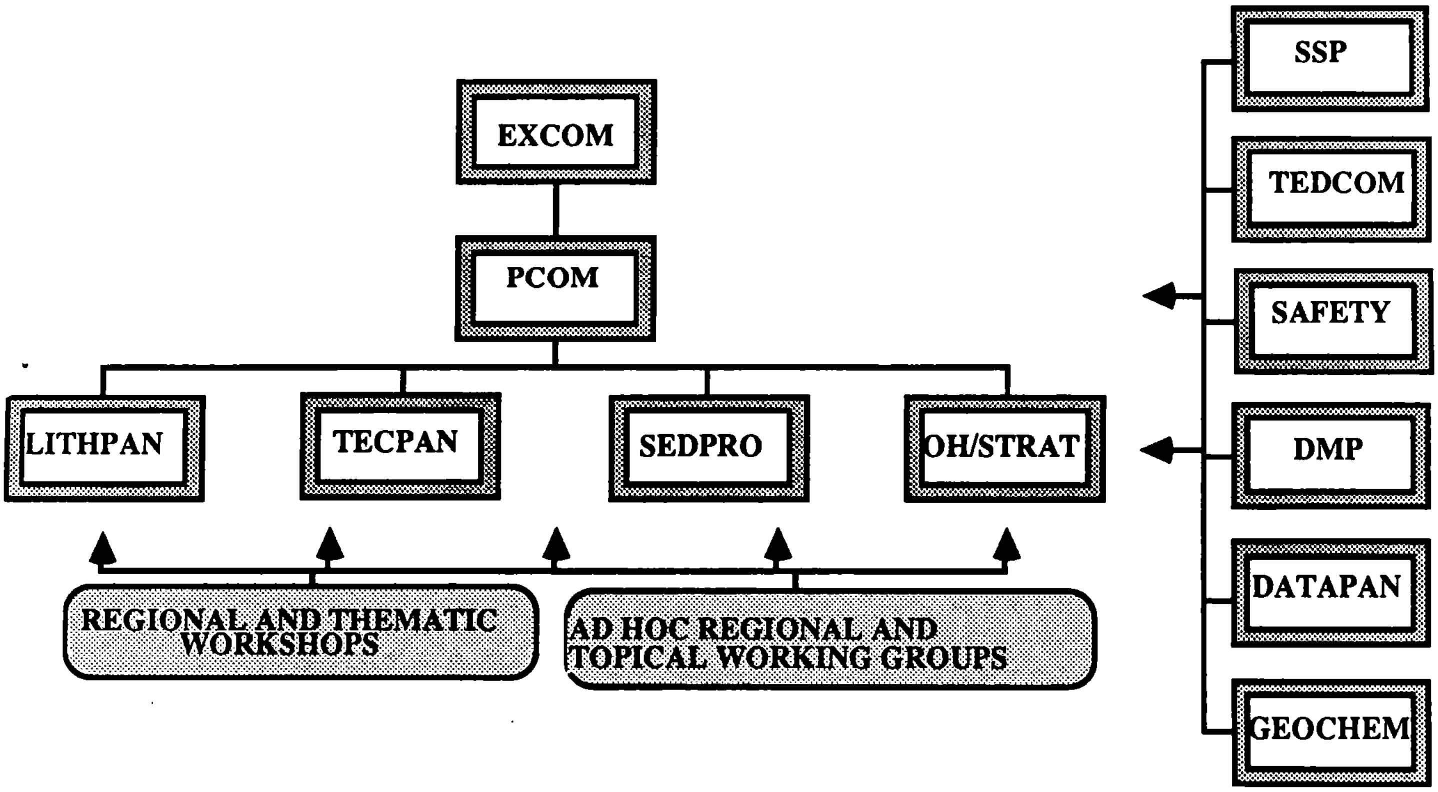
The SEDPRO Panel will have the ability to convene small regional or thematic working groups from time to time as necessary and approved by PCOM, and in conjunction with other thematic panels. The primary regional input, however, will be in the form of proposals resulting from regional working groups mandated by PCOM and from sponsored national or international workshops.

<u>Panel Membership (type of person suggested--more than one indicates several desirable) (suggested members designed to overlap and cover several disciplines)</u>

1. Seismic stratigraphers-lithostratigraphers (B. Tucholke; R. Sarg or J. Austin; G. Mountain)
2. Deep-Sea Fan specialist (W. Normark)
3. Sediment Redeposition-margin processes (R. Embley)
4. Drift Sediments-abyssal circulation (S. Shor or K. Miller)
5. Rock magnetic properties (J. King or M. Ledbetter)
6. General sedimentologist (fans, contourites, etc.) (D. Stow)
7. Chemical sedimentologist -hydrothermal and/or diagenesis (M. Leinen or M. Kastner)
8. General sedimentologist (carbonates, diagenesis, etc.) (R. Garrison)
9. Shallow-water carbonate sedimentologist (W. Schlager or H. Mullins or R. Matthews)
10. Global generalist-sediment mass balances (W. Hay or R. Berner)
11. "Volcanic edifice" sedimentologist (guyots, atolls, etc.) (S. Schlanger or E.L. Winterer)

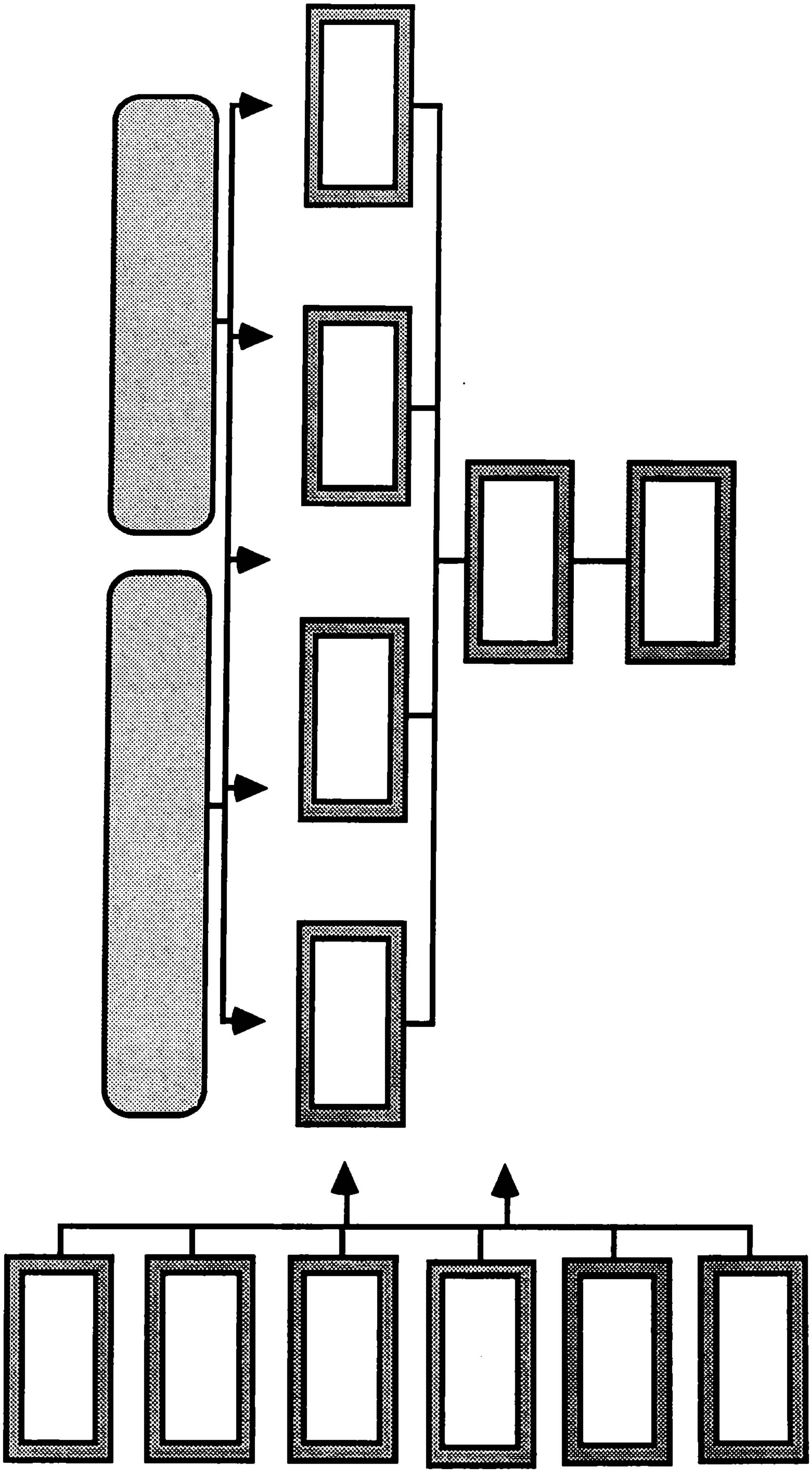
LITHOSPHERE (LITHPAN) AND TECTONICS (TECPAN) PANEL mandates would remain essentially unchanged with the exception that aspects of "sediment diagenesis" would be removed from LITHPAN's mandate.

REGIONAL Panels could be left largely unchanged and/or some members could move onto the thematic panels as original members rotate off on a 2-3 yr. schedule. The Regional Panels would then meet as needed rather than the present mandatory 3 times per year and would feed input into thematic panels through more effective liaison. ARP, SOP and IOP, for example, could now be disbanded since they have had substantial input into the program and plans for drilling are well underway. The WPAC and CEPAC panels could operate for the next 1-2 yrs. as necessary, until plans for Pacific drilling are well-formulated.



EXCOM
PCOM
LITHPAN
TECPAN
SEDPRO
OH/STRAT
REGIONAL AND THEMATIC WORKSHOPS
AD HOC REGIONAL AND TOPICAL WORKING GROUPS
SSP
TEDCOM
SAFETY
DMP
DATAPAN
GEOCHEM

HAVE FUN - DESIGN YOUR OWN STRUCTU



PANELS

MEMBERSHIP

JOIDES PANEL/WORKING GROUP MEMBERSHIP AND LIAISONS
(as of December 1985)

LITHOSPHERE PANEL

1. Chairman to be appointed
2. Delaney, J. (UW)
3. Fujii, T. (Japan)
4. Hawkins, J. (SIO)
5. Juteau, T. (France)
6. Langmuir, C. (LDGO)
7. Leinen, M. (URI) + WPAC
8. MacDonald, K. (UCSB)
9. Malpas, J. (Canada)
10. Petersen, N. (FRG)
11. Purdy, M. (WHOI)
12. Saunders, A. (U.K.)
13. Sclater, J. (UT) + IOP
14. Sinton, J. (HIG) + CEPAC

Liaisons
Honnorez (PCOM)
McDuff (PCOM)
Adamson (ODP/TAMU)

SEDIMENTS & OCEAN HISTORY PANEL

1. Chairman to be appointed
2. Arthur, M. (URI) + RS-WG
3. Embley, R. (NOAA-Newport, OR)
4. Hay, W. (U. Colo.)
5. Lancelot, Y. (France) + CEPAC
6. Mayer, L. (Canada)
   Alt.: Mudie, P.
7. Meyers, P. (U. Mich.)
8. Ruddiman, W. (LDGO)
9. Saito, T. (Japan)
   Alt.: Okada H.
10. Sarg, R. (Exxon)
11. Sarnthein, M. (FRG)
12. Shackleton, N. (U.K.)
13. Suess, E. (OSU) + SOP
14. Tauxe, L. (SIO) + IOP

Liaisons
Kastner (PCOM)
Gartner (PCOM)
Palmer (ODP/TAMU)

TECTONICS PANEL

1. Cowan, D., Chairman, (UW)
2. Becker, K. (RSMAS) + DMP
3. Blanchet, R. (France)
4. Ewing, J. (WHOI)
5. Hinz, K. (FRG)
6. Howell, D. (USGS, Menlo Pk.)
7. Marsh, B. (Johns-Hopkins)
8. Nakamura, K. (Japan) + WPAC
9. Riddihough, R. (Canada)
10. Vogt, P. (Naval Res. Lab.)
11. Weissel, J. (LDGO) + SOP
12. to be appointed (U.K.)

Liaisons
Hussong (PCOM)
to be appointed (PCOM)
Auroux (ODP/TAMU)

DOWNHOLE MEASUREMENTS PANEL

1. Salisbury, M., Chairman (Canada)
2. Becker, K. (~~SIO~~) + TECP
3. Bell, S. (Canada/member-at-large)
4. Georgi, D. (Exxon)
5. Goodman, R. (U. CA, Berkeley)
6. Howell, E. (Arco)
7. Jageler, A. (Amoco)
8. Jung, R. (FRG)
9. Kinoshita, H. (Japan)
10. Olhoeft, G. (USGS, Denver)
11. Pozzi, J-P. (France)
12. Sayles, F. (WHOI)
13. Timur, T. (Chevron)
14. Traeger, R. (Sandia Labs)
15. Worthington, P. (U.K.)

Liaisons
McDuff (PCOM)
Von Herzen (PCOM)
Anderson (LDGO/Logging)
O'Connell (ODP/TAMU)

INFORMATION HANDLING PANEL

1. Appleman, D., Chairman (Smithsonian)
2. Gibson, I. (Canada)
3. Hathaway, J. (WHOI)
4. Latremouille, M. (Canada/member-at-large)
5. Loeblich, A. (UCLA)
6. Loughridge, M. (NOAA-Boulder)
7. Nowak, J. (FRG)
8. to be appointed (France)
9. to be appointed (U.K.)
10. to be appointed (Japan)

Liaisons
Gartner (PCOM)
Cadet (PCOM)
Merrill (ODP/TAMU)

POLLUTION PREVENTION & SAFETY PANEL

1. Claypool, G., Chairman (USGS, Denver)
2. Ball, M. (USGS, WHOI)
3. Byramjee, R. (France)
4. Campbell, G. (Canada)
5. Green, A. (EXXON)
6. MacKenzie, D. (Marathon)
7. Stober, G. (FRG)
8. to be appointed (Japan)
9. to be appointed (U.K.)

Liaisons
PCOM Chairman
Garrison (ODP/TAMU)

SITE SURVEY PANEL

1. Peirce, J., Chairman (Canada)
   Alt. Canadian Rep.: Louden, K.
2. Duennebier, F. (HIG)
3. Langseth, M. (LDGO)
4. Mauffret, A. (France)
   Alt.: Renard, V.
5. Suyehiro, K. (Japan)
6. Weigel, W. (FRG)
   Alt.: Wong, H.
7. to be appointed (U.K.)

Liaisons
~~Beiersdorf~~ (PCOM)
~~Robinson~~ (PCOM)
Brenner (LDGO/Databank)
Kidd (ODP/TAMU)

ATLANTIC REGIONAL PANEL

1. Austin, J., Chairman (UT)
2. Bally, A. (Rice)
3. Jansa, L. (Canada)
4. Klitgord, K. (USGS, WHOI)
5. Mascle, J. (France/member-at-large)
6. Montadert, L. (France)
7. Mutter, J. (LDGO)
8. Speed, R. (Northwestern)
9. Thiede, J. (FRG)
10. Tucholke, B. (WHOI)
11. Whitmarsh, R. (U.K.)
12. Okada

Liaisons
Cadet (PCOM)
Shipley (PCOM)
Baldauf (ODP/TAMU)

CENTRAL & EASTERN PACIFIC REGIONAL PANEL

1. Rea, D., Chairman (U. Michigan)
2. Chase, R. (Canada)
   Alt.: Davis, E.
3. Cowan, D. (UW) + TECP
4. Francheteau, J. (France)
   Alt.: Bourgois
5. Johnson, P. (UW)
6. Lancelot, Y. (France/member-at-large) + SOHP
7. Mammerickx, J. (SIO)
8. Okada, H. (Japan)
9. Scholl, D. (USGS, Menlo Pk.)
10. Sinton, J. (HIG) + LITHP
11. von Stackelberg, U. (FRG)
12. to be appointed (U.K.)

Liaisons
Hussong (PCOM)
Shipley (PCOM)
Taylor (ODP/TAMU)

INDIAN OCEAN PANEL

1. Schlich, R., Chairman (France)
2. Cochran, J. (LDGO) + RS-WG
3. Curray, J. (SIO)
4. Duncan, R. (OSU)
5. Falvey, D. (Australia/member-at-large)
6. Gradstein, F. (Canada)
7. Prell, W. (Brown)
8. Sclater, J. (UT) + LITHP
9. Segawa, J. (Japan)
10. Tauxe, L. (SIO) + SOHP
11. von Rad, U. (FRG)
12. to be appointed (U.K.)

Liaisons
Kastner (PCOM)
Larson (PCOM)
Clement (ODP/TAMU)

SOUTHERN OCEANS REGIONAL PANEL

1. Kennett, J., Chairman (URI)
2. Anderson, J. (Rice)
3. Bornhold, B. (Canada)
4. Ciesielski, P. (Univ. Fla.)
5. Dick, H. (WHOI)
6. Elliot, D. (Ohio S.U.)
7. Fuetterer, D. (FRG)
8. Kaminuma, K. (Japan)
9. LaBrecque, J. (LDGO)
10. Needham, D. (France)
11. Suess, E. (OSU) + SOHP
12. Weissel, J. (LDGO) + TECP

Liaisons
Beiersdorf (PCOM)
Hayes (PCOM)
Garrison (ODP/TAMU)

WESTERN PACIFIC REGIONAL PANEL

1. Taylor, B., Chairman (HIG)
2. Audley-Charles, M. (U.K.)
3. Hesse, R. (Canada)
4. Ingle, J. (Stanford)
5. Kagami, H. (Japan)
6. Leinen, M. (URI) + LITHP
7. Nakamura, K. (Japan/member-at-large) + TECP
8. Natland, J. (SIO)
9. Rangin, C. (France)
10. Recy, J. (France/member-at-large)
11. Schluter, H. (FRG)
12. Silver, E. (UCSC)

Liaisons
Hayes (PCOM)
Taira (PCOM)
Meyer (ODP/TAMU)

TECHNOLOGY AND ENGINEERING DEVELOPMENT COMMITTEE

1. Jarry, Jean, Chairman (France)
2. Bingman, W. (Shell)
3. Dennis, B. (Los Alamos Nat'l. Labs.)
4. Gardner, T. (Exxon)
5. Guinard, J-P. (France/member-at-large)
   Alt.: Delacour, M.
5. Hocott, C. (UT)
6. Manchester, K. (Canada)
7. Marx, C. (FRG)
8. Newsom, M. (Sandia Nat'l. Labs.)
9. Schuh, F. (Arco)
10. to be appointed (Japan)
11. to be appointed (U.K.)

Liaisons
Von Herzen (PCOM)
~~Kastner (PCOM)~~
Harding (ODP/TAMU)

RED SEA WORKING GROUP

1. Cochran, J., Chairman (LDGO)
2. Arthur, M. (URI) + SOHP
3. Backer, H. (FRG)
4. Bonatti, E. (LDGO)
5. Coleman, R. (Stanford)
6. Juteau, T. (France) + LITHP
7. Miller, P. (ESSO)
8. Pautot, G. (France)
9. Whitmarsh, R. (U.K.)

INFORMATION

PAPERS

ANALYSIS OF PROPOSALS RECEIVED BY THE JOIDES OFFICE (AS OF 16 DECEMBER 1985)

Total number of proposals received 194

a. Atlantic Ocean — 36 proposals

comprising:	General	22
	Mediterranean Sea	8
	Caribbean Sea	5
	Norwegian Sea	1
from:	U.S./JOIDES institutions	11
	U.S./non-JOIDES institutions	3
	France	11
	U.K.	4
	FRG	3
	Canada	2
	(ESF nations)	2

b. Indian Ocean — 55 proposals

comprising:	General	51
	Red Sea	4
from:	U.S./JOIDES institutions	25
	U.S./non-JOIDES institutions	14
	France	9
	U.K.	2
	Canada	1
	FRG	1
	(ESF nations)	2
	(Australia)	1

c. Southern Oceans — 11 proposals

from:	U.S./JOIDES institutions	6
	France	2
	FRG	1
	(Australia)	1
	(New Zealand)	1

d. West Pacific Ocean — 58 proposals

from:	U.S./JOIDES institutions	6
	U.S./non-JOIDES institutions	9
	Japan	23
	France	9
	FRG	2
	U.K.	1

(Australia)	4
(Peoples Republic of China)	2
(New Zealand)	1
(Korea)	1

e. <u>Central and Eastern Pacific Ocean</u> — 17 proposals

from:	U.S./JOIDES institutions	10
	U.S./non-JOIDES institutions	3
	France	2
	Canada	1
	Japan	1

f. <u>General/Instrumental</u> — 17 proposals

from:	U.S./JOIDES institutions	7
	U.S./non-JOIDES institutions	1
	Japan	4
	Canada	1
	FRG	1
	France	1
	U.K.	1
	(ESF nations)	1

<u>Total (by country)</u> — 194

U.S./JOIDES institutions		65	95
U.S./non-JOIDES institutions		30	
France			34
Japan			28
FRG			8
U.K.			8
Canada			5
Non-JOIDES nations	(ESF nations)		5
	(Australia)		6
	(New Zealand)		2
	(PRC)		2
	(Korea)		1

In addition, 60 ideas or suggestions for drilling have been received. These range from brief letters of intent to immature proposals. Several of the items listed have now been re-submitted as full proposals. There are also several proposals for workshops.

A.E.S.Mayer
December 1985

ATLANTIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
1/A	12/16/82	Pre-middle Cretaceous geologic history of the deep S.E. Gulf of Mexico	Phair, R.L. Buffler, R.T.	U.T. Austin	Some		SOHP 2/84 CAR-WG (P) ARP (P) PMP (P)		Reference to DSDP Panels
5/A	7/13/83	Structural & sedimentological development of carbonate platforms (Blake-Bahamas area)	Mullins, H.T. Sheridan, R.E. Schlager, W.	RSMAS	No	Ref'd to JOI SSP 7/25/83	SOHP 2/84 ARP (P)	Approved 3/84	Leg 101
6/A	8/-/83	Ocean crust and high latitude paleoceanography in the Labrador Sea	Gradstein, F.M. et al.	Atlantic Geoscience Centre, Canada	Some	SS needed (11/83)	SOHP 2/84 TECP 1/84 SOHP 10/84 (for added 14 days drilling)	Approved 3/84	Proposal revised 3/84 and 5/84 Leg 105 To incld Baffin Bay drilling (Proposal 58/A)
7/A	8/1/83	Future drilling sites in the Gulf of Mexico & Yucatan	Buffler, R.T. Bryant, W. R.	U.T. Austin	Some	Yes	CAR-WG 1/84 ARP 7/84	Approved 9/84	Approved as back-up leg. See Props. 23/A & 32/A
9/A	1/-/84	Pre-Messinian history of the Mediterranean	Hsu, K.J. (on behalf of the Swiss Working Group)	ETH, Zurich Switz. (ESF)	Yes		MED-WG (P) SOHP (P)		
10/A	1/-/84	Cenozoic events in oceanic and atmospheric circulation off N.W. Africa	Sarnthein, M., et al.	Univ. Kiel FRG	Yes	No	SOHP 5/84 ARP 4/84 SOHP 4/85 ARP 4/85	Approved 5/84	Leg 108 Revised 3/84 & further revised 4/85
12/A	1/-/84	A transect across the Tyrrhenian Back-arc Basin	Cita, M.B. Malinverno, A.	Milan Univ Italy (ESF)	Some		MED-WG 3/84 ARP 7/84	Approved 9/84	See Tyrrhenian Sea revised Proposal 21/A
15/A	1/10/84	Paleocommunication between the North and South Atlantic seas during the Cretaceous: Formation of the Atlantic Ocean	Herbin, J.P.	IFP, France			TECP ARP		French Blue Book
16/A	1/10/84	Atlantic-Mediterranean relationship (Gulf of Cadiz, Alboran Sea); Paleoceanographic and paleohydrological evolution since the Miocene	Faugeres, J.C.	Univ. of Bordeaux 1, France	Some	Yes	TECP ARP		French Blue Book

17/A	1/10/84	Deep oceanic crust and upper mantle proposal for deep sea drilling in the Gorringe Bank	Mevel,C.	Univ. P & M Curie, Paris,Fr. (CYAGOR G)	Some	Yes	LITHP 2/84 TECP ARP		French Blue Book
18/A	1/10/84	DSDP Proposal off Galicia Bank	Mauffret,A. Boillot, G. Montadert,L.	Univ. P&M Curie, Paris, Fr IFP	Yes	No	TECP ARP	Approved 5/84	French Blue Book Revised 6/84 Leg 103
19/A	1/10/84	Proposal for drilling on the Eleuthera Fan (Bahamas)	Ravenne, C. Le Quellec,P.	IFP France CFP France	Yes	No	TECP 1/84 ARP SOHP		French Blue Book Leg 101
20/A	1/10/84	Subduction Collision: the outer Hellenic Arc	Mascle, J.	Univ. P&M Curie, Paris, Fr.	Some	Yes	TECP 1/84 ARP		French Blue Book
21/A	1/10/84	Rifting, stretching and oceanic accretion in the Tyrrhenian Marginal Basin	Rehault, J.P. Fabbri, A.	Univ. P&M Curie, Fr. Instituto di Geolog. Marina, CNR,Italy	Some	Yes	TECP 1/84 & 10/84 ARP MED-WG 10/84 SOHP	Approved 9/84	French Blue Book Revised by MED-WG Sept.1984.Further revised June 1985. Leg 107 see Prop 12/A
22/A	1/10/84	The Rhone deep sea fan site: Proposal for deep sea drilling	Bellaiche,G. Droz, L. Got, H. Orsolini, P.	Lab. de Geodynam. sous marin Villefran. France CRSM, Perpignan,Fr. SNEA,Paris	Yes		TECP 1/84 ARP		French Blue Book
23/A	1/10/84	Caribbean Basins	Mascle, A. Biju-Duval,B.	IFP,France CNEXO, France	Yes		CAR-WG 2/84 TECP 1/84 ARP		French Blue Book (Partly related to Props 7/A and 32/A)
24/A	1/10/84	New drilling along Barbados transects	Mascle,A. Biju-Duval,B.	IFP,France CNEXO, France	Some		CAR-WG 2/84 SOHP 2/84 TECP 1/84	Approved 3/84	Incorporates prop. by Biju-Duval,Moore & DSDP Leg 78A science staff on drilling of the Barbados Forearc. Relate to Props. 35/A & 41/A;now inc in Prop.72/A.Leg 110 & back-up leg
32/A	1/26/84	Primary drilling sites for AODP (Yucatan Basin)	Rosencrantz,E. Bowland,C.	U.T.Austin	Some	Yes	ARP (P) CAR-WG 2/84	Approved 9/84	Agreed as back-up prop.Relate to Props. 7/A & 23/A
35/A	2/-/84	Additional proposed sites for drilling on the Barbados Ridge accretionary complex	Westbrook,G.K.	Durham Univ.,U.K.			TECP (P) CAR-WG	Approved 3/84	Related to Prop. 24/A & 41/A. Now incorporated in Prop.72/A.Part of back-up

36/A	2/-/84	Drilling in the Norwegian Sea during the IPOD-extension drilling	Hinz, K. and Norwegian Sea Working Group	BGR, FRG	Yes	No	NOR-WG ARP (P) TECP 2/84	Approved 3/84	Revised 4/84 & 5/84 (incorporates NOR-WG views) <u>Leg 104</u>
38/A	2/15/84	Proposal for drilling in N.E. Gulf of Mexico (DeSoto Canyon)	Kennett, J. Moore, T.	URI	Yes	Yes	SOHP 4/84		
39/A	2/27/84	IPOD drilling in Cape Verde	Hill, I.	Leicester Univ., U.K.					Previously submitted in 1982
40/A	2/27/84	Re-entry for logging of Site 534 (Biake-Bahamas Basin)	Sheridan, R. Shipley, T. Stoffa, P.	U.T.Austin	Yes		ARP (P) SOHP (P)	Approved 1/84	Part of <u>Leg 101</u>
41/A	3/-/84	Northern Barbados Forearc: structural and hydrological processes	Moore, C.	UCSC	Some		TECP 4/84 ARP SOHP 8/84	Approved 3/84	Related to Props. 24/A & 35/A; see also Prop. 72/A. <u>Leg 109</u>
45/A	3/5/84	Paleoenvironmental drilling in the Equatorial Atlantic	Ruddiman, W.F.	LDGO	No		SOHP 4/84 ARP 4/84 TECP		
58/A	3/21/84	West Baffin Bay	Grant, A.C. Jansen, et al.	Atlantic Geoscience Centre		Yes	SOHP 10/84 TECP 10/84	Approved 3/84	Incorporated within Proposal 6/A <u>Leg 105</u>
59/A	3/27/84	Continental margin sediment instability investigated by drilling adjacent turbidite sequences	Weaver, P.P.E. Kidd, R.B. et al.	IOS, UK	Yes		SOHP 4/84 ARP 4/84 TECP 3/84		Revised proposal 8/84 resubmitted to Panels
60/A	4/20/84	Newfoundland Basin: Eastern Canadian Margin	Masson, D.G.	IOS, UK	Yes	Yes	SOHP 4/84 ARP (P) TECP 4/84		
64/A	6/25/84	To drill at Site NJ-6	Poag, C.W.	USGS, WHOI	Yes		ARP 7/84 SOHP 7/84		
68/A	7/6/84	Deep basins of the Mediterranean	Montadert, L.	IFP, France			TECP 1/84		
72/A	7/30/84	Proposal for a two-leg transect of the Lesser Antilles forearc	Speed, R.C. Westbrook, G.K. Mascle, A. Moore, J.C.	Northwestern Univ. Durham, UK IFP, France UCSC	Yes		ARP (P) TECP 8/84 SOHP 8/84		CAR W/G proposal; incorp. <u>Leg 110</u> See Props. 24/A. 35/A and 41/A

74/A	8/2/84	ODP drilling along the continental margin of Morocco, N.W. Africa	Winterer, E.L. Hinz, K.	SIO BGR, FRG	Yes		TECP 8/84 ARP (P) LITHP (P) SOHP (P)	Approved 9/84	Related to Prop. 85/A. Approved for back-up leg.
81/A	9/4/84	Proposal for an Ionian Sea transect	Hieke, W. Makris, J.	Univ. of Hamburg, FRG			ARP 9/84 MED-WG 9/84 SOHP 10/84 TECP 10/84		Revised by MED-WG 9/84
85/A	9/20/84	Preliminary proposal for ODP drilling along the continental margin of Morocco, N.W. Africa	Hayes, D.E. Mountain, G. Rabinowitz, P.	LDGO TAMU			ARP (P) SOHP (P) TECP (P) 10/84	Approved 9/84	Related to Prop. 74/A Approved as part of back-up proposal.
122/A	12/28/84	Basement drilling at the Kane Fracture Zone	Karson, J.A.	WHOI	Yes	Yes	LITHP 1/85 ARP 1/85	Approved 3/84	<u>Legs 106 & 109</u>
125/A	01/14/85	Bare-rock drilling at the Mid-Atlantic Ridge (22°53'N)	Bryan, W.B Purdy, G.M. Thompson, G.	W.H.O.I.	Yes	No	LITHP 1/85 ARP 1/85	Approved 3/84	<u>Legs 106 & 109</u>

INDIAN OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
30/B	1/10/84	Proposals for oceanic drilling on the Davie Ridge and Malagasy Margin (Mozambique Channel)	Clocchiatti,M. Leclaire,L. Segoufin,J.	Mus.Natn. d'Hist. Naturelle, Univ.P&M Curie Paris,Fr.	Some	Yes	TECP 1/84 IOP 4/85 SOHP 4/85 TECP 4/85		French Blue Book Revised proposal received 03/25/85 Further rev.8/85 French I.O.Book
31/B	1/10/84	Paleoenvironmental history of the Red Sea	Guennoc, P.	BRGM, Fr.	Yes	Yes	TECP IOP (P)	Approved 6/85	French Blue Book
44/B	3/-/84	Tectonic evolution of the Andaman Sea in relation with the relative displacement of Indochina with respect to India	Peltzer, G. Tapponier, P. Jacquart, G.	Univ. P&M Curie, Fr.			WPAC TECP 4/84 IOP (P)		
55/B	3/21/84	The Makran Forearc, Pakistan	Leggett, J.K.	Imperial College, U.K.	Some	Yes	TECP 4/84 IOP 4/84 SOHP 4/85		Revised 04/08/85
56/B	3/21/84	Drilling to constrain the history of deformation and relationship between fault surfaces and upward flow of water in the region of inter-plate deformation, Central Indian Ocean	Weissel, J.K. Forsyth, D.W. Stein, C.A. Anderson, R.N.	LDGO Brown U. North-western U LDGO	None	Yes	DMP 4/84 TECP 4/84 IOP 4/84 LITHP 10/84 TECP 10/84 SOHP 10/84	Approved 6/85	Revised following Indian Ocean Workshop 10/84
57/B	3/21/84	Determine the history of the formation of the African-Arabian margin and adjacent oceanic lithosphere	Stein, C.A.	North-western University	Yes		IOP (P) SOHP 10/84 TECP 10/84		Revised 10/84 following US Indian Ocean Workshop See Prop.119/B
61/B	6/18/84	Conjugate passive rifted margins of Madagascar, East Africa and the Western Somali Basin	Coffin, M.F. Matthias, P.	LDGO TAMU	Some		IOP 7/84 TECP 7/84 SOHP 10/84 TECP 10/84		Revised following US Indian Ocean Workshop 10/84 See Prop.102/B
62/B	6/18/84	The Davie Fracture Zone: reactivating zone of weakness?	Coffin, M.F. Matthias, P. Bernoulli, D. Scrutton, R.A. Channell, J.T.	LDGO TAMU U.Basel Switz.ESP U.Edin.UK U. Florida	No		IOP (P) SOHP 10/84 TECP 10/84 IOP 12/84		Revised 10/84 following US Indian Ocean Workshop. Further revisions received 12/84 (mature proposal)
65/B	7/5/84	Magnetic quiet zone: Australia's southern margin	Mutter, J.C. Cande, S.C.	LDGO	Some		TECP 10/84 LITHP 10/84 SOHP 10/84 SOP (P) IOP(P)		Revised 10/84 following US Indian Ocean Workshop
77/B	8/20/84	The Seychelles Bank and the Amirante Trough	Mart,Y.	TAMU	Some	Yes	IOP 8/84		
78/B	8/23/84	Indus Fan - a proposal for drilling	Kolla, V.	Superior Oil Co.USA			IOP (P) SOHP 9/84		See Prop.96/B

79/B	8/28/84	Tethyan stratigraphy and ancient oceanic crust	Coffin, M.F. Chanell, J.E.T.	LDGO	Some		LITHP 9/84 SOHP 9/84 IOP 9/84		
86/B	10/1/84	Red Sea drilling	Bonatti, J.	LDGO	Yes	S.S. pro--posed	LITHP 10/84 SOHP 10/84 TECP 10/84 IOP 10/84	Approved 6/85	US Indian Ocean Workshop Revised 9/85
87/B	10/1/84	Basalt drilling objectives in the Arabian Sea - Carlsberg Ridge	Natland, J.	SIO	Yes		SOHP 10/84 TECP 10/84 IOP (P) LITHP 10/84		US Indian Ocean Workshop
88/B	10/1/84	Origin & evolution of the Chagos-Laccadive-Mascarene volcanic lineament, Central Indian Ocean	Duncan, R.A. Fisk, M.R. White, W.M.	OSU	Yes		LITHP 5/85 SOHP 5/85 TECP 5/85 IOP 5/85		US Indian Ocean Workshop; Related to Proposal 97/B; Revised 5/85
89/B	10/1/84	Mantle heterogeneity leg-drilling on S.W. Indian Ridge Fracture Zones	Dick, H.J.B. Natland, J.	WHOI SIO	Some		LITHP 3/85 SOP 3/85 IOP 3/85 TECP 3/85		US Indian Ocean Workshop: See prop. 112/B. Revised 3/85 Rel. to Props. 162/F & 186/F
90/B	10/1/84	S.E. Indian Ocean Ridge transect (mantle heterogeneity)	Duncan, R.	OSU	Yes		LITHP 10/84 SOHP 10/84 IOP (P)		US Indian Ocean Workshop; Related to Prop. 100/B and 111/C
91/B	10/1/84	Nature of chemical discon--tinuity in oceanic crust as a function of time (S.E. Indian Ocean)	Langmuir, C.	LDGO	Yes		LITHP 10/84 IOP (P)		US Indian Ocean Workshop; related to Prop. 112/B
92/B	10/1/84	Seismic observatory in the Crozet Basin	Butler, R. Brocher, T.M.	HIG WHOI	No	Yes	LITHP 10/84 SOHP 10/84 TECP 8/85 IOP 8/85		US Indian Ocean Workshop Revised 8/85
93/B	10/1/84	History of anoxic sediments associated with monsoonal upwelling, salinity strat-ification and oxygen minima in the Western Arabian Sea	Prell, W.L.	Brown Univ.	Little	Yes	SOHP 10/84 IOP (P)	Approved 6/85	US Indian Ocean Workshop
94/B	10/1/84	History of monsoonal upwelling Owen Ridge, Arabian Sea	Prell, W.L.	Brown Univ.	Some	Yes	SOHP 10/84 TECP 10/84 IOP (P)	Approved 6/85	US Indian Ocean Workshop
95/B	10/1/84	History of the Asian monsoon (Bay of Bengal)	Cullen, J.L. Prell, W.L.	Salem St. Brown Univ.	Yes		SOHP 10/84 TECP 10/84 IOP (P)	Approved 6/85	US Indian Ocean Workshop
96/B	10/1/84	Surveying and drilling in the Bengal Fan (Distal Indus and Ganges Fans)	Klein, G.deV.	Illinois Univ.	Some	Yes	SOHP 10/84 TECP 10/84 IOP (P)	Approved 6/85	US Indian Ocean Workshop See Prop. 78/B
97/B	10/1/84	Variation of Neogene surface fertility & carbonate compensation in the Equatorial Indian Ocean	Peterson, L.C.	RSMAS	Some	Yes	SOHP 3/85 IOP 3/85		US Indian Ocean Workshop; rel. to Props. 88/B & 183/B Revised 3/85

98/B	10/1/84	Determination of the geologic history of southern hemi--sphere atmospheric circu--lation and climatic evolution of the Australian Desert (S.E. Indian Ocean)	Rea, D.K.	Univ. of Michigan	Yes		SOHP 10/84 IOP (P)		US Indian Ocean Workshop
99/B	10/1/84	Palaeo-oceanography climate dynamics (Agulhas Basin)	Coulbourn, W.	Univ. of Hawaii	Yes		SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop
100/B	10/1/84	Stratigraphic sections - S.E. Indian Ridge transect	Hays, J.D. Lazarus, D.B.	LDGO WHOI	Some		SOHP 10/84 IOP (P)		US Indian Ocean Workshop; related to Prop. 90/B and 111/C
101/B	10/1/84	Determination of geologic history of ridge crest hydro--thermal activity	Owen, R.M. Rea, D.K.	Univ. of Michigan	Some		SOHP 10/84 LITHP 10/84 IOP (P)		US Indian Ocean Workshop
102/B	10/1/84	Somali Basin	Matthias, P.	TAMU			IOP (P) SOHP 10/84 TECP 10/84		US Indian Ocean Workshop See Prop.61/B
103/B	10/1/84	Nature of Laxmi Ridge (N.W. Indian Ocean)	Heirtzler, J.	WHOI	Little		IOP (P) SOHP 10/84 TECP 10/84 LITHP 10/84		US Indian Ocean Workshop
104/B	10/1/84	Transect of 90°East Ridge	Curray, J. Duncan, R.	SIO OSU	Some	Yes	IOP (P) LITHP 10/84 TECP 10/84 SOHP 10/84	Approved 6/85	US Indian Ocean Workshop
105/B	10/1/84	Arc-continent collision, Timor	Karig, D.E.	Cornell Univ.	Yes		IOP (P) TECP 10/84 SOHP 10/84		US Indian Ocean Workshop
106/B	10/1/84	Broken Ridge, Indian Ocean	Curray, J. Thierstein, H. Mackenzie, Mahoney	SIO	Poss--ibly		IOP (P) TECP 10/84 SOHP 10/84 LITHP 10/84	Approved 6/85	US Indian Ocean Workshop
107/B	10/1/84	State of stress in ocean lithosphere plate: S.E. Indian Ridge	Forsyth, D.	Brown Univ	Yes		IOP (P) TECP 10/84 LITHP 10/84 SOHP 10/84		US Indian Ocean Workshop
112/B	10/2/84	Lithosphere Targets	Kennett, J. (on behalf of SOP)	URI	Some		SOP (P) LITHP 10/84 TECP 10/84		SOP Proposal, link to Prop. 89/B and 91/B
113/B	10/2/84	Agulhas Plateau	Kennett, J. (on behalf of SOP)	URI	Yes		SOP (P) SOHP 10/84 TECP 10/84		SOP Proposal See props.116/B & 139/B

115/B	10/10/84	Deep sea drilling on the Agulhas Plateau and adjacent basins	Herb,R. Oberhansli,H.	Univ. Bern Switz. ESF	Some	Yes	IOP 10/84 SOHP 10/84 TECP 10/84		Revised 4/85 See props.114/B & 139/B
116/B	10/10/84	Comparative data on deep sea drilling on 90°E & Chagos-Laccadive Ridges for palaeo-oceanog.purposes;evaluation of advantages & disadvantages	Oberhansli, H. Herb,R.	Univ. Bern Switz. ESF	Some	Yes	IOP 10/84 SOHP 10/84	Approved 6/85	Revised 4/85
117/B	10/22/84	Proposal for drilling in the northern Red Sea	Cochran, J.B.	LDGO	Yes	Some	SOHP 9/84 TECP 9/84 IOP 9/84	Approved 6/85	Immature proposal rec'd 9/84;revised 10/84
118/B	11/2/84	Middle-late Cenozoic strati--graphy, chronology, paleo--environmental history off East Africa: correlation with hominoid sites	Kennett, J. Brown, F.H. Howell, C., et al	URI Univ.Utah UCBerkeley	Yes	No	SOHP 10/84 IOP 10/84	Approved 6/85	Includes views of LDGO Paleoclimates and Evolution Workshop
119/B	12/3/84	History of the early opening of the Gulf of Aden resulting rifting of old oceanic lithosphere	Stein, C.A.	Northwest. Univ.	Some	Yes	IOP 12/84 SOHP 12/84 TECP 12/84 LITHP 12/84		See Proposal 57/B
120/B	12/10/84	Oceanic drilling in Atlantis II Deep, Red Sea	Zierenberg,R.A. Shanks, W.C. Von Damm, K.L.	U.S.G.S.	Yes		IOP 12/84 LITHP 12/84 TECP 12/84	Approved 6/85	
121/B	12/10/84	Ocean drilling in the Exmouth & Wallaby Plateaus & Argo Abyssal Plain, E.Indian Ocean	von Rad,U. Exon, N.F. Symonds,P.A. Willcox,J.B.	BGR, FRG BMR, Australia	Yes	Yes	IOP 12/84 SOHP 12/84 TECP 12/84	Approved 6/85	Australian COGS-2 proposal Revised 12/85
134/B	03/25/85	Ocean drilling in the Gulf of Aden	Girdler,R.W.	Univ. Newcastle, U.K.	Yes	Yes	IOP 4/85 TECP 4/85 SOHP 4/85		
135/B	03/25/85	Drilling on Broken Ridge to evaluate thermo-mechanical models of rifting	Weissel,J.K. Karner,G.D.	LDGO U.Durham, U.K.	Some	Yes	IOP 4/85 TECP 4/85 SOHP 4/85	Approved 6/85	
137/B	03/25/85	Oceanic drilling on the fossil ridges in the Indian Ocean	Schlich,R. Royer,J.Y. Whitechurch,H. Clocchiatti,M.	I.de Phys. d.Globe Strasb'g I.de Geol. Strasb'g Mus.Natn. d'Hist.Nat France	No	Yes	IOP 4/85 TECP 4/85 LITHP 4/85 SOHP 4/85		Revised 8/85 French I.O.Book
138/B	03/25/85	Oceanic drilling at the Rodriguez Triple Junction Indian Ocean	Schlich,R. Munschy,M. Royer,J.Y. Montigny,R. Whitechurch,H.	I.de Phys. d. Globe Strasb'g I.de Geol Strasb'g France	Yes	No	IOP 4/85 LITHP 4/85 TECP 4/85		Revised 8/85 French I.O.Book

139/B	03/25/85	Oceanic drilling on the Agulhas Plateau, S.W. Indian Ocean	Jacquart, G. Vincent, E.	CEPM-IFP, Rueil Univ. P&M Curie, France	Same	Yes	IOP 4/85 SOP 4/85 SOHP 4/85 TECP 4/85		See props. 114/B & 115/B Revised 8/85 French I.O. Book
140/B	04/01/85	Deep drilling in the Central and Northern Red Sea axial areas	Pautot, G. Guennoc, P.	IFREMER, Brest BRGM, Brest France	Same	Yes	IOP 4/85 SOHP 4/85 TECP 4/85 LITHP 4/85	Approved 6/85	Revised 8/85 French I.O. Book
141/B	04/02/85	Drilling proposal for the Indus deep sea fan	Jacquart, G. Ravenne, C. Leclaire, L. Clocchiatti, M.	CEPM-IFP, Rueil Mus. Natn. d'Hist. Nat France	Same	Yes	IOP 4/85 SOHP 4/85		See props. 78/B & 96/B Revised 8/85 French I.O. Book
150/B	07/01/85	Hard rock drilling in the S.E. Indian Ocean: 90°E ridge & Kerguelen-Gaussberg ridge	Frey, F.A. Sclater, J.G.	MIT U. Texas Austin	Little	Yes	IOP 7/85 LITHP 7/85 TECP 12/85	Approved 6/85	See Props. 109/C, 136/C & 196/B
173/B	08/19/85	Drilling in the Seychelles-Mascarene Plateau, N.W. Indian Ocean	Patriat, P. Vincent, E. Jacquart, G.	I. de Phys. d. Globe Paris U. P&M Curie Paris IFP France	Yes	Yes	SOHP 8/85 IOP 8/85 TECP 8/85		French I.O. Book
183/B	08/20/85	Periplatform ooze in the Indian Ocean (Maldives)	Droxler, A. Williams, D.F. Baker, P.A.	U. South Carolina Duke U.	Same	Yes	SOHP 8/85 IOP 8/85		See Prop. 97/B USSAC Carbonate Platforms Workshop Revised 9/85
196/B	12/09/85	Impact of India on Asia: 90°E ridge drilling to define northward motion	Peirce, J.	Petro-canada Canada	Same	Yes	IOP 12/85 TECP 12/85 LITHP 12/85		Related to Prop. 150/B
197/B	12/16/85	Drilling on the Australian Continental Margin: Otway Basin/West Tasmanian Region	Wilcox, J.B. Branson, J.C. Exon, N.F.	BMR, Australia	Yes	Same	IOP 12/85 SOP 12/85 LITHP 12/85 SOHP 12/85 TECP 12/85		Formerly included in Prop. 126/D: COGS-2 super-proposal

SOUTHERN OCEANS PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
54/C	3/20/84	Southern Ocean Drilling: a. Sub-Antarctic sites b. Weddell sites	Kennett, J.P.	URI	Some	Yes	TECP SOP (P)	Approved 3/84 & 6/85	Legs 113 & 114 See proposal 160/F
73/C	08/02/84	Drilling proposal on the Antarctic margin off the Adelie Coast	Wannesson,J. et al	IFP,France	Some	Yes	TECP 2/85 SOP 2/85 SOHP 2/85		Site summary forms submitted.Revised prop. rec'd 2/85 Further rev. 8/85 French I.O.Book
108/C	10/2/84	East Antarctic continental margin	Kennett, J. (on behalf of SOP)	URI	Some		SOP (P) SOHP 10/84 TECP 10/84		Southern Ocean Panel Proposal
109/C	10/2/84	Kerguelen - Heard Plateau	Kennett, J. (on behalf of SOP)	URI	Some	Yes	SOP (P) SOHP 10/84 TECP 10/84	Approved 6/85	Southern Ocean Panel Prop.See Prop 136/C,150/B & 185/C
110/C	10/2/84	Wilkesland- Adelie continental margin	Kennett, J. (on behalf of SOP)	URI	Yes	No	SOP (P) SOHP 10/84 TECP 10/84		Southern Ocean Panel Proposal
111/C	10/2/84	Southeast Indian Ocean Ridge transect (subantarctic)	Kennett, J. (on behalf of SOP)	URI			SOP (P) SOHP 10/84 LITHP 10/84		SOP Proposal, link to Prop. 90/B and 100/B
114/C	10/2/84	Crozet Plateau	Kennett, J. (on behalf of SOP)	URI	Yes		SOP (P) SOHP 10/84		SOP Proposal
129/C	01/21/85	ODP opportunities in the Bounty Trough	Davy, B.W.	D.S.I.R. N.Zealand	Some	Yes	WPAC 1/85 SOHP 1/85 TECP 1/85 SOP 1/85		
136/C	03/25/85	Oceanic drilling on the Kerguelen-Heard Plateau	Schlich,R. Munschy,M Leclaire,L. Froelich,F.	I.de Phys. d.Globe Strasb'g Mus.Natn. d'Hist.Nat France	Yes	No	IOP 4/85 SOP 4/85 TECP 4/85 SOHP 4/85	Approved 6/85	Revised 7/85 See Props.109/C 150/B & 185/C French I.O.Book
169/C	07/30/85	Drilling on the South Tasman Rise	Hinz,K. Dostmann,H.	BGR, FRG	Yes	No	SOHP 7/85 TECP 7/85 IOP 7/85 SOP 7/85		
185/C	08/23/85	Origin,evolution & palaeo-oceanography of Kerguelen Plateau	Coffin,M.F. Colwell,J.B. et al	BMR Australia	Yes	No	SOP 8/85 IOP 8/85 SOHP 8/85 TECP 8/85 LITHP 8/85		See Props. 109/C & 136/C.Expansion of part of Prop.126/D: COGS-2 super-prop.

WEST PACIFIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
25/D	1/10/84	Deep sea drilling proposal on the New Hebrides arc	ORSTOM team	Centre ORSTOM, New Caledonia, Fr.			TECP 1/84		French Blue Book See Props. 184/D & 187/D
26/D	1/10/84	Succinct proposals for deep sea drilling sites on the Tonga-Kermadec Arc	NOUMEA team	ORSTOM Centre de Noumea, New Caledonia, France			TECP 1/84		French Blue Book
27/D	1/10/84	Drilling in the Sulu Sea Marginal Basin	Rangin, C.	Univ. P&M Curie Paris France	Some	Yes	TECP 7/85 WPAC 7/85 SOHP 7/85 LITHP 7/85		French Blue Book see Props.82/D & 154/D. Revised 7/85
28/D	1/10/84	Tectonic evolution of the South China Sea: marginal basin drilling proposal	Letouzey, J. Pricaud, L. Rangin, C.	IFP, France CFP, France	Some		TECP 1/84		French Blue Book
29/D	1/10/84	Transect across Ryukyu Island Arc and Okinawa Backarc Basin	Letouzey, J.	IFP, France	Yes	No	TECP 1/84		French Blue Book See Prop.145/D
42/D	3/-/84	Preliminary deep sea drilling proposal in Sunda Straits area	Huchon, P.	Univ. P&M Curie, Fr.	Yes	Yes	WPAC TECP 4/84 IOP (P)		
43/D	3/-/84	Outline of suggested ocean drilling program in the S.W. Pacific	Falvey, D.A.	BMR, Australia	Yes	Yes	WPAC (P) IOP (P) TECP 3/84		
46/D	3/5/84	An informal proposal for future ODP drilling in the South China Sea Basin	Hayes, D.E. Lewis, S.D. Ladd, J. Leyden, B.	LDGO	No		WPAC (P) TECP (P) 3/84		Related to Props. 147/D & 194/D
47/D	3/5/84	Proposal for scientific ocean drilling along the Manila Trench subduction zone, South China Sea	Lewis, S.D. Hayes, D.E.	LDGO	Some	Yes	WPAC (P) TECP (P) 3/84		
48/D	3/5/84	Drilling in the Sulu Sea & the South China Sea	Hinz, K. Schluter, H.U.	BGR, FRG	Yes	Some	WPAC 12/85 TECP 12/85 SOHP 12/85		Revised 12/85 Mature proposal
49/D	3/5/84	Drilling proposal for the Eastern Banda Arc/Arafura Sea	Schluter, H.U. Fritsch, J.	BGR, FRG	Yes		WPAC (P)		
50/D	3/5/84	Nankai Trough and Shikoku Forearc	Kagami, H. Taira, A. et al	ORI Tokyo Japan	Yes		WPAC 8/85 TECP 8/85 LITHP 8/85		Rev.8/85 Japanese Workshop
51/D	3/5/84	ODP proposal for scientific drilling in the Sea of Japan	Tamaki, K. Honza, E. Kagami, H. Kobayashi	Geol.Surv. ORI Tokyo Japan	Yes		WPAC 7/85 LITHP 7/85 TECP 7/85		See Props. 149/D & 151/D. Revised 7/85. Mature prop. Rel. to Props.168/D & 198/D. Japanese Workshop

52/D	3/12/84	The Solomon Sea - a suggested drilling target	Milsom, J.	Univ. College, London, UK			WPAC 4/84		
67/D	7/6/84	ODP drilling on Tonga-Lord Howe Rise transect	Falvey, D.A. Exon, N.F. Willcox, B. Symonds, P.	BMR, Australia	Yes		TECP (P) WPAC (P)		
80/D	8/30/84	Sunda and Banda Arc drilling: a study of convergent margin processes	Karig, D.E. Moore, G.F.	Cornell U. Tulsa U.	Yes		IOP (P) TECP 10/84 SOHP 10/84		Revised 10/84 following US Indian Ocean Workshop
82/D	9/4/84	Drilling in the Sulu Sea, Western Equatorial Pacific	Thunell, R.	Univ. S. Carolina	Some		WPAC (P) SOHP (P) TECP 9/84		See Props.27/D & 154/D
83/D	9/5/84	Izu-Ogasawara(Bonin) Arc transect	Okada, H. Takayanagi, Y.	Shizuoka Univ. Japan Tohuku U., Japan	Yes		WPAC 9/84 TECP 9/84 LITHP 9/84		Revised 7/85 Japanese Workshop
126/D	01/14/85	Site proposals for scientific ocean drilling in the Australasian region (composite proposal)	Crook, K.A.W. Falvey, D.A. Packham, G.H.	ANU, Canberra BMR, Canberra U. Sydney Australia	Yes	Yes	SOHP 1/85 LITHP 1/85 TECP 1/85 IOP 1/85 SOP 1/85 WPAC 1/85		Composite proposal from Australian community. COGS-2 super-proposal.
127/D	01/18/85	Eastern Sunda Arc & N.W. Australian Collision: accretionary processes in a sharp transition zone of arc--continent collision	Reed, D.L. Silver, E.A. Meyer, A.W.	U.Calif., Santa Cruz ODP/TAMU	Some	Yes	SOHP 1/85 TECP 1/85 IOP 1/85 WPAC 1/85		
130/D	01/21/85	Evolution of the SW Pacific: drilling proposal for the area north of New Zealand	Eade, J.V.	N.Z.Ocean. Institute N.Zealand	Some	Yes	TECP 1/85 WPAC 1/85 LITHP 1/85 SOHP 1/85		
131/D	03/11/85	Banda Sea Marginal Basin: trapped ocean crust & displaced continental borderland	Silver, E.A.	U.Calif., Santa Cruz	Some	Yes	WPAC 3/85 TECP 3/85 LITHP 3/85 SOHP 3/85		see Prop.154/D
132/D	03/11/85	ODP Proposal on drilling the TTT-type Triple Junction area off Boso, Japan	Ogawa, Y. Fujioka, K.	Kyushu U. ORI, Tokyo Japan	Yes	No	WPAC 3/85 TECP 3/85 SOHP 3/85		Rel.to Prop.148/D Rev.6/85 Japanese Workshop
144/D	05/28/85	Arc-arc collision in the southernmost Kuril forearc off Hokkaido	Seno, T. Kimura, G. Tamaki, K.	Int.Inst. Seism. & Earthquake Eng. Kagawa U. Geoi.Surv. Japan	Yes	No	WPAC 5/85 TECP 5/85		Japanese Workshop
145/D	05/29/85	Left-lateral dislocation of the Ryukyu Arc system	Ujiie, H.	U. of the Ryukyus Japan	Some	No	WPAC 5/85 TECP 5/85		See Prop.29/D Japanese Workshop
146/D	05/30/85	Toyama Submarine Fan, eastern Japan Sea	Klein, G.	U.Illinois (Urbana)	Some	Yes	WPAC 5/ TECP 5/ SOHP 5/85		Revised 7/85

147/D	06/06/85	Preliminary proposal for scientific drilling in the South China Sea	Wang,P. Zhu,X. et al	Tongji U., PRC	Some	Yes	WPAC TECP SOHP	6/85 6/85 11/85		Related to Props. 46/D & 194/D
148/D	06/07/85	Drilling the oblique subduct-ion zone near the TTT-type triple junction area,off central Japan (Sagami Basin)	Ogawa,Y. Fujioka,K. Takeuchi,A. Tanahashi,M.	Kyushu Univ. Japan	Yes	No	WPAC TECP	6/85 6/85		Related to Prop.132/D Japanese Workshop
149/D	07/01/85	Active spreading centre of the Sea of Japan	Kimura,M. Kato,Y. Yamamoto,S.	U. of the Ryukyus, Japan	Some	Yes	WPAC LITHP TECP	7/85 7/85 7/85		See Props.51/D & 151/D Japanese Workshop
151/D	07/01/85	Opening of the Japan Sea: mantle plume origin	Wakita,H.	U.Tokyo Japan	Some	Yes	WPAC TECP LITHP	7/85 7/85 7/85		See Props. 51/D & 149/D Japanese Workshop
154/D	07/01/85	Entrapment of Banda-Celebes- -Sulu Basin	Hilde.T.W.C.	TAMU	Some	Yes	WPAC LITHP TECP SOHP	7/85 7/85 7/85 7/85		See Props.27/D,82/D & 131/D
156/D	07/08/85	Potential massive sulfide in Kita-Yamamoto Trough,Japan Sea	Urabe,T.	Geol.Surv. Japan	Yes	No	WPAC SOHP LITHP TECP	7/85 7/85 7/85 7/85		Japanese Workshop
157/D	07/10/85	Palaeo-oceanography & marine climatic history of the Japan Sea	Koizumi,I. Oba, T.	Osaka U. Kanazawa U Japan	Yes	Yes	WPAC SOHP	7/85 7/85		Related to Ideas I-52 Japanese Workshop
158/D	07/15/85	Geochemistry & sedimentology of active oceanic margin & back-arc basin sediments: Japan Sea and Trench	Matsumoto,R. Minai,Y.	Tokyo U. Japan	Some	Yes	WPAC SOHP TECP	7/85 7/85 7/85		Japanese Workshop
163/D	07/18/85	Zenisu Ridge (Nankai Trough) - intraplate deformation of a young marginal basin	Rangin,C. Lallemant,S. Le Pichon,X.	U.P&MCurie Paris France	Yes		WPAC TECP SOHP	7/85 7/85 7/85		See Prop.177/D
164/D	07/18/85	Japan Trench & Japan-Kuril Trenches Junction	Jolivet,L. Cadet,J-P. Lallemand,S.	U.P&MCurie Paris U.Orleans France	Yes		TECP WPAC SOHP	7/85 7/85 7/85		Further revision after KAIKO-2
165/D	07/18/85	Shikoku Basin ocean crust	Chamot-Rooke,N Le Pichon,X.	U.P&MCurie Paris France	Yes		TECP WPAC SOHP	7/85 7/85 7/85		
166/D	07/22/85	Instantaneous opening of the Japan Sea;evolution of the mantle wedge	Tatsumi,Y. et al	Kyoto U. Japan	Yes		TECP LITHP WPAC	7/85 7/85 7/85		Japanese Workshop
167/D	07/22/85	Okinawa Trough back-arc rifting & Ryukyu Trench system	Uyeda,S. et al	ERI,Tokyo U. Japan	Yes		TECP LITHP WPAC	7/85 7/85 7/85		Japanese Workshop
168/D	07/22/85	Japan Sea:sedimentology of siliceous sediments	Iijima,A. Matsumoto,R. Tada,R.	Tokyo U. Japan	Yes		SOHP TECP LITHP	7/85 7/85 7/85		Related to Prop. 52/D Japanese Workshop

170/D	07/30/85	Valu Fa Ridge,Lau Basin; back-arc spreading center	Morton,J.L. Vallier,T.L. Hawkins,J.	USGS,Menlo Park SIO	Yes	No	LITHP 7/85 TECP 7/85 WPAC 7/85		USSAC West Pacific Workshop
171/D	08/13/85	Bonin Region;problems of intra-oceanic arc-trench development	Taylor,B.	HIG	Yes	Same	WPAC 8/85 LITHP 8/85 TECP 8/85		USSAC West Pacific Workshop
172/D	08/19/85	Mariana forearc,arc & back-arc basin	Fryer,P.	HIG	Yes	Same	WPAC 8/85 LITHP 8/85 TECP 8/85		USSAC West Pacific Workshop
174/D	08/19/85	Forearc tectonics: Japan Sea	Otsuki,K.	Tohoku U. Japan	Yes	Yes	WPAC 8/85 TECP 8/85		Japanese Workshop
175/D	08/19/85	Origin of inner wall of the Japan Trench	Niitsuma,N. Saito,Y.	Shizuoka U Nat.Sci. Mus.Tokyo Japan	Yes		WPAC 8/85 TECP 8/85		Japanese Workshop
176/D	08/19/85	Southernmost Japan Trench & migration of triple junction	Niitsuma,N.	Shizuoka U Japan	Yes		WPAC 8/85 TECP 8/85		Japanese Workshop
177/D	08/19/85	Zenisu Ridge:intra-oceanic plate shortening	Taira,A. et al	ORI Tokyo Japan	Yes	No	WPAC 8/85 TECP 8/85 SOHP 8/85		Japanese Workshop See Prop.163/D
178/D	08/19/85	Nankai Trough forearc	Shiki,T. Miyake,Y.	Kyoto U. Japan	Yes		WPAC 8/85 TECP 8/85		Japanese Workshop
179/D	08/19/85	Daito Ridges region: N.W. Philippines Sea	Tokuyama,H. Konishi,K. Kimura,M.	ORI Tokyo Kanazawa U Ryukyu U. Japan	Yes	Yes	TECP 8/85 WPAC 8/85 LITHP 8/85		Japanese Workshop
180/D	08/19/85	Kita-Amami basin & Amami Plateau,N.Philippines Sea	Shiki,T.	Kyoto U. Japan	Yes	Yes	TECP 8/85 LITHP 8/85 WPAC 8/85		Japanese Workshop
181/D	08/19/85	Petrological & tectonic evolution of wedge mantle & forearc crust along the Izu-Ogasawara-Mariana forearc	Ishii,T.	ORI Tokyo Japan	Yes	Yes	TECP 8/85 LITHP 8/85 WPAC 8/85		Japanese Workshop
184/D	08/21/85	Drilling in the Papua New Guinea/Bismark Sea Region	Exon,N.F. Marlow,M.S. et al	BMR Australia USGS Menlo Park	Yes	Yes	LITHP 8/85 WPAC 8/85 TECP 8/85		See Props.25/D & 187/D
187/D	09/13/85	Drilling in the New Hebrides Arc Region, S.W.Pacific	Taylor,F.W. Lawver,L.A.	U.T.Austin	Same	Yes	WPAC 9/85 LITHP 9/85 TECP 9/85		See Props.25/D & 184/D USSAC West Pacific Workshop

189/D	10/07/85	Drilling in the Tonga Ridge-Lau Ridge region	Stevenson,A.J. Scholl,D. Vallier,T.	USGS	Yes	Yes	WPAC 10/85 LITHP 10/85 SOHP 10/85 TECP 10/85		USSAC West Pacific Workshop
190/D	10/07/85	Drilling in the arc-ridge collision zone in the central New Hebrides island arc (Vanuatu)	Fisher,M.A. Greene,H.G. Collot,J-Y. Recy,J.	USGS ORSTOM France	Yes	Yes	WPAC 10/85 LITHP 10/85 SOHP 10/85 TECP 10/85		USSAC West Pacific Workshop
191/D	10/07/85	Drilling in arc-plateau collision zone & intra-arc basin,central & western Solomon Islands	Vedder,J.G. Bruns,T.R.	USGS	Yes	Yes	WPAC 10/85 LITHP 10/85 SOHP 10/85 TECP 10/85		USSAC West Pacific Workshop
194/D	11/26/85	Drilling in the South China Sea	Liu,D. Luo,Y. Chen,D.	CSCOD,Soc. of Oceanog PRC	Yes	Yes	TECP 11/85 WPAC 11/85 SOHP 11/85		Related to Props. 46/D & 147/D
198/D	12/16/85	Ulleung (Tsushima) Basin: Neogene tectonics & sediment-ation	Chough,S.K. et al Honza,E. Klein,G.deV. Cadet,J-P Hilde, T.W.C.	Seoul Nat. U.,Korea Geol.Surv. Japan U.Illinois Orleans U. France TAMU	Yes	Yes	WPAC 12/85 TECP 12/85 SOHP 12/85		Related to Prop. 51/D

CENTRAL & EAST PACIFIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
2/E	12/16/82	Regional seismic reflection profiles across the Middle America Trench and convergent margin of Costa Rica	Crowe, J.C. Buffler, R.T.	U.T.Austin	Yes	No	AMP (P) Middle America WG (P)		Reference to DSDP Panels
3/E	6/27/83	Drilling flexural moats flanking the Hawaiian Islands	Watts, A.B. ten Brink, U. Detrick, R.S. Brocher, T.M.	LDGO URI USGS	Yes	Yes	CEPAC 2/84 TECP 11/85 LITHP 2/84		Revised 11/13/85
4/E	undated	Drilling in the Tuamoto Archipelago (French Polynesia)	Okal, E.A.	Yale Univ.	Some		CEPAC 2/84 LITHP 2/84		
8/E	9/18/83	Ridge crest subduction along the Southern Chile Trench	Cande, S.C.	LDGO	Some	Ref'd to JOI SSP8/84	TECP 7/84	Approved 9/84	
14/E	1/10/84	Zero age drilling: East Pacific Rise 13° N.	Bougault, H.	COB, France	Yes		CEPAC 2/84 LITHP 2/84 TECP	Approved 9/84	Related to Prop. 76/E. French Blue Book
34/E	2/-/84	Pacific-Aleutian-Bering Sea (PAC-A-BERS) proposal	Scholl, D. Vallier. T.	USGS, Menlo Park					
37/E	2/25/84	Costa Rica drilling - a test of the duplex model	Shipley, T. Moore, G. Buffler, R. Silver, E. Lundberg, N.	U.T.Austin UCSC Princeton	Some		CEPAC (P) TECP (P) 8/84 SOHP 8/84		Revised 8/84
75/E	8/13/84	Gulf of California drilling	Becker, K. et al	SIO	Some	Yes	LITHP (P) TECP (P) SOHP (P) CEPAC (P)		
76/E	8/17/84	Proposal for drilling oceanic crust at the axis of the East Pacific Rise	Francheteau, J. Hekinian, R.	Univ. Paris IFREMER, Brest			CEPAC (P) CEPAC 11/84 LITHP 11/84	Approved 9/84	Revised 11/84. Rel. to Prop. 14/E.
84/E	9/10/84	Peru Margin drilling proposal	Kulm, L. Hussong, D	HIG		Needed	TECP 9/84 CEPAC (P) SOHP 9/84	Approved 9/84	Leg 112
123/E	12/28/84	Regional drilling studies at IPOD Site 501/504	Mottl, M.J.	WHOI	Yes	No	LITHP 1/85 CEPAC 1/85	Approved 6/85	Related to Prop. 124/E. Leg 111
124/E	01/02/85	Proposal to deepen Hole 504B	Becker, K. (on behalf of LITHP)	S.I.O.	Yes	No	LITHP 1/85 CEPAC 1/85	Approved 9/84	Leg 111 See Prop. 160/F
142/E	04/02/85	Equatorial Pacific depth transect: Ontong Java Plateau	Mayer, L. Berger, W.H.	Dalhousie U. Canada SIO	Some	Yes	CEPAC 4/85 SOHP 4/85		

153/E	07/01/85	Three drill sites in the S.E. Pacific	Hays, J.D.	LDGO	Yes	No	CEPAC 7/85 SOHP 7/85 SOP 7/85		
182/E	08/19/85	Sounder Ridge, Bering Sea: Kula Plate stratigraphy	Taira, A.	ORI Tokyo Japan	Yes	Yes	TECP 8/85 SOHP 8/85 CEPAC 8/85		Japanese Workshop
192/E	11/06/85	Drilling on the Baranoff Fan S.E. Gulf of Alaska	Stevenson, A.J. Scholl, D.W.	USGS	Yes	Yes	CEPAC 11/85 SOHP 11/85 TECP 11/85		
195/E	12/05/85	Palaeoenvironment & palaeo--climate in the Bering Sea	Sancetta, C.	LDGO	Some	Yes	SOHP 12/85 CEPAC 12/85		

GENERAL & INSTRUMENTAL PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Futu Nee	Panel Reference	PCOM Reference	Remarks
13/F	1/5/84	Setting-up of a water column research laboratory	Wiebe, P.H.	WHOI	N/A	N/A			
53/F	3/19/84	Vertical seismic profiling for AODP	Phillips, J.D. Stoffa, P.L.	U.T.Austin			DMP 4/84	Approved 9/84	Part of Leg 102
66/F	7/5/84	Laboratory studies of basalt rock cores on SEDCO/BP 471-Principal horizontal stresses in the oceanic crust from anelastic strain recovery and other rock studies	Whitmarsh, R.B.	IOS, UK	Some		DMP (P) LITHP (P)		
69/F	7/23/84	Rock stress measurement in the southern part of the Norwegian Sea	Stephansson, O.	Univ. of Lulea Sweden, ESF			TECP 7/84 DMP 9/84		Revised 7/84
70/F	7/23/84	Borehole seismic experiment at DSDP sites 417 and 603	Stephen, R. Mayer, L. Shaw. P.	LDGO	Some		DMP (P) LITHP (P)	Approved 9/84	Part of Leg 102
128/E	01/21/85	Proposal for an ODP hole dedicated to the physical properties, mechanical state, and structural fabric of deforming sediments in accretionary prisms	Karig, D.E.	Cornell Univ.	Yes	No	SOHP 1/85 TECP 1/85 DMP 1/85 WPAC 1/85		
133/E	03/21/85	In situ sampling of pore fluids during ODP	McDuff, R.E. Barnes, R.O.	U. Washington	N/A	N/A	DMP 3/85 LITHP 3/85		
143/E	04/15/85	In situ magnetic susceptibility measurements with a well log probe	Krammer, K. Pohl, J.	Inst. fur Allgemeine u.Angewan-te, Munich, FRG	N/A	N/A	ARP 4/85 LITHP 4/85 DMP 4/85		
152/E	07/01/85	Borehole seismic experiments in the Tyrrhenian Sea	Avedik, F. Dietrich, M.	IFREMER Brest U.de Brest France	N/A	N/A	ARP 7/85 DMP 5/85		
155/E	07/01/85	Downhole measurements in the Japan Sea	Suyehiro, K. Kinoshita, H. Kanazawa, T. Yamamoto, K.	Chiba, U. Tokyo, U. Tohuku, U. Japan	Yes	Yes	WPAC 7/85 DMP 7/85 TECP 7/85		
155/E	07/01/85	Downhole measurements in the Japan Sea	Suyehiro, K. Kinoshita, H. Kanazawa, T. Yamamoto, K.	Chiba, U. Tokyo, U. Tohuku, U. Japan	Yes	Yes	WPAC 7/85 DMP 7/85 TECP 7/85 LITHP 12/85		Japanese Workshop
159/E	07/15/85	Monitoring changes in the physical conditions across a trench system (Izu-Mariana--Sagami-Suruga)	Kinoshita, H. et al	Chiba U. Japan	Yes	N/A	WPAC 7/85 DMP 7/85 TECP 7/85		Japanese Workshop

160/F	07/15/85	Geophys.conditions of the top most part of the lithospheric plate in the Weddell Sea	Kinoshita, H. Kaminuma, K. Shibuya,K. Kobayashi,K.	Chiba U. Nat.Inst. Pol.Res. ORI Tokyo Japan	Yes	N/A	SOP 7/85 DMP 7/85 TECP 7/85 LITHP 7/85		See proposal 54/C Japanese Workshop
161/F	07/15/85	Magnetic field & Water flow measurements at high temps. in holes accompanying hydrothermal circulation	Kinoshita,H. Kobayashi,K. Furuta,T.	Chiba U. ORI Tokyo Japan	N/A	N/A	DMP 7/85 WPAC 7/85 CEPAC 7/85 ARP 7/85 LITHP 7/85		See proposal 124/E Japanese Workshop
162/F	07/17/85	Offset VSP on the S.W.Indian Ocean Ridge fracture zones	Stephen,R.A.	WHOI	Some	Yes	DMP 7/85 IOP 7/85 LITHP 7/85 SOP 9/85 TECP 9/85		Related to proposal 89/B
186/F	08/28/85	Hydrology & heat flux in the S.W.Indian Ocean fracture zones	von Herzen,R.	WHOI	N/A	N/A	IOP 8/85 DMP 8/85 LITHP 8/85		See Prop.89/B
188/F	09/18/85	Alternate proposal for Leg 109;395A borehole geophysics & 418A drilling & geophysics.	Salisbury,M. (on behalf of DMP)	Dalhousie U. Canada	Yes	No	DMP 9/85 LITHP 9/85 ARP 9/85		
193/F	11/06/85	Cooperative study of upper ocean particulate fluxes in the Weddell Sea	Biggs,D.C.	TAMU	N/A	N/A	SOP 11/85 SOHP 11/85		Proposal to NSF

IDEAS, SUGGESTIONS FOR DRILLING (RECEIVED BY JOIDES OFFICE)

Ref.#	Title	Proponent	Institution	Date Recd	Refer. to Panel	Comments
1	Objectives/suggestions for Mediterranean Leg	Hsu, K	ETH Zurich, Switzerland (ESF)	7/13/83	DSDP/PMP and OPP	
2	Study of sedimentation patterns on the Barbados Ridge and in the Tobago and Grenada Basins	Saunders, J.B.	Naturhistorisches Museum, Basel Switzerland (ESF)	7/19/83		Formal proposal requested
3	Future potential sites in the Gulf of Mexico	Bouma, A.H. Coleman, J.	Gulf Research	1/4/84	TECP (P)	Reference to this in letter on other subject. Memo never received by JOIDES Office.
4	Outline of multi-topical program of Ocean drilling: NE Pacific Ocean	INPAC Group (Rea, D.K.)	Univ. of Michigan	1/6/84	TECP (P) CEPAC 2/84 LITHP	Workshop convened for Feb. 1985
5	Proposed objectives for ODP: Gulf of Mexico	King, J.	Univ. of Rhode Island	1/6/84		
6	Suggested drill sites in the NE Pacific Ocean	Malpas, J.	Memorial University, Canada	1/11/84	CEPAC 2/84 LITHP	
7	Some geological problems and areas of regional interest (Central and Eastern Pacific)	Okada, H.	Shizuoka University, Japan	2/15/84	CEPAC (P)	
8	Peru-Columbia Trench: provisional proposal	Aubouin, J.	Univ. P. & M. Curie Paris, France	2/-/84		Formal proposal requested
9	New Jersey Site 1A	Miller, K.G. Mountain, G.S.	LDGO	3/-/84		
10	General drill sites off Cuba	Case, J.E.	USGS, Menlo Park	3/19/84		
11	Suggestions for drilling on young seamounts in the Eastern Pacific	Batiza, R.	Washington Univ. Missouri	4/9/84	LITHP (P)	
12	Heterogeneity of the mantle	Schilling, J-G. O'Nions, R.K. White, R.M. Frey, F.A. Albarede, F	URI Cambridge Univ., UK Max-Planck.Inst.,FRG MIT CNRS Nancy, France	5/21/84	LITHP 6/84	

13	Gulf of Aden drilling 1987	Girdler, R.W.	Newcastle Univ., UK	6/25/84	IOP 7/84	
14	Potential coring objectives and site locations for future deep sea drilling in the Mediterranean Sea	Thunell, R.	Univ. of S. Carolina	7/6/84	TECP (P)	Formal proposal requested.
15	South Atlantic palaeo-circulation	Robert, C.	IPOD Cttee, France	7/6/84	ARP SOHP	
16	ODP drilling in the tectonic area of Japan	Klein, G. deV.	Univ. of Illinois (Urbana)	7/6/84	TECP (P)	See proposal 146/D
17	Ocean margin drilling project around Japan	Ogawa, Y.	Kyushu Univ., Japan	7/6/84	TECP (P)12/83	Proposals 132/D & 148/D receieved 6/85
18	Some drill sites in the Indian Ocean	Luyendyk, B.P.	Univ. of California, Santa Barbara	8/22/84	IOP (P) TECP 10/84	
19	Suggestions for drilling in the Indian Ocean - Indus Fan	Kidd, R.B.	IOS, UK	9/4/84	IOP 9/84 TECP 9/84	Withdrawn.
20	Drilling in the Indus Fan	Haq, B.U.	Exxon	9/8/84	IOP (P)	Formal proposal requested.
21	Drilling in the SW Somali Basin	Scrutton, R.A.	Edinburgh Univ., UK	9/8/84	IOP (P)	Formal proposal requested. Withdrawn No further action.
22	Drilling in the Atlantis-II Deep, Red Sea	Zierenberg, R.A	USGS, Menlo Park	9/8/84	IOP LITHP TECP	Proposal 120/B received 12/10/84.
23	Transect: Northern Exmouth Plateau to Argo Abyssal Plain	Willcox, J.B. Symonds, P.A. (supported by Gradstein, F.)	BMR, Australia (Atlantic Geoscience Centre-Canada)	9/8/84	IOP SOHP 12/84 TECP	Proposal 121/B received 12/10/84.
24	Drilling stratigraphic bore-hole off the coast of East Africa	Burckle, L.H.	LDGO	10/16/84		Formal proposal requested. Advised to liaise with Kennett (see proposal 117/B)
25	Investigation of hydrothermal processes and basalt dia-genesis in the Gorda Ridge	Hart, R. Fisk, M.	OSU	10/16/84		Formal proposal requested.

26	Deep sea drilling targets near loci of arc volcanism in Marianna back-arc basin	Fryer, P.	HIG	10/19/84	TECP LITHP 10/84 WPAC	Proposal 172/D received 08/19/85
27	Philippines Workshop	Wolfe, J.A.	Taysan Copper Inc., Philippines	11/14/84		Copied to Chairman, WPAC
28	Transect of upwelling zone sedimentation and palaeoceanography of cold circulation 15^{o}-30^{o}S	Kelts, K.	ETH-Zurich, Switzerland (ESF)	11/16/84	CEPAC (P)	Formal proposal requested.
29	504B Drilling	Purdy, G.M. (LITHP)	WHOI	12/10/84	LITHP	Proposal 124/E received 1/2/85
30	Drilling non-hotspot seamounts	Batiza, R.	Washington Univ., Missouri	12/19/84		
31	Physical and mechanical properties of core material	Karig, D.E.	Cornell University	12/19/84		Proposal 128/F received 1/21/85
32	Banda Sea Marginal Basin: trapped ocean crust & displaced continental borderland	Silver, E.A. Jongsma, D. Audley-Charles, M.G. von der Borch, C.C.	Univ. California, S. Cruz Vrije Univ, Amsterdam Netherlands (ESF) Univ. Coll. London (U.K.) Flinders Univ., Adelaide (Australia)	12/28/84	WPAC (P) TECP 12/84	Formal proposal in the name of Silver only received 03/11/85. See Proposal 131/D
33	Workshop on Western Pacific drilling (USSAC)	Hawkins, J.W.	S.I.O.	01/02/85	WPAC (P)	Report of Workshop rec'd 08/20/85. See proposals 170/D, 171/D & 172/D.
34	Drilling in the East Pacific Rise (N. & S. of Clipperton F.Z.)	Fox, P.J. Macdonald, K.C.	U.R.I. Univ. California, S. Barbara	01/02/85	LITHP (P)	No formal proposal likely until at least late 1985.
35	Oceanic plateaus (Kerguelen-Heard)	Schlich, R.	Inst. de Phys. d. Globe Strasbourg (France)	01/03/85	IOP (P)	Rec'd from IOP Chairman See proposal 136/C
36	Upper Mesozoic & Cenozoic palaeoenvironments of S. Indian Ocean (Kerguelen-Gaussberg Plateau)	Leclaire, L.	Mus. Nat. d'Histoire Naturelle, Paris (France)	01/03/85	IOP (P)	Rec'd from IOP Chairman

37	South Antarctic Ocean palaeooceanography (Crozet & Enderby Basins)	Leclaire,L.	Mus.Nat.d'Histoire Naturelle, Paris (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman
38	Sedimentary record of Indonesian volcanic activity	Leclaire,L.	Mus.Nat.d'Histoire Naturelle, Paris (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman
39	Palaeoenvironment and geodynamics of Central Indian Basin	Leclaire,L.	Mus.Nat.d'Histoire Naturelle, Paris (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman
40	Study of shear margin and fault (Davie Ridge)	Leclaire,L.	Mus.Nat.d'Histoire Naturelle, Paris (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman See revised proposal 30/B
41	Carbonate, clastic and other deposits in the Indian Ocean	Jaquet,J.M.	Univ. of Geneva Switzerland (ESF)	01/03/85	IOP(P)	Rec'd from IOP Chairman
42	Tectonics of the Red Sea	Pautot,G	Centre de Brest IFREMER (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman See proposal 140/B
43	Magma generation & mantle heterogeneities, Indian Ocean (Rodriguez T.J.,S.E.,S.W., Central Indian Ocean Ridges)	Schlich,R.	Inst.de Phys.d.Globe Strasbourg (France)	01/03/85	IOP(P)	Rec'd from IOP Chairman See proposal 138/B
44	Suggested drilling in the East Indian Ocean	Falvey,D.A.	BMR,Canberra Australia	01/03/85	IOP(P)	Rec'd from IOP Chairman
45	Drilling on the Shaka Rise	Sclater,J.G.	UT Austin	07/20/84		Paperwork not available Previously classified as Prop. 71/C
46	Drilling proposal on the Antarctic margin off the Adelie Coast	Wannesson,J.	IFP,France	08/02/84	IOP(P)	Only site summary forms received Previously classified as Prop. 73/C Full proposal received 02/25/85(73/C)

47	Madeira Abyssal Plain	Duin,E.J.T. Kuijpers,A. Schuttenhelm, R.T.E.	Geol.Survey of Netherlands (ESF)	06/21/84		Not full proposal. Previously classified as Prop.63/A
48	Bare-rock drilling for hydrothermal objectives:Leg 106	Rona,P.A.	NOAA,Miami	02/25/85	LITHP(P)	Full proposal requested
49	Stratigraphic tests proposal	SOHP	Panel proposal	04/02/85	IOP(P)	Full proposal expected
50	Proposal for a workshop on scientific seamount drilling (proposal to NSF)	Watts,A.B.	LDGO	04/11/85		
51	Hydrogeology experiments to be performed during the first two years of ODP (proposal to NSF)	Becker,K. Gieskes,J.	SIO	05/22/84		
52	Back-arc spreading & fresh-water sediment: Japan Sea	Koizumi,I.	Osaka Univ., Japan	05/03/85	WPAC	Related proposal 157/D received 7/85 Formal proposal requested Japanese Workshop
53	Geochemical significance of hard-rock drilling in the S.E.Indian Ocean	Frey,F.A.	M.I.T.	05/14/85	IOP(P)	Proposal 150/B received 07/01/85
54	Workshop to evaluate upper ocean dynamics studies in conjunction with ODP operations (proposal to NSF)	Miller,C.B. Wiebe,P.H.	OSU WHOI	07/01/85	SOHP	
55	Manila forearc & opening of the Japan Sea	Niitsuma,N.	Shizuoka Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested
56	Accurate dating of the Hawaiian hotspot	Niitsuma,N.	Shizuoka Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested
57	DSDP Hole 462A,Nauru Basin	Fujii,N.	Kobe Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested

55	Manila forearc & opening of the Japan Sea	Niitsuma,N.	Shizuoka Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested
56	Accurate dating of the Hawaiian hotspot	Niitsuma,N.	Shizuoka Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested
57	DSDP Hole 462A,Nauru Basin	Fujii,N.	Kobe Univ.,Japan	08/19/85		Japanese Workshop Formal proposal requested
58	NORPAC drilling proposals	Scholl,D.	USGS	11/13/85		USSAC Workshop
59	Scientific rationale for establishing long-term ocean bottom observatory/laboratory systems	Delaney,J.R.	U.Washington	11/12/85		Formal proposal requested
60	Mantle peridotite drilling	Bonatti,E.	LDGO	10/22/85		Related to 89/B

JOIDES EXECUTIVE & PLANNING COMMITTEES'S POLICY

(since 1981)

Following are the annual updates of JOIDES Executive and Planning Committees' policy since 1981 and PCOM Planning Policy for the ODP since 1982. These documents incorporate revisions resulting from meetings held in 1985.

JOIDES POLICY (since 1981)

Executive Committee

204	Special Interest Groups (1981) [Consensus]	Considers seriously matters of cooperating with special groups such as the Seabed Working Group. It recognizes problems in such arrangements, both political, philosophical and technical. It generally agrees that such arrangements should be treated as a case-by-case basis and evaluated on their scientific merits. The EXCOM does not rule out cooperative efforts between JOIDES and other groups to address objectives of initial interest so long as such programs are made sufficiently early so that they may be handled through JOIDES Panels and PCOM in the usual way.
217	Ownership of Holes (1982) [Consensus]	Generally agreed that it was unwise to pose the question of ownership of JOIDES-drilled holes to governmental agencies. The problem to be addressed was one of <u>coordinating</u> the use of holes internally within the international marine geological and geophysical community. JOIDES could perhaps establish a mechanism to internally coordinate the responsible use of holes.
222A	Scientific Program (1982) [Motion]	The scientific program funds must be identified in accordance with a sound plan including surveys, syntheses and new technological developments designed to achieve the scientific objectives of high priority as given in the COSOD report. These funds should be separately budgeted from the project, ships conversion and operations funds to ensure that the scientific efforts remain in propoer balance with the other elements of the drilling program.
222B	Logging (1982) [Motion]	EXCOM repeats its recommendation that logging should be a normal requirement of each leg, exceptions being made, for example, where a leg consists of shallow holes cored by HPC.

222C	Science Advisory Structure (1982) [Motion]	The Executive Committee instructs the Planning Committee to make recommendations to EXCOM leading to the phase-out of the existing advisory panel structure and its replacement by a new panel structure more appropriate for achieving the objectives of the Advanced Ocean Drilling Program.
223A	Site Survey (1982) [Motion]	EXCOM recommends that the PCOM provide a list of areas of interest and their priority as a basis for submission and coordination of site and regional survey efforts. To this end, PCOM members should be invited to present annually the cruise programs of their institution (or nation), followed where possible by a formal undertaking to carry out site surveys in specific areas. Coordination of scientific effort and equipment is desirable.
242	JOIDES Office (1983) [Motion]	The JOIDES Office will rotate biannually among participating U.S. institutions except for the science operator. The JOIDES Office will be responsible for the JOIDES Journal. JOI Inc. will provide logistical support and travel arrangements.
250A	PCOM Membership (1983) [Motion]	Each member of the EXCOM shall designate one member of the PCOM and an alternate to serve in the absence of the designated member. Commencing 1/1/84, one quarter of the PCOM members shall rotate off the Committee annually, so that its membership is replaced every four years. Reappointment shall be made only in exceptional circumstances. All appointees to the PCOM shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to the program. Balance of fields of specialization on the PCOM shall be maintained, as far as possible, by informed consultation amongst the U.S. member institutions prior to selection of their appointees.

		The chief scientists of the science operations and wireline logging contractors and an appointee of NSF are non-voting, liaison observers.
250B	Science Advisory Structure (1983) [Motion]	EXCOM accepts and approves the concept of the science advisory structure presented by PCOM (see Figure 1).
250C	Core Storage Matters (1983) [Motions]	*i. Existing sample distribution policy should be adopted without substantial change (Motion - adopted). ii. One core curator should be in charge, regardless of the number of repositories, and the core curator should be located at the science operator institution (Motion approved with insufficient votes for 2/3 policy adoption). *iii. Initial Core Descriptions should be reinstated in published form (Motion - adopted). *iv. It is desirable that sample distribution should be accomplished within 2 months of request of receipt (Motion - adopted).
244	Downhole Measurements Panel (1983) [Motion]	EXCOM authorizes PCOM to reinstate the Logging Advisory Panel (DMP) as a component of the science advisory structure.
263	DSDP Initial Reports (1983) [Consensus]	The target for receipt of scientific contributions is 36 months after the cruise; some flexibility in the schedule is desirable.
268A	Science Advisory Structure (1983) [Motion]	The DSDP advisory structure will be terminated on 1 January 1984 and will be replaced by the ODP Advisory structure.
268A/1	Panel Membership (1983) [Consensus]	An ODP project panel (not a JOIDES panel) informally known as an Industry Review Group will provide TAMU with technological advice on an ad hoc basis. A JOIDES Task Group should be formed to

		assist TAMU in securing drilling clearances. Formal contacts should be paralleled by contacts at the scientific level.
268A/2	Clearances for drilling (1983) [Consensus]	A JOIDES Task Group should be formed to assist TAMU in securing drilling clearances. Formal political contacts should paralleled by scientific level contacts.
268B	Conflict of Interest (1983) [Motion]	If a PCOM member is a proponent of drilling sites, the proposal must be reviewed independently by thematic or regional panels and the PCOM member is not to be involved in any substantive advisory role or in any final voting on the proposal at PCOM meetings.
268C	Drill Sites Proposals Publication (1983) [Consensus]	To ensure that all sites are treated fairly, the list of drill sites and the reason for acceptance or rejection should be published. (Note: Amended by Motion 320.)
268D	Archives (1983) [Consensus]	DSDP/IPOD material will be archived at SIO or will be temporarily stored at JOI Inc. until such time as a permanent repository can be found. Funds for historical analysis of the files may be available within NSF Directorates for such studies and interested historians may submit unsolicited proposals to NSF.
268E	Name of the Program (1983) [Consensus]	Any change of the project name would result in confusion; the name of the Ocean Drilling Program should be retained. (See PCOM Motion 442B)
270A	EXCOM Terms of Reference-Annex B (1983) [Motion]	Annex B be adopted as amended.
271	Developing Countries Scientists (1983) [Motion]	EXCOM generally supports the inclusion of developing countries in the drilling program.

283	Site Surveys Coordination (1984) [Motion]	a. EXCOM recognizes that it should be the responsibility of those scientists making specific drilling proposals to obtain adequate site survey information. b. EXCOM asks PCOM to examine the role of the Site Survey Panel. c. EXCOM suggests that PCOM should consider the desirability that the JOIDES Office acts as a coordinating office to link scientists having specific drilling proposals needing additional site survey information to a representative of each panel who will be in a position to disseminate the need to relevant scientists and institutions in their constituency.
289	Third World Scientists & UNESCO (1984) [Consensus]	Each JOIDES member nation will use bilateral agreements to aid participation in ODP by Third World scientists. The EXCOM reaffirms such participation.
290	Leg Numbering (1984) [Motion]	The ODP legs shall be numbered consecutively beginning with LEG 101 and Site 625.
296	Budgeting Decisions (1984) [Consensus]	JOI will keep a record of how important budgetary decisions are reached and will distribute the record to EXCOM as part of the JOI report.
301A	Proposals Publication (1984) [Consensus]	EXCOM recommends that the PCOM publish, in the JOIDES Journal, lists of proposals received by JOIDES. The lists are to be grouped by region and/or theme. Proposal status is to be that they have been referred to the appropriate regional or thematic panels and that interested scientists wishing to contribute to these ideas can submit other proposals to the JOIDES Office or can contribute comments addressed to the appropriate panel chairman.
301B	PCOM Chairman (1984) [Consensus]	The Chair of PCOM shall rotate with the JOIDES Office among the U.S. JOIDES institutions, excluding the science operator institution. The term of office is normally two years.

305A	ODP Data Bank (1984) [Motion]	Co-mingled funds are to be used to support the IPOD Data Bank and, further, the name of the IPOD Data Bank shall be changed to the ODP Data Bank.
305B	Proposals and Site Surveys (1984) [Consensus]	EXCOM will not interfere with panel decisions regarding proposal recommendations. Further, the Chile Triple Junction site survey problems are primarily a U.S. community issue, but the decision to include it in the drilling program is a JOIDES decision.
306	Ship's Name (1984) [Motion]	EXCOM accepts the name JOIDES Resolution as the the non-legal name of the drillship SEDCO/BP 471.
309	Panel Responsibilities (1984) [Consensus]	Panel decisions on proposed drill sites should be based on their scientific merit and not on political issues.
310	Site Survey Funding (1984) [Consensus]	EXCOM does not favor the use of co-mingled funds to fund site surveys.
311	Membership (1984) [Motion]	EXCOM recognizes that the ODP is scheduled to begin its operational phase on 5 January 1985. At that time, JOIDES membership will consist of those countries which have a regular member MOU agreement with NSF. Further, those countries who have made a commitment to NSF to join ODP in the future will be given observer status on EXCOM and PCOM. Scientists from non-JOIDES countries which were formerly candidate member countries will no longer be members of PCOM panels after 5 January 1985, but they shall be eligible for re-appointment.
315A	Membership - U.K. (1985) [Motion]	The JOIDES Executive Committee expresses its appreciation and admiration for the U.K.'s long history of oceanographic research and for its active and vital participation as a charter member of the International Phase of Ocean Drilling.

The EXCOM is conscious of and sensitive to the current difficulties found by the U.K. in attempting to join the Ocean Drilling Program and urges the U.K. to increase its efforts to join the Program.

It is the position of the EXCOM that entry of the U.K. to the Ocean Drilling Program, other than as a full member, would be neither appropriate nor in the best interest of the Program or of the other full members. This position is justified by the size of the U.K.'s relevant scientific community, its economic stature, and the level of its prior involvement in scientific ocean drilling.

The Ocean Drilling Program has now commenced virtually on schedule, within budget and with a vastly improved scientific capability. For the Program to proceed and reach its full potential as planned, the EXCOM urges the U.K. to become a full member by October 1985.

315B	Membership - ESF and Australia (1985) [Consensus]	Communications must be kept open and the ESF should be encouraged to become a full member by appropriate means. EXCOM encourages the Australians to become active and committed to the ODP. If special arrangements are applied to the U.K. membership issue, then those measures should also apply to the ESF. EXCOM noted that the previous statements imply that Australia should seek to join ODP in conjunction with the ESF. (See Consensus 346B)
315C	Invitation of Non-members as Guests to PCOM and Panels (1985) [Consensus]	PCOM may continue to invite scientists from the U.K., ESF, and Australia as guests but only when it is absolutely necessary for scientific planning. Panels should be limited to those representatives of member nations except where a specific speciality is needed.

317	Scientific Implications of Budget Decisions (1985) [Consensus]	There should be a dialogue between JOI Inc. and the JOIDES community when budgetary matters are being decided. This suggestion is made in order that fiscally sound decisions may be reached through negotiation and the rationale for the decisions and their input on planning discussed by all parties.
320A	Drill Sites Proposals Publication (1985) [Consensus]	Motion 268C should be amended to read: To ensure that all sites are treated fairly, the list of drill sites and their disposition should be published.
320B	Participation of Scientists from Developing Countries (1985) [Consensus]	EXCOM agrees with the position taken by PCOM (Consensus 523) on the participation of scientists from developing countries. Further, in order to fully address the matter, EXCOM would like a variety of different approaches to be investigated.
333A	Publications Policy (1985) [Consensus]	It was agreed that there was an urgent need to review the publications policy and its budget implications, taking into account both the needs of the Program and advances in information technology.
336	USSR Participation in ODP (1985) [Motion]	The JOIDES Executive Committee, recognizing the many contributions of scientists from the USSR to the success of the International Phase of Ocean Drilling (IPOD) and their significant presence in the world community of marine geologists and geophysicists, urges the National Science Foundation to vigorously pursue a course of action leading to the early re-establishment of a Memorandum of Understanding providing for Soviet Union participation in the Ocean Drilling Program. (See Motion 346C and 346D)

346A	Contacts with Continental Drilling (1985) [Consensus]	It was agreed that the DMP and TEDCOM should establish and maintain connections with continental geothermal activities as it appears that political and scientific interests in some countries are leaning in the direction of continental drilling programs. Therefore it is wise to develop complementary exchange programs that do not compete but draw on common interests. An effective means of cooperation is to use the workshop concept for projects of mutual interest. Scientist-scientist interaction is also a very productive mechanism.
346B	ESF Membership (1985) [Consensus]	EXCOM reiterates its belief that full membership and long-term commitment are not negotiable principles. However, a potential member can start at any time within a U.S. fiscal year. Consequently, ESF could start at any time when its commitment for subsequent years as a full member has been established. The flexibility in starting dates provides a practical mechanism for any potential new member to organize its subscription in an appropriate way. (See Consensus 315B)
346C	USSR Participation in ODP (1985) [Motion]	Referring to the motion agreed upon 5 June 1985, the JOIDES Executive Committee welcomes the attendance of Dr. V. Krasheninnikov at its present meeting. Recognizing the many contributions of scientists from the USSR to the success of the International Phase of Ocean Drilling (IPOD) and their significant presence in the world community of marine geologists and geophysicists, the JOIDES Executive Committee invites the USSR Academy of Sciences, as the body primarily responsible for IPOD participation, to join the Ocean Drilling Program by signing a Memorandum of Understanding (MOU) with the National Science Foundation and thereby joining JOIDES. (See Motion 336)

346D	USSR Participation in ODP (1985) [Motion]	The JOIDES Executive Committee welcomes the interest of USSR scientists in the Ocean Drilling Program. We encourage applications to the Science Operator, Texas A&M University, from qualified Soviet scientists, in order to permit their consideration for membership of the shipboard scientific party.
347	Staffing JOIDES Panels (1985) [Consensus]	It is the general agreement of the Executive Committee that the worldwide community is available as a talent pool for filling positions on the JOIDES thematic and regional panels.

Figure 1

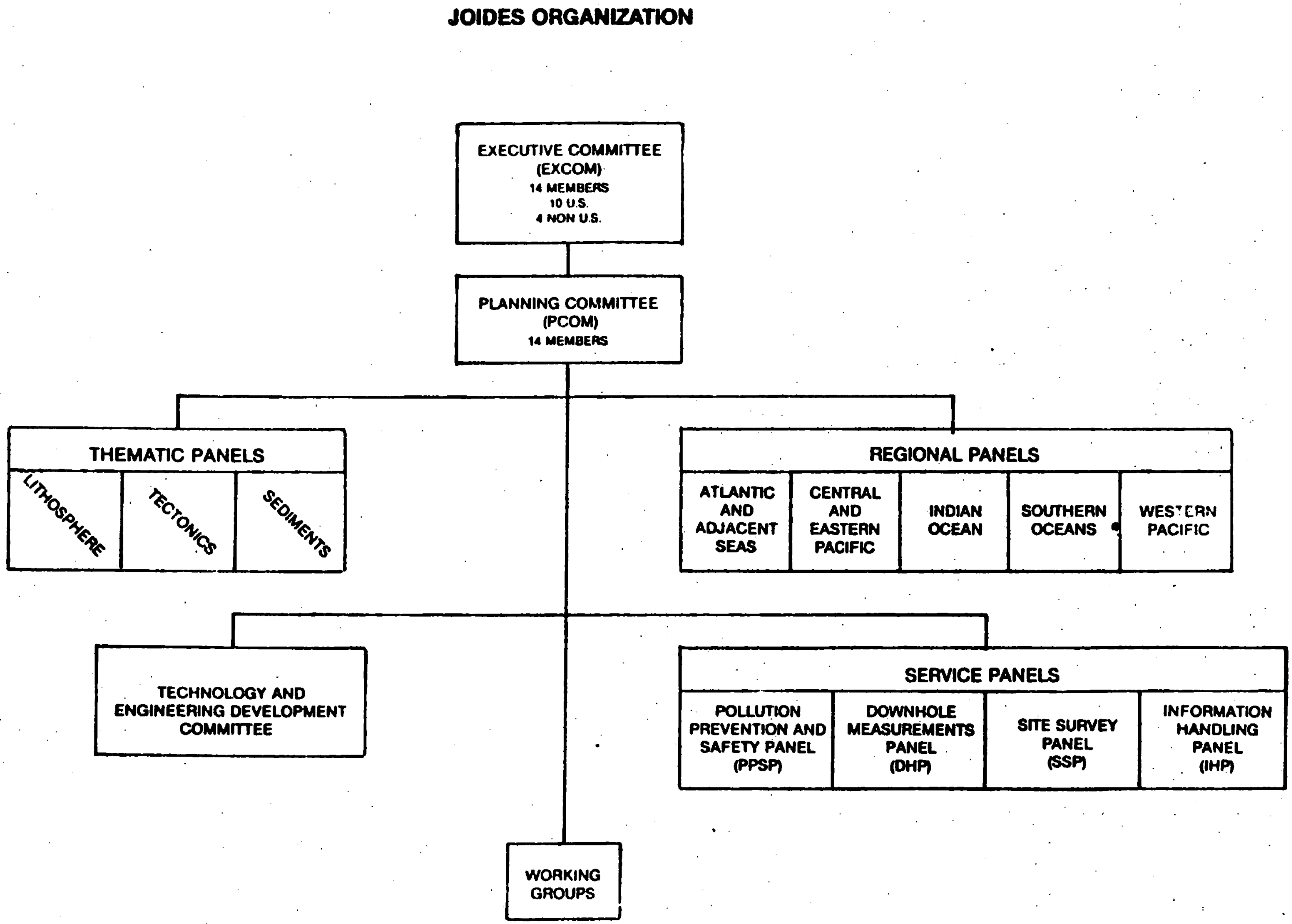


Figure 1

ANNEX B (as amended)

Terms of Reference for
JOIDES EXECUTIVE COMMITTEE
FOR THE OCEAN DRILLING PROGRAM

1. This committee shall formulate scientific and policy recommendations with respect to the Ocean Drilling Program (ODP). It shall conduct the ODP planning, as well as evaluation and assessment of the Program as to its accomplishments as compared to the goals and objectives which have been established. It may be assigned managerial and operational responsibilities for appropriate tasks.

2. The members of this committee shall be representatives of oceanographic and marine research institutions or other organizations which have a major interest in the study of the sea floor and an adequate capability in terms of scientific manpower and facilities to carry out such studies.

3. The initial membership of this committee will be comprised of one representative of each of the tour non-U.S. countries participating in International Phase of Ocean Drilling (IPOD) under active Memoranda of Understanding (MOU) with the National Science Foundation (NSF) [France, Federal Republic of Germany, Japan, and the United Kingdom] and one representative of each of the 10 existing U.S. institutions (University of Miami, University of Washington, Oregon State University, University of Hawaii, University of Rhode Island, University of Texas at Austin, University of California, San Diego, Texas A&M University, Woods Hole Oceanographic Institution and Columbia University) which are currently participating in the JOIDES Executive Committee for IPOD. The appointment of additional members will be determined by the Board of Governors on the recommendation of the JOIDES Executive Committee. In the case of

representatives of non-U.S. country participants. the existence of a valid MOU with NSF is a prerequisite to membership.

Membership of any member may be cancelled by the Board of Governors on the recommendation of the JOIDES Executive Committee or in the event of a non-U.S. country participant ceasing to have a valid MOU in existence.

4. Each institution or organization designated for participation on this committee by the Board of Governors shall provide one voting member, normally the director or senior deputy thereto.

5. The Executive Committee shall reach all its decisions by the affirmative vote of at least two-thirds of all members including members from at least two countri A quorum shall consitute two-thirds of the Executive Committee. Notices of meetings and agendas will be sent to members 60 days prior to the time of the meetings. If a member of the Executive Committee is absent from a duly called meeting of the Executive Committee, he or she may designate an alternate from his or her institution, with full authority to act for him or her in his or her absence.

6. The Committee may establish subcommittees for cognizance of certain components of the Ocean Drilling Program. Areas of cognizance and the terms of reference for each subcommittee shall be defined by the Executive Committee. In particular a Planning Committee shall be established. It shall be composed of one member (with an alternate) designated by each member of the Executive Committee. This Committee shall act on the basis of a vote of a majority of all members.

7. The Committee, and all subcommittees thereto, shall keep written records of their proceedings.

8. Members of this Committee, and members of subcommittees duly appointed thereby, while acting within the terms of reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses,

costs, and expenses arising from acts or omission related to performance as committee members.

9. These Terms of Reference, upon ratification by members of the existing JOIDES Executive Committee for IPOD and adoption by JOI as an amendment to its By-Laws, will supercede all previous JOIDES agreements.

JHC
September 9, 1983

JOIDES POLICY (since 1981)

Planning Committee

375	DSDP Phase Down (1982) [Motion]	a. Essential to the task of completing the Challenger is to maintain the present level of effort in publishing the Initial Report volumes and other DSDP publications for a period of 30 months after drilling. b. Recognizing that data processing and dissemination are long-term tasks and will continue into the indefinite future, PCOM recommends that the present DSDP staff continue these functions for at least 30 months after Challenger drilling. c. Whilst recognizing that the Challenger cores will provide an invaluable asset for the indefinite future, PCOM recommends to NSF that curatorial activities continue at their present level for a period of five years beyond drilling.
376D	TEDCOM (1982) [Motion]	To ensure the availability of new engineering and technological developments necessary to achieve the scientific objectives of ODP as identified in the COSOD document, PCOM designates the establishment of an Engineering and Technological Development Panel.
382	Ship Operations (1982) [Consensus]	Ship operations should be under the control of the project Chief Scientist and free from excess interference by management.
390	Site Surveys (1982) [Consensus]	Each non-U.S. member representative should try to determine (at least approximately) the likely level of activity in site surveys, regional synthesis and post-cruise studies, for presentation to PCOM. PCOM recognizes that need for science services and science development and alerts members of the international community to these needs.

417	Continental Drilling (1983) [Consensus]	PCOM should attempt, as soon as possible, to establish formal contacts with the continental drilling community.
423	Core Storage Matters (1983) [Motion - see EXCOM for EXCOM reaction to PCOM motion]	i. Existing sample distribution should be adopted without substantial change (adopted by EXCOM). ii. One curator should be in charge regardless of the number of repositories (adopted by PCOM, favored by EXCOM with insufficient votes for policy adoption). iii. One core repository having a convenient location should house all existing and future cores (rejected by EXCOM). iv. Initial Core Descriptions should be reinstated (adopted by EXCOM). v. HPC cores should be routinely x-radiographed and videotaped (adopted by PCOM). vi. Sample distribution should be accomplished within 2 months of receipt of request (adopted by EXCOM).
426	Planning (1983) [Consensus]	a. PCOM adopts a ship route which shows a Gulf of Mexico start, a clockwise transit of the North Atlantic, the Mediterranean Sea, passing through the Panama Canal and a southward transit along the west coast of South America to the Weddell Sea. b. The list of targets between the Norwegian Sea and the Weddell Sea and a bare-rock East Pacific Rise target are the areas for which site surveys will be required in the near future.
428	Scientific Advisory Structure (1983) [Motion]	a. The science advisory structure of JOIDES will consist of a Planning Committee, a Technology and Engineering Development Committee, three thematic panels, a number of regional panels and five service or operational panels. Ad hoc working groups will be nominated as required. b. The five regional panels shall be: Atlantic; Central and Eastern Pacific; Western Pacific; Indian Ocean; and Southern Oceans Regional Panels. c. The general purpose, mandate, structure, membership and organization of the PCOM as defined in the terms of reference (Annex 1) be submitted to EXCOM for

		approval. PCOM requests that the EXCOM define the terms of membership and the terms of office.
432	DSDP Ship Scheduling (1983) [Consensus]	Ship scheduling is an operations problem and is not the concern of PCOM.
433	ODP Publications Policy (1983) [Consensus]	PCOM supports the TAMU effort to make publication of ocean drilling results more efficient.
435	Drilling Proposals & Site Surveys (1983) [Consensus]	The existing policy that proponents should supply site survey information with a drilling proposal should be enforced.
436	Wireline Services (1983) [Motion]	PCOM appointed a subcommittee to examine the Logging Advisory Panel should also consider: a) policy for distribution of log data; b) mandate for the advisory panel; and c) policy to ensure the LDGO does not have unfair advantage in the use of ODP log data.
438	PCOM Membership (1983) [Motion]	PCOM accepts the EXCOM version of PCOM membership.
439	Initial Drilling Schedule (1983) [Motion and Consensus]	PCOM adopts the area in the vicinity of 23°N and the Kane Fracture Zone as the location of an axial drilling leg and a test of bare-rock drilling [Motion]. PCOM favored early development of bare-rock drilling [Consensus].
440	Panel Membership (1983) [Motion]	a. PCOM adopts the Downhole Measurements Panel terms of reference (Annex 1). b. Membership of thematic panels will be appointed by PCOM, which will maintain a balance between non-U.S. JOIDES participants, U.S. JOIDES institutions and others.
442A	Archives (1983) [Motion]	DSDP engineering development files be sent to TAMU as soon as possible.

442B	ODP (1983) [Motion]	EXCOM is requested to restore an international character to the new drilling program.
453	Conflict of Interest (1984) [Consensus]	a. The PCOM member "is not to be involved in any substantive role" is understood by PCOM to mean that a PCOM member who is also a proponent of specific drilling sites shall not utilize his PCOM position to preferentially promote the proposed drill sites. He may, however, relay information and enter into pertinent discussions to the same extent expected of any other (non-PCOM) proponent. He may not be involved in any final voting on the proposal at PCOM meetings. PCOM members are not to be excluded from the pool of scientists from which co-chief scientists for ODP cruises are selected. b. Fairness will be ensured if all drilling proposals are reviewed by one or more advisory panels. The panels prioritization of proposals and the teasons for prioritization should satisfy the "reason for acceptance or rejection issue." Furthermore, the PCOM chairman will explain the reason for rejection in a letter to the proponent. Fairness in the treatment of all proposals will also be promoted by tighter control of each proposal through the JOIDES system. The JOIDES Office will track the status of each proposal.
454	Micropalaeontology Reference Center (1984) [Motion]	a. The eighth micropalaeontological reference center shall be located at TAMU. b. A micropalaeontology reference collection not be maintained on the drillship and the location of that collection be held in abeyance until further membership of ODP is known.
455	Downhole Measurements (1984) [Motion and Consensus]	PCOM endorses the recommendations of the DMP logging recommendations (see Annex 2) [Motion]. PCOM agreed that industry representatives should help determine logging requirements for each leg (on a leg by leg basis) [Consensus].

457	Bare-rock Drilling (1984) [Consensus]	ODP is reminded of the importance of bare-rock drilling in the new program. Development of bare-rock drilling is a high priority task.
460	Proposal Guidelines (1984) [Consensus]	A guide for the submission of drilling ideas should be compiled and publicised. This should be in two parts. Part (a) should be for submission of ideas (not a formal proposal) and part (b) is the guide for submission of drilling proposals. It should be made clear that completion of part (b) must be completed before a proposal is considered by PCOM.
473	Budget (1984) [Motion]	The PCOM requests that it receive, each year, a draft of the proposed ODP budget at a sufficient level of detail so that it may have full information for future scientific recommendations.
475A	Logging (1984) [Motion]	PCOM reiterates its scientific advice that there should be conventional logging on every leg (from previous policy: only deeper than 400 m).
475B	Engineering and Downhole Developments (1984) [Motion]	JOI should be advised of the JOIDES long-standing recommendations that the engineering and downhole development programs have as their highest priorities the ability to drill and sample in the subduction thrust zone and on barerock. (Motion approved with insufficient votes for two-thirds policy adoption.)
478	Ship's Capabilities (1984) [Consensus]	TAMU should define the drilling limits of the new vessel and should make the information available to PCOM so that future planning is realistic.
486	Initial Reports Publication (1984) [Motion]	All IPOD/DSDP Initial Reports are to be published.
491	ODP Publications (1984) [Motion]	a. PCOM recommends against publication of ODP Journal. b. To accept the recommendations of the IHP regarding publication for each leg of

		an initial report (Part A) to include a simple introduction, the site chapters with the ICD equivalents and a simple summary, to appear about one year post-cruise and a scientific report (Part B) to appear 3 years post-cruise.
497	Working Groups and Workshops (1984) [Consensus]	PCOM was not in favor of endorsing a particular working group or groups. Workshops could be a good way, in principle, to channel plans, proposals and ideas into the ODP and national or international groups should be urged to hold workshops.
500	Shipboard Party (1984) [Motion]	On each leg at least one scientist competent and interested in using logs for science be part of the scientific crew, and that other logging specialists on board should not be regarded as part of the scientific staff.
504	Panel Chairmen Expenses (1984) [Motion]	Each thematic, regional and service panel chairman is to receive up to $1000 p.a. from JOIDES for incidental expenses.
516	Proposals - Feedback to Proponents (1985) [Consensus]	Once drilling plans have been finalized for a particular area, it is implicit that all other proposals have been unsuccessful and that this was an appropriate time for the PCOM Chairman to communicate to unsuccessful proponents informing them of the schedule and suggesting that proponents may wish to resubmit proposals (suitably revised) prior to the next round of drilling in the area.
518A	Rotation of Panel Membership (1985) [Motion]	The appropriate lines of the 1984 Terms of Reference shall be replaced with "panelists appointed in 1985 and future years will serve 3 years, with one-third of the panelists to be replaced each year."
518B-D	Disbandment of Working Groups (1985) [Motions]	PCOM recommends that the Mediterranean (following one further meeting prior to 1 July 1985), the Caribbean and Norwegian Seas Working Groups be disbanded.

518E	Establishment of Working Group (1985) [Motion]	A Red Sea Working Group should be created which should report to the Indian Ocean Regional Panel.
518F	Panel Coverage of Northern Oceans (1985) [Consensus]	The present Atlantic and Central & Eastern Pacific Regional Panels should extend their boundaries to the North Pole.
520	Publicity for Longer-Range Planning (1985) [Consensus]	A general outline of drilling as presented by PCOM should be publicized as widely as possible to encourage proposals and also indicate to proponents the planning time-scale adopted by PCOM.
523	Inclusion of Scientists from Developing Countries (1985) [Consensus]	Panels should be asked to explore opportunities for scientific collaboration from non-ODP members. This request is made in the interest of maximizing scientific opportunities in areas of drilling.
524	ODP Shipboard Scientists Publication Policy (1985) [Motion]	PCOM adopted the publications policy previously operated by DSDP as amended with the underlined addition: Any publication of results other than in ODP reports within 12 months of completion of the cruise must be approved and authored by the whole shipboard party and, where appropriate, shorebased investigators. After twelve months, individual investigators may submit related papers for open publication provided they have already submitted <u>and had accepted</u> their contributions to the ODP reports. Investigations which are not completed in time for inclusion in the ODP reports for a specific cruise may be published in a later edition of the ODP reports; however, they may not appear in another journal until the report for which they were intended has been published.

533	Publication of ODP Logging Data (1985) [Consensus]	Data from the standard logging tools be printed as a logging summary in the initial site chapters (Part A) and interpretations and analyses should appear in Part B of the Proceedings of the ODP. The format of the summaries should be the subject of advice from the IHP and DMP.
536	Purchasing of Logging Equipment (1985) [Consensus]	A subcommittee should be formed to prepare a PCOM priority listing of items from which short-term decisions on purchasing will be made. The list will be compiled after reviewing previous lists, and adjustments to the present list will be made as they are needed. (The subcommittee initially consisted of the PCOM Chairman (Larson), McDuff, and Von Herzen).
539	Revised Guidelines for Proposal Submission (1985) [Consensus]	Revised guidelines were agreed.
540A	Terms of Reference (1985) [Motion]	The words "task group" be removed from Section 1, and Sections 3.2 and 6 be deleted. Section 9 should replace Section 6 and, within that section, the words "task groups" be removed and replaced by "working groups."
540B	Terms of Reference (1985) [Consensus]	The concept of working groups should be revised to the original wording as written at the Morpeth PCOM and the Swinden EXCOM acceptance.
546	Non-routine Experiments (1985) [Motion]	PCOM reminds the various components (including the science and wireline logging operators, proposal proponents, and co-chief scientists) of ODP that non-routine experiments may not be scheduled without its prior approval.

552A	Logging Priorities (1985) [Motion]	PCOM considers the development of the wireline packer to be of higher priority than the digital BHTV and this constitutes formal advice to the Wireline Services Contractor. Further, PCOM considers placing the existing logging software on the JOIDES RESOLUTION as the next priority after the wireline packer development.
552B	JOI Budget FY 86 (1985) [Motion]	PCOM believes that any increase in the total direct costs by JOI Headquarters for FY 86 does not seem to be consistent with the present austerity budget and the overall scientific objectives.
552C	FY 86 Budget (1985) [Motion]	PCOM commends TAMU and LDGO for the design, construction, and initial operation of drilling, logging, and analysis systems that provide the opportunity to study the marine earth sciences at a significantly advanced level relative to DSDP. PCOM notes with dismay that a significant percentage of the COSOD objectives originally scheduled for 1986 will not be met primarily due to financial constraints. With those constraints in mind PCOM has proposed a consensus on program revisions (see PCOM Planning Policy - June 1985, Minute 552). PCOM further notes that the continuation of this fiscal shortfall into future years threatens the long-term viability of the Program. Therefore, PCOM urges the EXCOM and the NSF to pursue with utmost priority the involvement of a minimum of six full international members in ODP.
561	Third World Participation (1985) [Motion]	The JOIDES Office is asked to establish an information transfer service to AGID, IOC, CCOP, and SCOR for the purpose of conveying future plans of the ODP for operations in the Indian and Pacific Oceans. Further, advice should be obtained from these organizations concerning the procedures needed in order to include individual Third World scientists in the ODP.

565A	Logging (1985) [Motion]	The PCOM reiterates its requirement to have a standard logging package run in each hole deeper than 400m and defines standard logging as a suite of sonic, electrical resistivity, and active nuclear tools to be run within a reasonable time period.
565B	Shipboard Party (1985) [Motion]	Amendment to Motion 500: PCOM recommends that the Wireline Logging Services Contractor should make nominations to the Science Operator for the Shipboard Logger (personnel from within the logging subcontract) to be included as part of the scientific party of each leg.
567	Publications (1985) [Motion]	PCOM reiterates its original publication policy (Parts A & B: Proceedings of the ODP). A further financial review should be undertaken of the option of producing Part B in journal form. (See 491)
572	Panel Chairmen's Expenses (1985) [Consensus]	The $1000 p.a. allotment is sufficient to conduct activities associated with panel chairmanship and that JOI Inc. should attach a condition to these funds stating that it will only accept billings from the chairmen's institutions if the overhead requirement is waived. (See 504)
575	Databank Review	PCOM has agreed in principle with the recommendations of the Review Panel. PCOM noted that the Review Panel report includes specific recommendations regarding a modest increase to the originally proposed ODP Databank budget. PCOM refers this budgetary issue to the JOIDES Site Survey Panel, its designated oversight panel for the Databank, and requests that the advice of the SSP, regarding any small budget adjustments, be transmitted directly to JOI management for appropriate action.

TERMS OF REFERENCE
Science Advisory Structure of JOIDES
for the Ocean Drilling Program (ODP)

The purpose of the ODP Science Advisory Structure of JOIDES is to enable the formulation of the most productive scientific plan for the program. JOIDES is open to suggestions and proposals from the entire scientific community, and its plans shall be open to continued review and revision.

1. The Science Advisory Structure of JOIDES will consist of a Planning Committee, a Technology and Engineering Development Committee, three thematic panels, five regional panels, and five service panels. Ad hoc working groups may be created by the Planning Committee as requested by the panels or by the Planning Committee itself.

2. Each committee, panel and working group will operate under a mandate, along with guidelines as to membership and frequency of meetings. Mandates, guidelines, and their amendments shall be proposed by the Planning Committee for approval by the Executive Committee.

3. Planning Committee

3.1 General Purpose. The Planning Committee recommends to the Executive Committee and to the Science Operator plans designated to optimize the scientific productivity and operational efficiency of the drilling program, normally by coordinating, consolidating, and setting into priority the advice received from the panels. More specifically, the Planning Committee is responsible (a) for planning the general track of the drilling vessel about 3 years in advance of drilling; (b) for fostering communications among and between the general community, the panels, the Science Operator, and itself: (c) for soliciting, monitoring, and coordinating the advancement of drilling proposals; and (d) for the establishment of a scientific drilling program by about one year in advance of drilling.

3.2 Mandate. The Planning Committee is responsible for the mandates of the various panels and working groups and their membership. It approves their meetings and agendas and may assign special tasks to them. The Planning Committee sponsors and convenes COSOD-type conferences about every three years. It identifies the proponents of proposals and assigns to thematic and regional panels proposals for review. It sets the scientific objectives of the proposals into final priority after they are reviewed by the Thematic Panels and Regional Panels. The Planning Committee nominates the chief scientists to the Science Operator. It periodically reviews this advisory structure in the light of developments in science and technology and recommends amendment of its panel structure and mandates. Much of the working of the Planning Committee is carried out by the commissioning of reports from the panels, the working groups, and ad hoc subcommittees of its own membership, and by its chairman at the JOIDES Office.

3.3 Structure. The Planning Committee is empowered to establish an infrastructure appropriate to the definition and accomplishment of tasks described in its annual program plan as approved by the Executive Committee and the National Science Foundation. Communication with its panels is maintained by having their chairmen meet with the Committee annually, and by assigning committee members as non-voting liaison members to its panels and working groups. Where counsel and communication are deemed important, other individuals may be asked ad hoc to meet with the Committee or a panel.

3.4 Membership. Each member of the Executive Committee shall designate one member of the Planning Committee and an alternate to serve in the absence of the designated member. Commencing January 1, 1984, one quarter of the Planning Committee members shall rotate off the Committee annually, so that its membership is replaced every four years. Reappointment shall be made only in exceptional circumstances. All appointees to the Planning Committee shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to the program. Balance of fields of specialization on the Planning Committee shall be maintained as far as possible, by informed consultation amongst the U.S. member institutions prior to selection of their appointees. The chief scientists of the Science Operator and Wireline Logging Services Contractor and an appointee of the NSF are non-voting, liaison observers.

3.5 Organization. The planning Committee meets at least three times a year, normally in January, May, and September. Robert's Rule of Order govern its meetings.

3.6 Vote and Quorum. Within the framework of the Memoranda of Understanding with each non-U.S. participating country (or consortium designee), it is intended that the U.S. members shall constitute at all times at least a majority of members. Substantive issues decided by formal vote require the vote of a majority of all members. A quorum shall consist of at least two-thirds of the non-U.S. members and at least two-thirds of the U.S. members.

3.7 Chairmanship. The Chair of PCOM shall rotate with the JOIDES Office among the U.S. JOIDES institutions, excluding the Science Operator institution. The term of office is normally two years.

4. Thematic Panels are mainly, but not exclusively, process orientated. They are established by the Planning Committee to redefine as scientific drilling objectives scientific problems identified by COSOD (16-18 November 1981) and by the JOIDES 8-year program for drilling (April 1982). They are responsible for reviewing any other scientific objectives proposed by the pre- and post-1983

reports and "white papers," the national science structures of the various non-U.S. participants, and the scientific community at large. Thematic Panels maintain a constant review of science in their discipline. Thematic Panels are composed of a number of members from U.S. institutions and one member from each non-U.S. participant. PCOM approves the panel membership. Panelists appointed in 1985 and future years will serve 3 years, with one-third of the panelists being replaced each year. The chairmen are appointed by PCOM. Thematic panels meet at least twice a year, but may meet more frequently as requested by PCOM. PCOM convenes the panel meetings and approves their meeting dates, locations, and agendas. The mandates are guidelines and do not restrict panels. Considerable overlap in thematic coverage has evolved and is expected to continue to evolve. The Planning Committee may ask Panels to take up topics not in their original mandates.

4.1.1. Ocean Lithosphere Panel: Mandate

The Ocean Lithosphere Panel is concerned with the origin and evolution of oceanic crust, and more particularly with volcanic, metamorphic, hydrothermal and diagenetic processes occurring in the ocean crust:

(a) Processes of submarine volcanology, intrusion and plutonism; crustal construction at spreading axes; petrology, geochemistry, mineralogy, and magnetic and other physical properties of igneous and metamorphic rocks from the ocean floor, from seamounts, from oceanic plateaus, from volcanic arcs and from basins adjacent to volcanic arcs.

(b) Processes of submarine hydrothermal circulation; petrology, geochemistry and mineralogy of hydrothermally altered rocks and hydrothermal deposits from the ocean floor; geochemistry and physical properties of hydrothermal solutions.

(c) Processes of submarine diagenesis; geochemistry of pore waters from sediments and hard rocks; petrology geochemistry and mineralogy of diagenetically altered sediments and hard rocks.

4.1.2. The Ocean Lithosphere Panel will be responsible for planning the drilling of sites concerned with these problem areas at the following levels:

(a) Long-range identification of objectives and review of research proposals for future drilling operations.

(b) Selection of target areas within which these objectives can be met.

(c) Helping the site survey organization to plan surveys of the target areas.

(d) Identification of proponents or working groups for particular target areas.

(e) Selection of sites for location of drill holes within the target areas, so that objectives can be reached.

(f) Advice to the Planning Committee and the project chief scientist on the selection of co-chief scientists and other scientists.

(g) Encouragement of specific shore-based laboratory work on the samples recovered by drilling.

(h) Advice to the project curator on the handling of recovered samples.

(i) Advice to the Planning Committee and the project chief scientist on provision of equipment for use on the drilling ship and in shore-laboratories run by the Science Operator.

(j) Coordination of plans for downhole experiments in projected holes.

4.1.3. In the course of the work specified in paragraph 4.1.2., the Ocean Lithosphere Panel will maintain the closest contact with the appropriate Regional Panels and other specialists.

4.1.4. The Ocean Lithosphere Panel is responsible to the Planning Committee, and will respond directly to requests from it, as well as reporting to it on a regular basis.

4.1.5. The Ocean Lithosphere Panel will act as a means of disseminating and correlating information in the appropriate problem areas by:

(a) Receiving reports from co-chief scientists on the progress with shorebased research on samples.

(b) Encouraging and sponsoring symposia at which the results of drilling will be discussed.

(c) Publishing progress reports in the open literature to inform and encourage participation in the project.

(d) Generating "White Papers" as requested by PCOM.

4.2 <u>Tectonics Panel: Mandate</u>

The Tectonics Panel is concerned with the standard history of ocean margins and plates, especially studies in critical transects and along-strike by coordinated geological, geophysical, and drilling programs:

(a) Special emphasis is placed on the early rifting history of passive continental margins, on the dynamics of forearc evolution, and on the structural sedimentological and volcanic history of island arcs, back-arc basins, and marginal seas.

(b) Additional problems under the purview of this panel include the development of continental slopes and rises; detailed histories of vertical movements at margins; thermal and mechanical evolution of passive margins; structural variability along-strike; sheared margins; post-rifting tectonism of passive margins; the study of stress fields at active margins; global relations among arc systems; collision tectonics; the development of passive margins in back-arc basins; studies of transform faults at fracture zones; the origin, structure and tectonic evolution of oceanic plateaus and aseismic ridges; and the determination of plate-kinematic models.

(c) Of interest to this panel as well as to other panels are the composition, structure and formation of the oceanic crust and upper mantle, tephrochronology, and the study of "global" unconformities and the synchroneity of tectonics and sea level events along margins as well as coral atolls and guyots.

4.3 Sediments and Ocean History Panel: Mandate

The Sediments and Ocean History Panel is concerned with investigations of marine stratigraphy, marine sedimentology and paleoceanography. Areas specifically include:

(a) Stratigraphy including the subdivision, correlation and dating of marine sediments. Examples are refinement of magnetostratigraphy, radiometric dating, chemostratigraphy, biostratigraphy, tephrochonology, and seismic stratigraphy.

(b) Processes of formation of marine sediments, diagenesis, organic and inorganic sedimentary geochemistry and global mass balancing of oceanic sediments.

(c) Long-term history and driving mechanisms of the oceanic atmosphere and biosphere. Central to this theme are relations among plate tectonics and ocean paleocirculation, sedimentation patterns, global paleoclimates, glacial and ice-sheet evolution, sea level change and its effects on marine sedimentation and evolution of marine life.

5. Regional Panels: Mandate

The Regional Panels are responsible for:

(a) Helping Thematic Panels to translate their broad thematic programs into concrete regional drilling plans.

(b) Identifying regional problems not covered by Thematic Panels.

(c) Recommending integrated drilling programs in their regions.

(d) Monitoring the status of knowledge on regional geology and geophysics.

(e) Advising on regional and site surveys needed for future drilling.

PCOM chooses panel members for their expertise and experience in a region. PCOM nominates a number of members from the U.S. and from non-member countries as appropriate and each non-U.S. JOIDES member can nominate one member to each Regional Panel. Panelists appointed in 1985 and future years will serve 3 years, with one-third of the panelists to be replaced each year. The chairmen are appointed by PCOM.

Regional panels meet at the request of PCOM as frequently as required by ship scheduling and routing.

PCOM establishes liaison between Regional and Thematic Panels by overlapping memberships.

The map (Appendix 1) shows the general areas of prime responsibility for the Regional Panels, but the boundaries are not fixed limits. Panels view their responsibility as including all areas relevant to their regional problems. The Regional Panels are:

A. Atlantic Ocean
B. Central and Eastern Pacific Ocean
C. Western Pacific Ocean
D. Indian Ocean
E. Southern Oceans

6. _Ad Hoc_ Working Groups: Mandate

Ad hoc working groups may be created by the Planning Committee as requested by the panels or by the Planning Committee itself, for more intensive study of certain aspects of planning that may arise. Working groups will be held to the minimum necessary membership and travel expenses, chairmanship to be held by a member of the parent committee or panel, and will be dissolved when their assigned work is complete.

7. Technology & Engineering Development Committee: Mandate

The Technology and Engineering Development Committee is responsible for ensuring that the proper drilling tools/techniques are avialable to meet the objectives of targets to be drilled according to the planned schedule. The TEDCOM identifies within a proper time frame the new drilling tools/techniques to be developed, helps JOI/Science Operator write RFPs for engineering firms leading to the development of the tools/techniques, and monitors the progress of their development. The members of the TEDCOM are engineers nominated by PCOM. One of the functions of the TEDCOM is to collaborate with the Downhole Measurements Panel.

8. Service Panels provide advice, services and products to the JOIDES Advisory Structure, to the Science Operator, and to the various entities responsible for the processing, curation and distribution of samples, data and information (including publications) to the scientific community. The Service Panels, beyond their help to the JOIDES Advisory Structure, are not directly involved with selection of drilling targets or definition of cruise objectives. Service Panels have specific mandates. Service panels meet at least once a year or as requested by PCOM. PCOM appoints the chairman and panelists and keeps membership under review.

8.1 <u>Site Survey Panel: Mandate</u>

8.1.1. The general purpose of the Site Survey Panel is to provide information and advice to the Planning Committee on the adequacy of and need for site surveys in relation to proposed drilling targets.

8.1.2. The Site Survey Panel is mandated to:

(a) Receive mature proposals from regional and thematic panels, to review site survey data packages prepared by the ODP Data Bank and to make recommendations as to their adequacy to the Planning Committee.

(b) Identify data gaps in proposed future drilling areas and to recommend appropriate action to ensure that sufficient site survey information is available for pinpointing specific drilling targets and for interpretation of drilling results.

(c) Provide guidelines for proponents and panels as to required site survey data and to examine the opportunities and requirements for the use of new technologies for surveying potential drill sites.

(d) Promote international cooperation and coordination of site surveys for the benefit of the Ocean Drilling Program, particularly between participating ODP nations' survey activities.

(e) Promote the lodging of all data used for planning drilling targets with the ODP Data Bank.

8.2 <u>Pollution Prevention and Safety Panel: Mandate</u>

8.2.1. The general purpose of the Pollution Prevention and Safety Panel is to provide independent advice to the Planning Committee and to the Ocean Drilling Program with regard to safety and pollution hazards that may exist because of general and specific geologic circumstances of proposed drill sites.

8.2.2. Mandate: All drilling operations involve the chance of accident or pollution. The principal geologic safety and pollution hazard in ocean drilling is the possible release of substantial quantities of hydrocarbons from subsurface reservoir strata. In most deep sea regions, the risk of hydrocarbon release can be reduced or eliminated by careful planning and proper site surveys. Additionally, safety problems may arise in drilling hot hydrothermal systems for lithosphere targets. Those who plan each Ocean Drilling Program cruise and select its drilling sites are initially responsible to propose only sites that are considered reasonably safe. The JOIDES Pollution Prevention and Safety Panel independently reviews each site to determine if drilling operations can be conducted safely.

The preliminary site survey information and the operational plan are reviewed for each site. Advice is communicated in the form of site approval, lack of approval, or approval on condition of minor site relocation or amendment of the operational plan. Approval is based on the judgment of the Panel that a proposed site can be safely drilled in light of the available information and planning.

8.3 <u>Information Handling Panel: Mandate</u>

8.3.1 The general purpose of the Information Handling Panel is to provide information and advice to the Planning Committee, the Ocean Drilling Program and the Deep Sea Drilling Project (DSDP) with regard to satisfying the needs of the scientific community for timely access to data, samples and publication and to assist program managers in setting priorities.

8.3.2. The Information Handling Panel is mandated to:

(a) Advise on (1) types of publications to be produced; (2) publication formats; (3) schedules and deadlines; (4) publications policy and goals of the publications program. (Both ODP and DSDP publications are included.)

(b) Advise on (1) the operation of the core repositories; (2) curatorial policy; (3) filling of sample requests; (4) curatorial data management; (5) long-term goals for the preservation of the core materials and other physical samples obtained by ODP and DSDP; and (6) establishment and operation of the various micropaleontology reference centers.

(c) Advise on (1) the types and contents of the data bases to be maintained by ODP and DSDP; (2) the treatment of raw data; (3) the establishment of uniform procedures and standards for data handling and processing; (4) the structure, philosophy and goals of the information systems produced by the program; and (5) the management of data bases, information systems and data centers. This last topic also includes coordination between various data centers established by ODP and DSDP.

(d) Advise on the minimum standards of quality and completeness necessary for data to be included in the various data bases and information systems, including data recording, transcribing and checking procedures.

(e) Advise on (1) shipboard and shore-based computer facilities, equipment and procedures; (2) software development; (3) data collection techniques; and (4) meeting the computational needs of shipboard and shore-based scientists, as well as providing access to data bases for all interested parties.

(f) Advise on (1) long-term preservation of the raw data generated by ODP and DSDP; (2) preservation of all past records bearing on sample history; and (3) preservation of any other records of the program which might benefit future workers.

(g) Advise on the relationship between the ODP and DSDP data centers and national depositories such as the National Geophysical Data Center, World Data Center A for Marine Geology and Geophysics, etc., and the fulfillment of statutory obligations for data transfer. It also includes transfer of data to data centers established by ODP member countries, such as the one in France, and to the Micropaleo Reference Centers.

8.4 <u>Downhole Measurements Panel: Mandate</u>

8.4.1. The general purpose of the Downhole Measurements Panel is to determine the physical state, chemical composition, and dynamic processes in ocean crust and its sediment cover from downhole measurements and experiments. Areas of responsibility include: routine logging (including industry standard and special tools widely used in ODP); routine data processing and interpretation; new and adapted logging tools, techniques, and data processing; downhole experiments and data acquisition (including downhole recording).

8.4.2. The Downhole Measurements Panel is mandated to:

(a) Report to and advise PCOM on logging and downhole measurement programs of ODP.

(b) Advise on and recommend to the ODP Wireline Service Contractor the required logging facilities.

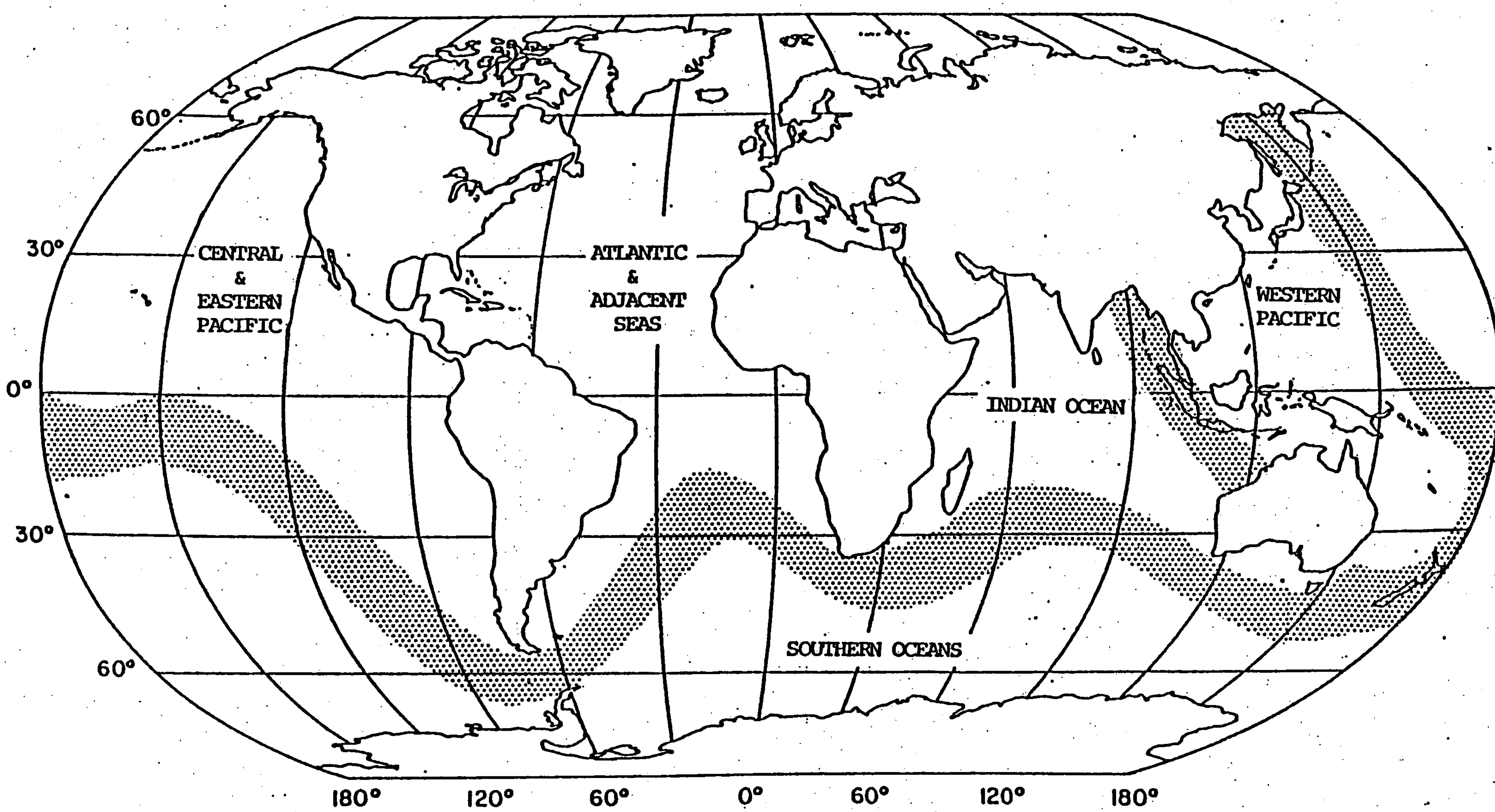
(c) Advise the ODP Science Operator on the scientific desirability, technical feasibility, scheduling and operational requirements of proposed programs.

(d) Interface and coordinate with Woods Hole Oceanographic Institute (U.S.) and other national downhole instrumentation development groups.

(e) Solicit and expedite new logging capabilities and experiments.

(f) Evaluate new technology and recommend future measurement directions.

8.4.3. Membership consists of a well-balanced representation, with approximately half being logging and other downhole technologists and half having scientific backgrounds and interests. The Wireline Services Operator and Science Operator of ODP shall each be represented by non-voting members on the Panel.


60°
30°
0°
30°
60°
CENTRAL & EASTERN PACIFIC
ATLANTIC & ADJACENT SEAS
WESTERN PACIFIC
INDIAN OCEAN
SOUTHERN OCEANS
180°
120°
60°
0°
60°
120°
180°

APPENDIX 1

Annex 2

DOWNHOLE MEASUREMENTS PANEL

DMP recommends that in principle all sites be logged, and all holes deeper than 400 m be logged. Approximately 1 to 1.5 days at each site will be required for logging.

Other DMP recommendations:

a) A more aggressive pore water program should be adopted.

b) Develop wire line reentry. (A savings in ship time would result, and larger diameter tools could be used.)

c) Cheaper reentry cones should be developed. (The current cost of $75,000/cone is too expensive.)

d) The heat-flow tool should be upgraded to perform at higher temperatures.

e) A cold-room should be considered for handling cores containing clathrates to reduce the likelihood of explosion.

DEVELOPMENT OF PCOM PLANNING POLICY (SINCE JULY 1982) FOR THE OCEAN DRILLING PROGRAM

July 1982

Minute 376: PCOM discussed a tentative and incomplete list of ODP drilling objectives and considered that the ship will most likely traverse the world twice within an 8-year period. (At this time PCOM was considering Explorer as the preferred platform).

Motion 376E: In order to start efficient planning for the post-1983 drilling program, in terms of site surveys, requisite engineering and technical developments, logistics, and weather, the Planning Committee has considered areas and purposes in the Atlantic, Pacific and Antarctic Oceans listed in the COSOD report and JOIDES 8-year Program Plan. We recommend to the EXCOM that an initial year or two of drilling include both (a) work in areas for the purposes shown in Table 1 and (b) certain additional regional work not yet identified, so that the areas in Table 1 may be connected by a ship's track that is reasonable in terms of scientific balance, weather and logistics. Proposal of a specific initial ship track will await advice from participants in future drilling and a decision as to whether the ship will start from an Atlantic or a Pacific port.

January 1983

Minute 415: PCOM expanded the initial list of work areas identified in Table 2 but did not view the list as exhaustive with additional work areas to be added where justified. The primary criteria for inclusion were:

1. Broad consensus regarding the importance of the scientific problems to be addressed.

2. Availability of suitable data synthesis, regional and site specific surveys.

3. Availability of required drilling technology.

Consideration of the relative priorities of these candidate drilling targets (and of others to be identified by the future ODP advisory structure) as well as proposals of specific initial ship tracks and schedules remains open pending constraints on a starting port and advice from all ODP participants.

PCOM agreed the additional list of ODP work areas shown in Table 2 to be added to Table 1.

PCOM received from the Australian and New Zealand observers a status list of future drilling targets in the Australasian region, based on COGS Publication No. 1 (Table 3).

June 1983

Minute 426: PCOM agreed to plan on legs of approximately 60 days duration with all potential drilling platforms able to transit the Panama Canal. Juan de Fuca was added to the list of possible work areas (see Table 4).

Consensus: The first two legs should be relatively free of technological problems and be close to U.S. ports and that the third leg should test the ship on a technologically more demanding site whilst still near a U.S. port.

The Gulf of Mexico and the Bahamas should be the first two legs of the ODP, the Yucatan Basin may be included as part of the Gulf of Mexico leg if permission is obtained from Mexico and Cuba. Barbados will be the third leg.

Discussion continued leading to selection of a general ship track after drilling Barbados. Particular attention was given to weather windows, technology required, and priority sites. Sites considered for early (after Barbados) drilling included Labrador, Norwegian Sea, Weddell Sea, and Mid-Atlantic Ridge (22°N or FAMOUS).

Consensus: Proceed to the North Atlantic after Barbados. Postpone drilling the Weddell Sea until January 1987. After N. Atlantic drilling, proceed to the eastern Pacific.

Motion 426A: The PCOM adopts the ship route indicated in Table 5, which shows Gulf of Mexico start, a clockwise transit of the North Atlantic, the Mediterranean Sea, passage through the Panama Canal, and a southward transit along the west coast of South America to the Weddell Sea.

Motion 426B: The PCOM adopts the first six legs of Table 5 as a basis for planning the first year of the ODP, assuming an October 1984 start.

Motion 426C: The list of targets between the Norwegian Sea and the Weddell Sea of Table 4 and a bare rock East Pacific Rise target are the areas for which site surveys will be required in the near future.

September 1983

Minute 439: At this meeting the PCOM considered planning proposals and recommendations from the existing DSDP Panels.

Consensus on OCP report: The Planning Committee favored early development of bare rock drilling, and felt that an axial ridge site near the Kane Fracture Zone would cover the OCP recommended objectives.

<u>Motion 439A:</u> **The Planning Committee adopts the area in the vicinity of 23°N and the Kane Fracture Zone as the location of an axial drilling leg and a test of bare rock drilling.**

The PCOM discussed a number of drilling objectives which should be tackled as recommended by the various panels as follows:

-Gulf of Mexico - In considering the drilling ojectives and priorities of sites in the Gulf of Mexico, PMP identifies and emphasizes the importance of a concentrated and dedicated effort to address the birth and closure of the Eastern Gulf of Mexico area. This can be addressed by drilling focused on the Jurassic stratigraphy of the Eastern Gulf for the birth, and on the Cretaceous-Tertiary stratigraphy of the S.W. Straits of Florida and the Yucatan Basin (CAR-7) to document the closure by Cuba. It is considered that the results will provide an outstanding contribution of wide interest to the earth science community at large.

OPP also endorsed the Yucatan proposal.

-Bahamas and Straits of Florida - PMP suggested the following priorities:

Priority 1. The nature and origin of the Cretaceous event initiating channel development and Tertiary unconformities in the channels (deep drilling):
- -improved regional MCS coverage is essential
- -seismic lines should be directly linked to onshore wells/dive sites
- -inspect/purchase commercial well data logs and seismic data
- -prepare structure contour maps on red, pink and blue horizons. These will advise depths to the key horizon and thus identify areas for site specific survey for sites at red level; they will also enhance understanding of regional geology/tectonics.

Priority 2. Slope/channel facies distribution (HPC): High resolution digital single channel seismic data are needed to document the transition from bank to channel. The seismic grid should be of 1 km spacing and the survey carried out on the windward and leeward sides of the banks.

Priority 3. Origin of escarpment erosion/retreat: a regional MCS line plus a local grid if necessary.

Priority 4. S.W. Bahamas/Cuban tectonics: It was evident to the PMP that the problems of the S.W. Bahamas and their relation to Cuban tectonics are not well understood, not least because of difficulties in seismic interpretation. The PMP therefore recommended preparation of good structure maps and examination of commercial MCS to assess the difference between carbonate buildups, folds and diapirs.

OPP Considered the "slope transect" to be of highest priority.

-Labrador Sea - PMP recommended to PCOM that a drilling program be developed in the Labrador Sea to compare the west margin of Greenland with that of Labrador and to address the 60 my volcanic event. To achieve the drilling program, regional and site specific MCS will be necessary to see through the lava flows. It was recognized that it may not be possible to identify windows in the lavas that will facilitate penetration of the pre-60 my, post and syn-rift section. It was recommended that there should be development of an alternate drilling program in the outer Orphan Basin to provide a comparison with the conjugate margin drilled during Leg 80. In this area, open file MCS and well data are available and only site specific data may be needed. It was noted that the Newfoundland Basin, considered as a second alternate, will be surveyed. Site ENA-3 near Newfoundland is also a viable target.

The Labrador Sea is considered by OPP to be an important leg for paleoceanographic studies. Important objectives include:

1. late Neogene ice initiation in the Northern Hemisphere
2. Paleogene climate
3. Arctic and Atlantic gateway

-Norwegian Sea - It was recommended to PCOM by the PMP as follows:

1. The highest priority in the Norwegian Sea is to address the problem of dipping reflectors and margin subsidence by a drilling transect of the Voring-Lofoten area. The Jan Mayen Ridge is a secondary objective.

2. PMP recommends in the first instance a comprehensive synthesis of the available ESP, MCS data should be nade to identify sites where drilling to the sublava reflector (K) is feasible and to provide initial input at an early stage to the PPSP and Norwegian authorities. Commercial well data should be used if available as input to the synthesis and leg. Second packages should be developed for the Jan Mayen Ridge and Lofoten Basin to provide alternate sites in the event that logistic, safety considerations prevent drilling of the Voring Plateau-Lofoten prime transect.

<u>Motion 439B:</u> The Planning Committee accepts the PMP motions with respect to Norwegian Sea drilling.

-Galicia - <u>Consensus:</u> In view of the availability of site survey data for Galicia, and potential weather problems in the Norwegian Sea, Galicia is a good alternate leg for the Norwegian Sea leg. Permission from Spain will be required.

-N.W. Africa - PMP passed the following motions relating to a N.W. Africa leg:

1. PMP recommends that drilling off N.W. Africa fully utilize the regional and site specific surveys synthesized for OMD and recently made by LDGO and the BGR to identify candidate sites to document the age of the first ocean crust and to examine the

period of transition from rifting to spreading. Reentry to deepen and log 547 is also of high priority and exploits a unique opportunity to recover pre-Rhaetian sediments on an Atlantic margin.

2. PMP conceptually supports the OPP proposal for N.W. African drilling but considers that the objectives defined in the first motion are of higher priority requiring deeper drilling.

OPP strongly endorsed the concept of a Circumsahara Transect.

-Mediterranean Sea - PMP discussion of the Mediterranean Sea resulted in the following PMP motions:

1. PMP recognizes the importance of many proposed sites in the Mediterranean in both the regional as well as the thematic context. PMP recommends that the Mediterranean provides a natural laboratory to test the thematic problem of back arc basin development and therefore recommends a focused transect of holes through the Tyrrheanian Sea as a well documented example of a back arc basin. In addition, the ability to apply high resolution biostratigraphic techniques not subject to dissolution, ash layers and well documented regional geology optimizes the value of the transect. The transect would also contribute important data on post Messinian paleogeography.

2. Notwithstanding recommendation 1 above, PMP endorses, given adequate drilling time, proposals to address tectonic problems such as rate of convergence, vertical uplift across the Hellenic Arc and the opening of the Arabian Sea also relevant to paleoceanography.

3. PMP believes that the Rhone Fan is a superbly well documented example of a deep sea fan and therefore recommends that the Rhone Fan be fully evaluated against other fan studies and the results of Leg 96 and then prioritized in terms of fan drilling in the ODP program.

OPP has a high level of interest in this region and identified two broad types of objectives:

1. deeper objectives (Miocene-Jurassic) aimed at the history of Tethyan circulation.

2. shallower objectives (Tertiary); an E-W traverse across the Mediterranean basin.

Also considered were a reoccupation of Site 374 (4000 m depth), and a transect across the Ionian basin slope.

PCOM attempted to determine the status of the initial ODP legs and forwarded these recommendations to the new ODP Panels for their assessment. The PCOM compilation forms Table 6.

January 1984

Minute 459: Gulf of Mexico - PCOM considered the first priority to be the Yucatan Basin with the Mississippi and DeSoto Canyon as backup sites for Leg 101. PCOM asked that Cuban sites be reviewed by the Caribbean Working Group as they may be drilled later in the Program.

-Bahamas - PCOM asked for further reviews of proposals including the following scientific objectives:

1. carbonate bank development (topography) from Cretaceous to Recent.
2. young sediment objectives (downslope transport, early diagenesis, etc.).
3. Sheridan et al. vs. Dilion et al. controversy on origin of escarpments.

-Barbados - The TECP had considered that the number of sites proposed were too numerous for one leg with anticlines to be drilled. It was suggested that HPC should be used to a few hundred metres depth with coring through the slump sheets on the Tiburon Rise.

PCOM then established the following consensus:

Priority 1. Deepen Hole 541 to basement and do downhole experiments (Downhole Measurements Panel will suggest experiments), then proceed to priority 2.

Priority 2. Hole 543, washdown, log (original logs are inadequate), do downhole experiments.

Backup plan: To be determined by Caribbean W.G. and Tectonics Panel.

-Mid-Atlantic Ridge - PCOM consensus:

Bare rock drilling is the prime objective for the MAR leg. TAMU must move quickly on development of the required technology. The RFP for site survey should identify bare rock drilling on the MAR at about 22 $^{1}/_{2}$°N as the objective; bottom photography is required.

About 30 days will be utilized in attempting bare rock drilling. Then proceed to other objectives, e.g. Kane Fracture Zone. The DMP is encouraged to formulate a proposal.

Bermuda Rise (Hole 417A) will be considered by PCOM as part of N. Atlantic planning.

-Labrador Sea - Two sets of objectives were presented:

1. early opening and spreading
2. paleoceanographic problems.

Drilling is proposed for the Greenland margin, the Labrador margin and on the plateau. More northern locations would be better but were avoided because of logistic and other problems.

-Norwegian Sea - PCOM consensus:

TAMU should determine the weather window for the Norwegian Sea. NOR-WG should be advised that the Voring Plateau (including the Lofoten area) is the site to be considered. The Jan Mayen Ridge or other areas are not part of the Norwegian Sea leg. If the ship does not drill the Voring Plateau, then an alternate leg (Galicia) will be scheduled.

-Galicia - Galicia will be considered by the ARP and the SOHP. After panel recommendations are made, PCOM will plan the leg.

-Mediterranean Sea - Objectives recommended by the DSDP Passive Margin Panel were:

1. Tyrrhenian Sea transect, back arc basin
2. Hellenic Arc uplift
3. Ionian Basin
4. Rhone Fan.

PCOM established a consensus that drilling time in the Mediterranean is to be limited to two legs.

-General Planning - Only the first four legs (Gulf of Mexico, Bahamas, Barbados and the Mid-Atlantic Ridge) are considered by PCOM to be firm, assuming a 1 October 1984 start. All subsequent legs are in competition for drilling time. If the drilling program is delayed beyond October 1984, all legs will be reconsidered.

March 1984

Minutes 464 and 465: Short-range planning (Minute 464) - At this meeting it was announced that drilling would commence in January 1985 and PCOM reviewed its drilling plans in the light of this information.

PCOM considered that the 3-month delay could be accommodated in two basic ways:

1. Add nine months of drilling to the existing schedule, drill more legs, and reach the Weddell Sea one year later than planned.
2. Subtract three months of drilling from the existing program, eliminate some legs, and maintain the Weddell Sea target date of Dec/Jan 1987.

PCOM considered both options and clearly favored removing three months drilling from the existing plan and maintaining the Weddell Sea target date of Jan. 1987. The consensus was based on the following consideratons:

-the new program is based on new science objectives, e.g. bare rock drilling, Indian Ocean drilling, Weddell Sea, etc.

-the overall plan is to circumnavigate the earth twice over 8 or 10 years. If the general schedule is to be maintained, the Weddell Sea drilling should not be delayed beyond 1987.

-development of bare rock drilling and other required new technology can be accommodated in the compressed schedule.

Tentative drilling schedule for January 1985 start: The PCOM considered modifying the drilling schedule to accommodate the three month delay, within the following constraints:

1. 1 Jan. 1985 start date
2. maintain highest priority "new type" drilling (high latitude paleoenvironments, bare rock Mid Atlantic Ridge, Barbados fore are)
3. reach the Southern Ocean in the austral summer of 1986/87

The Committee then considered removing legs from the schedule, recognizing that high priority drilling with important scientific objectives would have to be delayed. Proposals especially considered were the Gulf of Mexico (Yucatan Basin), Bahamas and N.W. Africa.

Consensus: Delay Gulf of Mexico/Yucatan Basin drilling. The Bahamas leg is the preferred first leg of ODP. If possible, some Gulf of Mexico objectives may be accommodated during shakedown cruise.

Motion 464: Assuming a 1 January 1985 start date, the Planning Committee adopts the schedule shown in Table 7. The first 5 legs are considered firm, except for the Norwegian Sea which requires further consideration. The last 3 or 4 legs are firm, subject to site surveys, safety reviews, etc. The in-between legs are not firm and require consideration at the next PCOM meeting.

Minute 465 - Long-range planning: The Planning Committee considered drilling after the Weddell Sea leg (1987). The drillship would be in a position to drill in the East Pacific, West Pacific, Indian Ocean or South Atlantic.

Motion 465: Move that for the purpose of long-range planning the Planning Committee adopt the following general track of the drilling vessel after the Weddell Sea drilling of early 1987: Into the Indian Ocean, to the Kerguelen region in early 1988, thence to the northwest Pacific Ocean in mid-1989 and the northeast Pacific Ocean in mid-1990, arriving in the vicinity of Panama on about 1 January 1991.

The PCOM then agreed that the East Pacific Rise, an example of a fast spreading ridge, should be drilled in 1986 en route to the Weddell Sea.

May 1984

Minute 480: PCOM considered the effect on Table 7 of the unavailability of bare rock drilling for Leg 103 (MARK-1) and the lack of a packer for Leg 102 (Barbados-1).

Differences of opinion existed among the PCOM members as to the extent to which drilling established at previous PCOM meetings should be changed. After discussion, a general consensus was reached that all early legs should be reconsidered but that changes should be minimal.

The PCOM then considered the merits of various legs:

-Barbados North - (North of Tiburon Rise). Redrill 78A; de-collement zone, overpressure, pore waters, temperature, etc. Priority = high.

-Barbados South - inner deformation front, thicker sediments (Orinoco fan), less overpressure. No site surveys, no proposal. Priority = medium.

-Yucatan - +7000m hole would stretch technical capability of ship.

-NW Africa and Galicia - high priority legs. Galicia has good surveys, high priority from ARP; if this is Leg 103 then Leg 102 would be close to U.S.; potential weather problems.

-ENA-3 - high priority for Downhole Measurements Panel.

Motion: Move that the drill site priorities for the Bahamas as presented by the ARP (15-17 May meeting) be approved for the first ODP leg.

PCOM then established an initial drilling schedule (Table 8).

September 1984

Minute 501: After reviewing the advisory panel reports, the PCOM attempted to rank each panel's recommendations of priority drilling in order to select sites for Legs 111-113. Panel recommendations were summarized:

ARP
1-Caribbean, YB2A, CAR 5, or YB2C
2-Barbados S.
3-NW Africa (Mesozoic)

LITHP
EPR 10^{o}-13^{o}N
504B
EPR or 504B

SOHP
la-NW Africa deep hole
lb-Peru Trench
2-Ionian Sea

CEPAC
1-Peru Trench, EPR 13^{o}N
2-EPR (another leg)

TECP
1-Peru
2-Chile TJ
3-Barbados S.
4-NW Africa
5-Venezuela
6-Ionian Sea
7-Costa Rica
8-Yucatan

After a lengthy discussion, PCOM decided as follows:

Motion: The Peru Margin and the EPR 13^{o}N are adopted as two of the three sites for Legs 111, 112, and 113.

The remaining alternatives for Leg 113 were the NW African margin and the Chile Triple Junction. Several PCOM members considered that drilling on the NW African margin, although interesting science, had potential technical difficulties. Subsequent discussion indicated that a Chile TJ leg would be very important from the standpoint of "new and exciting science" and such a leg would be logistically beneficial to ship scheduling as Leg 114 would be drilling in the Weddell Sea. However, several members felt strongly that earlier PCOM recommendations were not followed, and that insufficient time may remain to get additional surveys of the Chile TJ.

Motion: Move that for planning purposes, Legs 111-113 shall consist of the Peru margin, EPR 10^{o}-13^{o}N and Chile TJ.

A further consensus was reached among PCOM members which stated that if any leg (Leg 101-111) was unsuccessful in a particular ocean (e.g. Atlantic) then its alternate could occur in another ocean (e.g. Pacific).

With that guideline in mind, the relative importance of Yucatan, 504B and NW Africa (Mesozoic) as alternates for Atlantic and Pacific drilling was then discussed.

Results: 1st priority - Yucatan
2nd priority - NW Africa
3rd priority - 504B

The results did not become a formal motion pending further comments from SOHP on Yucatan and NW Africa (Mesozoic) and from LITHP on 504B.

January 1985

Minutes 519/520/521:

-Short-term planning: After extensive discussion of priorities for Leg 103 (Galicia Bank) PCOM decided only to give guidance concerning priorities and not to present so much detail that the flexibility of the co-chiefs is obstructed. The consensus of PCOM was to extend a 7-day time limit for drilling one single bit hole on the lherzolite ridge. The ship would then proceed to set a cone at site 4B and drill to 1300 m into post-rift and syn-rift sediments. The program would then drill a single bit hole (until destruction) in the post-rift sediments and pre-rift basement near site 4A. With the remaining time, the co-chiefs will decide to either go back to the ridge or to site 3A on a tilted continental block, or to return to 4B.

PCOM then discussed the remainder of the short-term drilling plan up to and including Leg 114.

Consensus: Leg 114 (Weddell Sea) should commence no later than 1 January 1987.

Consensus: The departure date from Stavanger for Leg 105 should be set no later than 15 August 1985.

Consensus: It is agreed that Leg 102 should be shortened by 18 days to accommodate the above changes.

Consensus: Retain 417/418 programs and that portion of Site 603 (single hole with logging) minus the Mesozoic objectives that can be done without setting a re-entry cone. The program will wash down to 1 km and take a couple of days to do logging experiments.

Consensus: Leg 101 will contain 41 operating days, Leg 103 will contain 42 operating days and Leg 104 will contain 41 operating days. Leg 105 will be extended to 70 total days if the ship's operator will allow it, and LA9 will be drilled as a contingency (single-bit) hole rather than LA5 as a re-entry hole.

Motion 519: Moved that the consensus listed above should constitute formal PCOM advice to the Science Operator.

-Problems associated with Pacific drilling: Discussion regarding Leg 113 (Chile Triple Junction/Margin) centered on the need for additional site survey data.

Consensus: It is agreed to leave the Chile Triple Junction in the program; all options for site survey should be vigorously pursued and discussed again in mid-April at the regular PCOM meeting.

It was suggested that hydrothermal drilling probably has the flexibility needed to be incorporated into a sliding schedule. Further discussion indicated that 1 or 2 drill holes could maximize the hydrothermal environment and the development of high temperature drilling tools will probably not take place without the pressures to do so.

Discussion also took place on the need for logging during the Weddell Sea leg and PCOM arrived at the following consensus:

Consensus: Logging in the Weddell Sea will follow present policy of logging all sites and requests to suspend logging operations will be handled on a case-by-case basis.

-Longer-term Planning: A summary of Indian Ocean objectives based on panel priorities was discussed (Table 9).

The PCOM grouped those objectives that were commonly rated by the various panels. Due to the number of candidates involved there was a feeling that all proponents should be given a chance to compete with each other and the results would constitute proposed objectives. PCOM indicated that it should be noted that 1 leg will be dedicated to drilling in the Kerguelen area.

Consensus: The thematic and regional panels are to be advised that approximately 1.5 years of scientific drilling in and proximal to the Indian Ocean will occur after drilling in the Weddell Sea and prior to drilling in the island arcs of the west Pacific.

-Publicity for Longer-range Planning: It was agreed that the general outline of drilling as presented by PCOM should be publicized as widely as possible in order to encourage proposals and also to indicate to proponents the planning time scale adopted by PCOM.

-Riser Drilling: In reviewing the current drilling plans in the light of COSOD objectives, PCOM discussion focused on the possible need for at least one deep hole to study lower Layer 2/upper Layer 3 ocean crust problems.

Riser drilling was also considered with the following consensus reached:

Consensus: It was agreed to ask the Panels to consider riser drilling in terms of scientific possibilities and priorities. Panels should consider a year of riser drilling (possibly 1992) in which only 3-4 holes will be drilled in water depths of less than 6000 ft. and preferably less than 4000 ft.

April 1985

Minute 532: -Changes to Leg 103 (Galicia Bank) drilling plans.

Following re-estimates of drilling times an additional 5 days were added to Leg 103. The drilling plan was revised to include a 7-day limit on drilling the lherzolite ridge and to combine Sites 4A and 4B at one site (Site 4B) with a re-entry cone and deepening the site to 2 kms.

Minute 536: -Leg 104 (Norwegian Sea)/Leg 105 (Baffin Bay/Labrador Sea)
Following discussion, it was the consensus of PCOM that the palaeoenvironmental objectives in Leg 104 remain as back-up to drilling the dipping reflectors. Presently the plan calls for drilling the dipping reflectors and resolving Reflector K. If these objectives cannot be reached then the ship should go to Site VOR 4.

Motion 536A: Leg 104 (Norwegian Sea) includes as first priority objectives drilling at VOR 2A to resolve the nature of dipping reflectors leaving the co-chief scientists the freedom to decide when to stop drilling 2A and dedicate the remainder of the 40 working days to the leg to either resolve the dipping reflectors at VOR 2B or to go to Site 4 to pursue palaeoenvironmental objectives.

Discussion then centered on the time alterations for Leg 105 and a number of plans were considered based on weather and ice constraints and assuming a leg of only 60 days total duration.

Motion 536B: The Science Operator should attempt to arrange that Leg 105 commence on a date such as not to compromise the original scientific objectives of the drilling plan (i.e. 25 days for drilling at BB-3B and 25 days of drilling to basement at LA-5) and to finish in St. John's by the end of October. The port of departure for Leg 105 should be arranged to facilitate operational procedures.

Motion 536C: Remove the Chile Triple Junction from the current schedule due to logistical and not scientific issues.

Consensus: There are a sufficient number of important scientific opportunities (palaeoenvironmental) in the Chile Triple Junction area that would be lost if some attempt at drilling is not done. Therefore, the area should be kept in competition for future science planning.

June 1985

Minute 551: A schedule was developed by PCOM for the Indian Ocean (see Table 10).

In completing this schedule, PCOM agreed to fill the first priority items of panels in the most favorable weather windows, thereby setting the boundaries of the schedule (top priority legs were the Red Sea, Neogene Package, Kerguelen 1 and 2). Remaining time slots were filled with lower priority programs or program combinations.

Minute 552: FY 86 budgetary constraints (see PCOM Policy 552C).

Consensus: Revisions to the drilling plan resulting from FY 86 budgetary constraints are:

1) Mid-Atlantic Ridge - Both guidebases should be deployed on this objective unless there is an engineering problem on the first guidebase. In this case, the second guidebase will be re-engineered for deployment on Leg 109.

2) Barbados - This leg remains in the schedule essentially as planned. TAMU is urged to find funds in FY 86 to develop and fabricate "drill-in" casing for Leg 110 (Barbados N) and Leg 112 (Peru Margin). It is noted that the wireline TAM packer will not be available for pore fluid sampling. However, other available packers will be deployed for measurement of physical properties.

3) East Pacific Rise - In view of the budgetary constraints in FY 86 there will be no guide base systems available for the East Pacific Rise. PCOM agrees to the replacement of the East Pacific Rise drilling by drilling on 504B in 1986. EPR drilling remains at the highest priority for future Pacific drilling when it is expected that guide bases will be available and that high temperature logging and sampling systems will have been developed.

Table 11 shows the revised drilling schedule for Legs 107-112 established by PCOM.

October 1985

Minute 564:

Motion: PCOM recognizes the concerns of SEDCO in balancing the length of the odd and even numbered legs over a 1-2 year period and will include this consideration in planning future legs. It must be recognized that, because the planning of lengths of legs is guided primarily by their scientific objectives, this may not always be possible.

Minute 569:
-Short-term planning
-Legs 106/109 (MARK 1 & 2)

Consensus: If the first guidebase is successful in beginning bare rock drilling, then it should be used for the remainder of Leg 106. However, if the first guidebase is not successful due to factors which can be corrected at sea, then the second guidebase should be deployed providing that there is a reasonable amount of drilling time available. Further, if the Leg 106 guidebase deployment fails completely, then the leg should default to drill the Kane Fracture Zone. The decision as to where to conduct operations in the Kane FZ should be left to the co-chiefs in the case that the default option is necessary.

Motion: PCOM requests that, as part of the engineering tests on Leg 106, an attempt be made to spud into bare rock with the Navidrill without the guidebase.

-Leg 107 (Tyrrhenian Sea)

Consensus: It is recommended that site 5B be continuously cored and that no logging is necessary at Site 2.

-Leg 108 (NW Africa Cenozoic)

Consensus: The co-chiefs should be asked to reconsider their decision not to conduct logging on this leg and the Wireline Services Contractor is asked to maintain contact with the co-chiefs. However, the PCOM does not place logging as a requirement for Leg 108.

-Leg 110 (Barbados)

Consensus: PCOM agrees that a reference hole for Leg 110 should be drilled quickly and washed to basement and then logged as a reference section.

PCOM agrees that the prime objective of Leg 110 is to drill the decollement zone. Should this prove impossible, the back-up plan is to drill a transect limited to studying the structural and hydrogeological problems associated with the progressive growth of an accretionary prism.

Minute 570:
-Long-term planning
-Legs 113/114 (Weddell Sea/Atlantic Sub-Antarctic)

Consensus: The 1 January 1987 start date for these legs should remain unchanged.

-Southern Indian Ocean - PCOM discussed the problems and finances associated with a crew change at sea in order to carry out two legs of drilling in the Kerguelen area.

Motion: After reviewing the costs of the transfer, PCOM finds (pending a final cost estimate) that this is too expensive and advises that the ship schedule should be arranged around a normal port stop without a support vessel.

Motion: At its January 1986 meeting, PCOM will examine (in detail) the total length of time for the Kerguelen science program and will ask proponents to justify site locations.

-Indian Ocean (remainder)

Consensus: PCOM reaffirmed its commitment to single legs (nominally approx. 2 months) for the Red Sea and a Neogene package. PCOM also agreed to include drilling on the SW Indian Ocean ridge and on the fossil ridges of the Mascarene Basin in the Indian Ocean program.

-Western Pacific

Motion: For the purposes of planning, the Western Pacific area will be defined as the area within the purview of the Western Pacific Panel (as established in the JOIDES Science Advisory Structure terms of reference), extending eastwards to 20 miles to the seaward side of the trench complexes.

TABLE 1 (June 1982)

	Location	Weather	Site Survey	Regional Synthesis	Eng. Tech. Dev.	Panel/Working Groups	Primary Panel
ATLANTIC	Barbados	–	Yes?	Yes	+	AMP-TECT	AMP
	N.W. Africa	–	Report	"	OK	PMP-OPP-TECT-SED-HIST	PMP-OPP
	New Jersey	N. Summer	Yes	"	OK	PMP-HIST-SED	PMP
	Nenez Columbia	–	Yes?	"	OK	PMP-REG.W.G.	PMP
	Norwegian Sea	N. Summer	Yes	"	OK	OPP-PMP-HIST-TECT	OPP
	Mid-Atlantic Ridge	?	No	"	+++	OCP-TECT	OCP
	Weddell Sea	S. Summer	?	"	OK	OPP-PMP-HIST-SED	OPP
	Scotia Sea	S. Summer	?	"	OK	OPP-AMP-HIST-TECT-SED?	AMP
PACIFIC	Hole 504B	–	Yes	"	+	OCP-ICP	OCP
	Peru Chile Trench	–	RFP Out.	"	?	AMP-OPP-TECT-SED	AMP
	Japan Sea	N. Summer	No	"	OK	AMP-TECT	AMP
	Bering Sea/ Gulf of Alaska	N. Summer	No	"	OK	OPP-HIST	OPP
	EPR Crust	–	No	"	+++	OCP-TECT	OCP

TABLE 2 (January 1983)

List of Additional ODP Work Areas

AREA	WEATHER	SURVEYS	REGIONAL SYNTHESIS	ENGR. TECHNOLOGY
East Coast fans (N. America)	-	?	Yes	OK
Costa Rica	-	Site specific	Yes	OK
Equatorial Atlantic Fracture Zone (includes Sierra Leone Rise)	-	Some needed	No	Drill string length?
Amazon Cone (incl. Demarra Rise)	-	OK	Yes	Safety
Bahamas (carbonates + sea level history)	-	(OK)?	Yes	OK
Gulf of Mexico	-	High resol. Site specific	Yes	OK
Labrador	N. Summer	Site specific	Yes	OK
N. Atlantic Drift	N. Summer	High resol. Site specific	Yes	OK
Galicia	N. Summer	OK	Yes	OK
W. Mediterranean (Rhone fan, Tyrrhenian Sea)	-	OK	Yes	OK
Hellenic Trench	-	Site specific	Yes	OK

TABLE 3 (January 1983)

Australian-New Zealand Status List of Australasian Targets

Location	Weather	Site Survey	Regional Synthesis	Engrg. Tech.Dev.	Panel
Antarctic Margin (Ross Sea Prydz Bay)	S. Summer	?	OK	Safety?	OPP-PMP
Tonga/Kermadec /Kikurangi/ Fiordland Transects	-	OK (in part)	OK	-	AMP-OCP
Southern Australian Margin	-	NO	OK?	-	PMP-SP4
Kerguelen	S. Summer	NO	NO	-	OPP-PMP
Western Australian Margin	-	OK	OK	-	OPP-PMP
Banda Collision Zone	-	?	OK	-	AMP
Woodlark/ Solomons	-	Prob.OK	OK	-	AMP-OCP
Lord Howe Rise Margins	-	OK?	OK	-	PMP
Campbell Plateau Margins	-	OK?	OK	-	PMP

TABLE 4 (June 1984)

Revised ODP Work Areas

Location	Site Survey	Regional Synthesis	Technical Problems
Barbados	+	Yes	x
N.W. Africa	Report	"	
New Jersey	+	"	
Venezuela/Columbia	+	"	x
Norwegian Sea	+	"	
Mid Atlantic Ridge	-	"	xxx
Weddell Sea	?	"	
Scotia Sea	?	"	
Hole 504B	+	"	x
Peru/Chile Trench	RFP	"	?
Japan Sea	-	"	
Bering Sea	-	"	
EPR Crust	-	"	xxx
W. Coast Fans (N. America)	?	"	x
Costa Rica	Site specific	"	?
Eq. Alt. Fracture Zone	Some needed	No	?
Amazon Cone	+	Yes	
Bahamas	+	"	
Gulf of Mexico	+	"	
Labrador	Site Specific	"	
N. Atlantic Drift	Hi resol. Site specific	"	
Galicia	+	"	
W. Mediterranean	+	"	
Hellenic Trench	Site specific	"	
Juan de Fuca	?	"	

TABLE 5 (June 1983)

Ship Track 1984-87

1984	Oct	Gulf of Mexico	1985	Dec	Mediterranean Sea (or
	Nov	"	1986	Jan	Equa. Fracture Zone, Amazon Fan)
	Dec	Bahamas		Feb	NW Africa
1985	Jan	"		Mar	"
	Feb	Barbados (T)		Apr	Costa Rica/Venezuela
	Mar	"		May	/Colombia (T)
	Apr	Mid Atl. Ridge (T+)		Jun	Hole 504B
	May	"		Jul	"
	Jun	Labrador Sea		Aug	Peru Trench (T)
	Jul	"		Sep	"
	Aug	Norwegian Sea		Oct	Chile (triple junction)
	Sep	"		Nov	"
	Oct	Mediterannean Sea		Dec	Weddell Sea
	Nov	"	1987	Jan	"

Note: First 6 legs are definite. First 18 months require consideration.

(T = technically difficult)

TABLE 6 (September 1983)

Initial Drilling Phase, ODP

(E) = Essential
(D) = Desirable

L = Lithosphere Panel
T = Tectonics Panel
S = Sed. & Ocean History Panel

Area	General Objective	Panels	Needs (Surveys, tech./engeer., panel coord; permits, etc.)	Proponents
Gulf of Mexico	Early opening of east Gulf (PMP) 2 holes, 1500 m.	T	(E) Site sp. surveys (Cuba/Mex. auth.); RFP	D. Roberts
	Cuban closing (wedge & Neogene history)		(E) Site sp. survey (Cuba auth.); RFP	
	Yucatan basin (CAR-7) (1000 m+)		(D) Site sp. (Mex. auth.)	
	W. Gulf tephrochrono. (1 site)	S	(D) Site sp. (Mex. auth.)	J. Kennett
	DeSoto Canyon (2 sites, double HPC)		(D) Site sp.	"
Bahamas	Cretaceous channels, 2 holes, 1000 m+ (PMP)	T, S	Bahamas auth.	R. Sheridan W. Schlager
	Facies, HPC, 3-4 cores (OPP)	T, S	Bahamas auth.	
	Blake escarpment	T,S,L		
Barbados	Active thrusting processes	T(L,S)	Barbados auth. Drill in casing = engeer. problem	
Mid. Atl. Ridge	Ridge Crest processes 23°N (Crest + Kane Frac. Zone)	L	(D) One SEABEAM across ridge Test barerock drilling + reentry	P. Robinson (select proponent from new OL panel)
Labrador Sea	W. margin, Greenland/Labrador (PMP) a) 60 my volcanic event b) Outer Orphan basin Compare Goban Spur - Orphan Basin	T(S)	Can./Denmark/Greenland auth.	M. & C. Keen
	Onset N.Am. glaciation (OPP) Paleogene climates Gateway problem	S	Logistics (Baffin Bay)	L. Jansa Kratska
Norwegian Sea	Voring-Lofoten		Norway auth.	Olaf
	Jan Mayen Ridge		Coordination among proponents	
Galicia	Listric faulting		Spain auth.	Boillot
	Early rifting, 4 holes			

TABLE 7 (March 1984)

Initial ODP Drilling Schedule

1985	J	
		Bahamas
	F	
		Barbados-1
	M	
	A	
		MARK-1
	M	(Mid-Atlantic Ridge/Kane FZ)
	J	
		Norwegian Sea
	J	
	A	
		Laborador Sea
	S	
	O	
		MED
	N	
	D	
		?
1984	J	
	F	
		NW Africa
	M	
	A	
		MARK-2
	M	
		Barbados-2
	J	
	J	
		504-B
	A	
	S	
		Peru Trench
	O	
	N	
		Chile Trip Junction
	D	
1987	J	
	F	Weddell Sea
	M	

TABLE 8 (May 1984)

Initial ODP Drilling Schedule

Start date : 1 January 1985

Legs : 56 day cycle

Leg 101 - Bahamas
Leg 102 - ENA-3/417D, 418A, 395A
Leg 103 - Galicia
Leg 104 - Norwegian Sea
Leg 105 - Baffin Bay/Labrador Sea
Leg 106 - MARK-1
Leg 107 - Tyrrhenian Sea
Leg 108 - N.W. Africa (Cenozoic)
Leg 109 - Barbados North
Leg 110 - MARK-2
Leg 111 - ?
Leg 112 - ?
Leg 113 - ?
Leg 114 - Weddell Sea

Note: Legs 108, 109 and 110 may be delayed 1 leg if N.W. Africa (Mesozoic) is selected for drilling; it would then be Leg 108.

Potential legs under consideration for Legs 111-113:

Ionian Sea
N.W. Africa (Mesozoic)
Barbados South
Yucatan Basin
Venezuela Basin
Hole 504-B
Costa Rica
EPR-1 (13°N)
Peru Trench
Chile Triple Junction

TABLE 9 (January 1985)

Summary of Indian Objectives Based on Panel Priorities

IOP	LITHP	TECP	SOHP	SOP
Kerguelen	Red Sea	Makran	Kerguelen	Kerguelen
Neogene	90 E. Ridge	Red Sea	Oman/Owen FZ	E. Australia
Argo	Cold Spot	Kerguelen	Somali Basin	Indian Ocean
Red Sea	Fracture Zones	Somali	SE Indian Ridge	Sub-antarctic
Broken Ridge		S. Australia	Chagos-Lac-Masc	
Makran		Intraplate	NW Aust-Argo Basin	
Chagos-Lac-Masc				
SE Indian Basin				Crozet (opportunity drilling)

TABLE 10 (JUNE 1985)

PRELIMINARY INDIAN OCEAN DRILLING SCHEDULE (See Minute 551)

1 9 8 7

JAN FEB	Weddell Sea	
MAR APR	Atlantic-Subantarctic Transect	
MAY JUNE	?	Davie Ridge SW Indian Ridge Somali Basin Makran
JULY AUG	Red Sea	
SEPT OCT	Neogene Package	
NOV DEC	Kerguelen 1	

1 9 8 8

JAN FEB	Kerguelen 2
MAR APR	Broken Ridge/S 90°E Ridge
MAY JUNE	N 90°E Ridge/Intraplate Deformation-Bengal Fan
JULY AUG	Argo/Exmouth

N.B. This schedule assumes that it will be logistically and financially possible to re-supply at Port Stanley in March 1987 and at Kerguelen Island in January 1988. It also assumes that the RESOLUTION will proceed into the Indonesian Arc region in September 1988.

TABLE 11 (June 1985)

Revised ODP - ATLANTIC/EASTERN PACIFIC DRILLING SCHEDULE (Legs 107-112)

(see Minute 552)

1 9 8 6

LEG	DEPARTS LOCATION	DEPARTS DATE	ARRIVES DESTINATION	ARRIVES DATE	IN PORT	TRANSIT	+	DRILL	=	AT SEA
107 Tyrr. Sea	Malaga	1 Jan	Marseilles	15 Feb	16-20 Feb	5	+	41	=	46
108 NW Africa	Marseilles	21 Feb	Dakar	20 Apr	21-25 Apr	21	+	38	=	59
109 MARK II	Dakar	26 Apr	Barbados	21 Jun	22-26 June	10	+	47	=	57
110 Barbados	Barbados	27 June	Panama	25 Aug	26-30 Aug	8	+	52	=	60
111 504 B	Panama	31 Aug	Callao	20 Oct	21-25 Oct	4	+	47	=	51
112 Peru	Callao	26 Oct	Punta Arenas	26 Dec	27-31 Dec	11	+	51	=	62
				TOTAL DAYS	30	59	+	276	=	335