JOIDES EXECUTIVE COMMITTEE MEETING
Edinburgh, U.K.
13-15 September, 1988

MINUTES

Executive Committee:

D. Caldwell, Chairman - Oregon State University
C. Barnes - Geological Survey of Canada (Canada)
B. Biju-Duval - IFREMER (France)
J. Briden - NERC (United Kingdom)
R. Duce - University of Rhode Island
H. Duerbaum - BGR (Federal Republic of Germany)
M. Friedman - Scripps Institution of Oceanography
D. Hayes - Lamont-Doherty Geological Observatory (for B. Raleigh)
C. Helsley - University of Hawaii
K. Kobayashi - ORI, Japan (for T. Nemoto)
B. Lewis - University of Washington
A. Maxwell - University of Texas Institute of Geophysics
W. Merrell - Texas A & M University
J. Stel - ESF Consortium for Ocean Drilling
J. Steele - Woods Hole Oceanographic Institution

Absent: C. Harrison - University of Miami

Liaisons:

R. Anderson - LDGO Borehole Research Group
J. Baker - Joint Oceanographic Institutions, Inc.
D. Heinrichs - National Science Foundation
N. Pisias - JOIDES Planning Committee, Oregon State University
T. Pyle - Joint Oceanographic Institutions, Inc.
P. Rabinowitz - TAMU/Science Operator

Guests/Observers:

P. Cook - Bureau of Mineral Resources, Australia
R. Gallois - British Geological Survey
R. Moberly - Hawaii Institute of Geophysics
B. Munsch - European Science Foundation
E. Nickless - Natural Environmental Research Council

JOIDES Office:

C. Moss - Oregon State University
S. Stambaugh - Oregon State University

Tuesday, 13 September 1988

451 INITIAL BUSINESS

INTRODUCTIONS AND OPENING REMARKS

D. Caldwell welcomed all participants, who introduced themselves and their affiliations. Caldwell welcomed C. Barnes, Geological Survey of Canada, as the new Canadian representative, and introduced P. Cook, Bureau of Mineral Resources, Australia, who was in attendance as an observer for the proposed Canadian-Australian membership consortium. J. Briden welcomed EXCOM to Scotland and introduced E. Nickless, Natural Environmental Research Council in Swindon, and the local host, R. Gallois, Programmes Director (U.K. North), British Geological Survey.

ADOPTION OF AGENDA

EXCOM added an item under "Other Business" regarding replacement of K. Kobayashi on the Budget Committee.

EXCOM Motion:

EXCOM adopts the agenda for the 13-15 September 1988 Executive Committee Meeting. (Motion Helsley, second Maxwell)

Vote: 15 for, 0 against, 1 absent

APPROVAL OF MINUTES

D. Caldwell called for corrections to the minutes of the previous meeting.

J. Briden asked that the second paragraph of the U.K. member country report (p.34 in agenda book) be changed to read: "The initial reaction was positive, although tempered by the realization that funding above the level of 50% of the present program would be difficult." B. Biju-Duval asked that paragraph seven of the French country report (p.36) be changed to read: "A replacement for the JEAN CHARCOT has been budgeted and scheduled for operations after 1990."

EXCOM Motion:

EXCOM approves the minutes of the 25-26 May 1988 EXCOM meeting as corrected. (Motion Stel, second Biju-Duval)

Vote: 15 for, 0 against, 1 absent

452 LONG-TERM SCIENTIFIC OBJECTIVES

SCIENTIFIC INPUT TO JOIDES

N. Pisias, Planning Committee Chairman, reported on the status of thematic panel input to the long-range planning document.

At its August meeting in Oxford, PCOM evaluated thematic panel input on long-term global priorities (Appendix A) and reviewed the three draft white papers. Pisias commented that PCOM was very pleased with the LITHP white paper which presents a three-phased research plan for implementing global thematic priorities. LITHP is meeting concurrently with EXCOM to refine their white paper.

Pisias reported that both TECP and SOHP met over the summer to define thematic priorities and begin development of their respective white papers. The SOHP white paper addresses six major scientific themes and includes scientific objectives, drilling strategy and technology issues for each theme (Appendix A). PCOM had several concerns about the SOHP white paper; these concerns will be addressed at a SOHP meeting in early October.

The TECP white paper and thematic priorities were also reviewed by PCOM. TECP will also meet in early October to respond to PCOM concerns and further define their thematic priorities.

LONG-RANGE PLANNING DOCUMENT

Pisias reviewed the timetable for producing the long-range planning document which will be submitted to NSF next spring. A first draft will be distributed to PCOM in early November for consideration at their annual meeting. The thematic panels will meet and provide their final input over the winter months with a final draft of the plan to be reviewed by PCOM at their spring, 1989 meeting. After PCOM review, the final draft will be submitted to EXCOM and the ODP Council at the May, 1989 meeting for approval.

A special PCOM subcommittee consisting of Pisias, G. Brass (U.Miami), D. Cowan (U.Washington), J. Malpas (Canada) and B. Malfait (NSF) will meet in Corvallis the second week of October to begin preparation of a first draft of the long-range planning document.

Pisias said the primary focus of the long-range plan is to address scientific objectives for post-1992 which can be addressed by ocean drilling, and how ocean drilling can advance our knowledge of the earth sciences. After reviewing the outline for the long-range plan (Appendix B) he asked for EXCOM's comments.

After considering the outline, several points were raised. There was some discussion as to how goals vs. achievements would be measured. It was felt that although not all COSOD-I objectives have been met, significant progress has been made. It was felt that the trade-off between the amount of science accomplished and the quality of that science has been acceptable and that COSOD-I may have been too ambitious.

J. Stel said that practical spin-offs of ODP should go beyond technological developments and questioned how well the program has reached the general public. He said that in the future some attention should be given to public relations and information dissemination. Briden agreed and said the U.K. has just lost a small portion of their membership contribution funded by private industry because it was felt the program has become "less relevant". He suggested that increased visibility and public education may help avoid this problem in the future. T. Pyle said that JOI,Inc. would prepare options and develop this issue for EXCOM consideration at their next meeting.

Several people questioned the role ODP will play in the future with respect to other global research programs. C. Helsley voiced some concern that the program is moving away from drilling toward downhole experiments such as seismic programs, long-term observatories and geomagnetics. Briden said these developments may be necessary to extrapolate away from individual drill sites to test models and increase our understanding of broader earth processes. B. Lewis suggested the need for closer interface between ODP and other global research programs if ODP participation is to go beyond using the drillship to emplace downhole instruments.

After more general discussion of the outline, EXCOM agreed that progress on the long-range plan should continue as planned. D. Heinrichs said that the outline presented for the long-range planning document was a good one and that the purpose of the plan is to define an overview of post-1992 goals and objectives. Heinrichs said it is most important to first build a sound science program, then decide on the specifics of implementing it.

453 NEAR-TERM PLANNING

JOIDES ADVISORY STRUCTURE

Pisias presented a schematic of the new panel structure (Appendix C) and reported that PCOM reviewed the Terms of Reference for the JOIDES Advisory Structure at its August meeting and revised them to reflect the new structure. Mandates were added for the new panels and old mandates were reviewed and updated. Pisias also reported that chairmen for the new thematic panels had been chosen, and for the new Shipboard Measurements Panel:

Ocean History Panel	N. Shackleton (Cambridge Univ., U.K.)
Sediment & Geochemical Processes Panel	E. Suess (GEOMAR, FRG)
Shipboard Measurements Panel	K. Moran (Atlantic Geoscience Centre, Canada)

EXCOM reviewed the revised Terms of Reference for the JOIDES Advisory Structure. C. Helsley voiced some concern that mandate for the Site Survey Panel (SSP) indicated that the panel was involved in the actual evaluation of proposals. He said it should be clearer in the SSP mandate that the panel receives its data from the ODP Site Survey Databank, and is not actually involved in reviewing or evaluating the proposals. Other than the Site Survey Panel mandate, EXCOM agreed with the revised Terms of Reference and expressed approval of the new panel structure.

H. Duerbaum suggested that a subcommittee might be the best way to deal with preparing a detailed revision of the Site Survey Panel mandate. D. Caldwell agreed and appointed H. Duerbaum, C. Helsley and D. Hayes to the subcommittee and directed them to review the SSP mandate, make appropriate revisions and present specific wording for EXCOM consideration at the next business session to be held Thursday morning.

J. Stel noted that the Terms of Reference for EXCOM were badly in need of updating as they still contained references to the International Phase of Ocean Drilling (IPOD). B. Biju-Duval and W. Merrell agreed and all three were appointed to a subcommittee, which was directed to update the existing EXCOM Terms of Reference and prepare specific wording for EXCOM consideration at the next business session.

It was recommended that the Budget Committee mandate be removed from the EXCOM Terms of Reference and presented as a separate Terms of Reference document for the Budget Committee. Caldwell questioned the voting quorum referred to in the BCOM mandate and said that it was his impression that in the past BCOM had operated as a consensus group. There was also some confusion as to the extent of BCOM's authority to make fiscal decisions on behalf of EXCOM and/or PCOM. Caldwell appointed another subcommittee, consisting of C. Helsley, J. Baker and D. Heinrichs, to prepare a revised Budget Committee mandate for review at the next business session.

Caldwell reported that K. Kobayashi has requested that he be replaced as the non-U.S. EXCOM representative to the Budget Committee. Caldwell asked members to begin considering nominations for his replacement and said that action on this issue would be deferred to the next business meeting.

ON-GOING REVIEWS

T. Pyle reported that JOI, Inc. administrative organization and operations were reviewed by the Administrative Cost Review Panel (ACR) in July, 1988. (The same panel recently performed an administrative cost analysis of TAMU operations for JOI, Inc. with very favorable results.) Pyle reported that the Panel found that the JOI science programs are coordinated and administered in an excellent fashion at reasonable costs.

J. Baker reported that the Performance Evaluation Committee (PEC-2) has visited JOI, Inc. and all subcontractors, and also sat in on a Co-Chief Scientists meeting held at TAMU this summer. Their report (Appendix D) was received by JOI, Inc. on August 30, 1988 and the next step is to send it to the subcontractors for response. The JOI Board of Governors will meet in February, 1989 to discuss the subcontractors' responses and the final report will be presented for EXCOM review at the April, 1989 meeting.

Baker said in general, this PEC report takes a broader view than the previous Evaluation Report. Although it is not as specific or detailed, this year's evaluation report looks carefully at the advisory structure and broad future goals and seems to be a very favorable report.

D. Heinrichs reported that an external panel formed by NSF and composed of national and international senior scientists, convened in early June, to conduct a programmatic review of ODP. Over the two-day meeting, the panel reviewed various documents, including the 1989-1992 ODP program plan (see Appendix E).

Issues discussed at length included COSOD-I and -II objectives. The panel felt that the highest priority objectives should be addressed first, even at the cost of addressing fewer problems. The panel also suggested that over the next four years the level of engineering development should be reviewed, and felt that the engineering budgets are at minimal levels.

Heinrichs reported that the most focused criticism was with publications. The panel felt that the leg volumes were very good, but there was a need for more attention to thematic synthesis and thematic results. The panel suggested that this might be pursued through separate publications or symposia.

Heinrichs said that these were all addressed as "areas for improvement", not problems, and that the overall review was very positive. Continued funding was approved by the National Science Board at a level not to exceed $156 million over the next four years. Heinrichs said the 1993 review will depend heavily on the long-range planning document and the renewal of MOUs with the non-U.S. partners. The National Science Board did request that NSF come back with a status report on JOIDES long-range planning. A one-hour presentation will be made, in conjunction with JOI, Inc. and JOIDES, next year.

RESOURCE CONSTRAINTS

D. Heinrichs reported that the NSF FY89 budget figure of $1.885 billion is known, although the appropriations bill is still not through Congress. Heinrichs said ocean

sciences were supported at $146.52 million, which represents an 8.2% increase over FY88. He also said that up to $3 million has been designated to enhanced ocean engineering focused on the Pacific basin, although no special funds were requested for this purpose. The FY89 budget for ODP is $32.1 million, which includes the U.S. share of commingled funds and U.S. travel funds. Heinrichs said this is an increase of about 2% over the FY88 budget figure of $30.7 million, essentially a steady-state budget.

RESOURCE NEEDS

N. Pisias reported that only two items were not included in the four-year program plan and budget. These include two guidebases which will be required for the Loihi drilling program, and the possibility of increased engineering costs associated with the diamond coring system which drills a hole incompatible with the high-tech logging tools currently used by ODP.

NEAR-TERM SCIENTIFIC OBJECTIVES

Western Pacific Program

N. Pisias reviewed the FY89 drilling program planned for Legs 124 through 129. He reported that there has been no significant change in the Leg 124 (SE Asia Basins) program. Leg 124E, the engineering development leg, will include a test of the diamond coring system, a 1500 m drill rod test in shallow water, and a high temperature logging experiment which will include testing of a consolidated two string logging run.

Leg 125 (Bonin/Mariana) is unchanged. A problem has developed with one Leg 126 (Bonin II) site which is in a high heat flow area. Alternate sites are being identified. Legs 127, 128 (Japan Sea I and II) and 129 (Nankai) are unchanged.

At their next meeting, PCOM will finalize plans for the Geochemical Reference, NE Australia Margin, Vanuatu and Lau Basin programs.

Central & Eastern Pacific Program

Pisias reported that at its August meeting, PCOM reviewed the first full CEPAC Prospectus which contains 14 programs, all ranked and endorsed by the thematic panels. He reviewed the top priorities of each thematic panel and noted any special comments or considerations:

LITHP Priorities

Hole 504B (needs half a leg to prepare hole)
East Pacific Rise (program is not yet site specific)
Loihi (guidebases will be needed for shallow, bare rock drilling)

SOHP Priorities

Ontong Java depth transect
Shatsky Rise (need more data, current site not shallow enough to determine top of anoxic event)
Neogene

TECP Priorities

Chile Triple Junction
Cascadia Margin (site survey has been funded but not yet completed)
Hawaiian Flexure

Pisias said that the total CEPAC program adds up to a minimum of 15 legs. He also noted that a working group on Fluid Processes and Accretionary Prisms will be meeting in late September to help define TECP priorities in that area.

STATUS OF NEAR-TERM SCIENTIFIC & TECHNOLOGY PLANNING

The Planning Committee is charged with planning scientific objectives four years in advance of the drillship. Pisias said that PCOM has established a new, thematically driven process for this planning which will use long-range planning and the thematic white papers as the primary basis for evaluating new scientific objectives and drilling programs. He said that although PCOM has identified and instituted this new process new proposals are needed from the community to begin the planning of programs beyond 1991 and 1992.

At its August meeting, PCOM prepared a motion and implementation consensus intended to convey this message to the community and initiate the submission of new proposals so that a new proposal base can be used to move planning decisions beyond 1991. A copy of the PCOM motion and consensus is attached as Appendix F.

After reviewing the PCOM motion and consensus, W. Merrell said he also saw the need for some word to go out to the community. He said that in the past, when the shiptrack was known in advance, scientists interested in a specific geographic location knew when to submit proposals. Merrell felt, however, that the PCOM motion may be inappropriate for the new thematic approach and suggested that it should perhaps be worded more as a challenge to the community. Several other members agreed and A. Maxwell suggested that EXCOM prepare a new motion which clarifies the new process and makes it clear that the nature of the proposals received will determine the path of the ship after 1991. EXCOM did feel that the PCOM consensus was the appropriate way to proceed with the new process.

J. Stel voiced some concern, which he felt was shared by other non-U.S. members, that the ship would not be returning to the Atlantic. Pisias said that return to the Atlantic is not precluded by the new process, but until proposals addressing scientific objectives in the Atlantic are received the path of the ship could not be guaranteed.

After some discussion as to wording, EXCOM forwarded the following motion:

EXCOM Motion:

At the November 1989 Annual PCOM meeting, and at subsequent meetings, PCOM will examine thematically-reviewed proposals in any ocean, in order to plan a general direction of the vessel in the period after 1991. (Motion Merrell, second Briden)
Vote: 15 for, 0 against, 1 absent

EXCOM commended the Planning Committee for their consistent approach in developing the thematically driven planning process.

OPERATIONS NEEDS

T. Pyle reported that there was no new information for EXCOM to consider.

PROGRAM PLAN REVIEW

Pyle again reported that there has been no new information which might affect the FY89-92 Program Plan since the last EXCOM meeting. He asked if EXCOM has any comments or suggestions for PCOM before preparation of the long-range planning document begins. There were none and it was agreed that PCOM should proceed as planned.

One problem mentioned at length was the need to implement some mechanism for increasing thematic publications and symposia.

454 PRESENT STATUS OF ODP

OPERATIONS: PROBLEMS AND TECHNICAL PROGRESS

Science Operator Report

P. Rabinowitz provided an update on ODP Legs completed since the last EXCOM meeting. Rabinowitz submitted a written report (Appendix G); highlights of his report included:

* Drilling results from Broken Ridge (Leg 121) suggest that uplift of Broken Ridge was caused by mechanical, rather than thermal, processes.
* Leg 121 retrieved an expanded section across the Cretaceous/Tertiary (K/T) boundary on Broken Ridge.
* The oldest sediments ever recovered from beneath the deep ocean floor were sampled on the Wombat Plateau transect of Leg 122 (Exmouth Plateau). These sediments extend the record of marine sediments to basal late Triassic (Carnian/Norian).

Rabinowitz reviewed the schedule for Leg 123 which is currently at sea, and reviewed future cruises and staffing.

Wireline Logging Services Report

R. Anderson presented the Wireline Logging report on operations and technical progress. His written report is attached as Appendix H.

Anderson presented a graph of time spent logging versus time recommended by PCOM. He noted that there has been an improvement in recovery since Leg 110, due to a change from fresh- to salt-water drilling mud. A review of logging results (Legs 120 through 122) followed.

Anderson reported that bridging problems did occur on Leg 122 with approximately 1 km of hole lost. He said the situation would have been improved had the sidewall entry sub been deployed earlier. A tool string was lost on Leg 122, and although the crew did fish for the tool string and scan the seafloor with telemonitors, nothing was recovered. Anderson said that particular tool string was to be replaced with new technology on Leg 124, so the lost string will not be replaced before then.

Anderson announced that logging schools will be presented in the U.S. this winter in conjunction with the GSA meeting in Denver (November) and the AGU meeting in San Francisco (December). He noted that, with the exception of Canada, logging schools have now been sponsored by every ODP member country.

Anderson reported to EXCOM that he has been invited to present a logging school in the People's Republic of China next spring, at the Institute of Crustal Dynamics in Beijing. The Chinese have offered to pay all expenses but air fare. Anderson said this may be a good opportunity to stimulate interest in Chinese ODP membership and asked EXCOM how he should proceed.

J. Stel responded that if ODP is to subsidize the cost of logging schools, he would prefer that it should be limited to member countries. H. Duerbaum agreed. D. Heinrichs noted that he made a series of presentations two years ago and although the Chinese were very interested in obtaining membership in ODP, they had absolutely no way of raising the funds to sponsor a membership.

EXCOM directed Anderson to respond to the Chinese invitation with positive language, but to decline the invitation unless all expenses were paid. Anderson said he would check his response with Heinrichs before forwarding it to the Chinese.

Anderson reported that he recently attended a seminar on ultradeep continental drilling sponsored by the International Lithosphere Program in the USSR. He said a data exchange policy between the U.S. and USSR is being developed and Anderson was asked if ODP and DSDP data currently available on CD-ROM would be included in the exchange program. Anderson said that this data is routinely sent to the National Geophysical Data Center where it is available for sale, although the cost seems to be somewhat prohibitive to USSR scientists. Heinrichs suggested that these types of issues should most appropriately be handled by T. Pyle as Program Manager at JOI, Inc. Anderson agreed and passed the issue on to Pyle.

RESOURCE ISSUES AND BUDGET STATUS

T. Pyle said that fiscal year 1989 will be starting soon and reviewed the operations budget for FY89. He reported that an increase of $150,000 has been included to partially cover the costs of increased day rates. The FY89 budget also includes special operations costs as approved by PCOM and EXCOM.

J. Briden thanked the subcontractors for their reports and as there were no comments or corrections, asked that the minutes reflect EXCOM's acceptance and approval of the subcontractor reports. This was agreed by all present.

Thursday, 15 September 1988

455 MEMBER COUNTRY REPORTS

FEDERAL REPUBLIC OF GERMANY

H. Duerbaum presented a report for FRG. He reminded the meeting that the next meeting of the German ODP Colloquium will be held in Tubingen (near Stuttgart) from 8-10 March, 1989. Duerbaum welcomed the participation of other ODP member countries.

The German ODP community is interested in increased communication between TEDCOM, DMP and the Germany KTB (Continental Deep Drilling) program. Duerbaum reminded the group that TEDCOM is holding a meeting at KTB headquarters in Bavaria in late September, and said that increased communication will benefit both programs.

Duerbaum announced that funds are now available for a joint French-German Lau Basin diving experiment; details will be available at a later date. Duerbaum also announced that new information was obtained by a recent POLARSTERN cruise near Greenland, which will result in the submission of drilling proposals addressing various geochemical issues in that region.

UNITED KINGDOM

J. Briden reported for the United Kingdom. He said that the UK subscription, which has been in a "fragile" situation until recently, is now almost fully committed. He said that the U.K. ODP Management Committee was meeting concurrently with EXCOM to discuss funding for future years, in an attempt to prevent the situation from arising each year. The ODP Community has resolved to "hang in there" and signals from the central government are favorable.

Briden said there has been a great deal of activity in the U.K. with regard to drilling proposals, although the recent postal strike may have delayed their arrival at the JOIDES Office. He also said that the British research program on ocean ridges (so called B-RIDGE) has met with very enthusiastic response at NERC and is pushing forward with faith and enthusiasm.

FRANCE

B. Biju-Duval reported that the FY89 French science budgets are still under discussion, but that ODP has been maintained as the primary geoscience program. He stated however, that science support will be very light. He also reported that the new French vessel, which will replace the JEAN CHARCOT, is scheduled to sail by the end of 1990.

Biju-Duval announced the successful re-entry of DSDP Hole 396B this August using a submersible and the Nadia platform. Five entries were made, including two runs with the Scripps water sampling tool and two runs with the French temperature tool. The hole was clean and excellent results were obtained. He said a full report on the re-entry operations will be circulated to the ocean drilling community.

CANADA

C. Barnes reported for Canada and introduced Dr. Peter Cook, Bureau of Mineral Resources, Australia, who is attending the meeting as an observer for the proposed Canadian/Australian ODP membership consortium.

Barnes reported that through the first part of the year, the Canadian ODP program underwent an evaluation process which was performed by an outside reviewer. He said the final report will soon be published by the ODP Secretariat and that the results may be useful to other ODP member countries who are considering the same process.

Barnes reminded the meeting that the Canadian ODP Secretariat has changed and is now housed at Memorial University. K. Babbcock has replaced R. Price as the Canadian representative to the ODP Council, J. Malpas replaces P. Robinson on the Planning

Committee, Barnes replaces M. Keen on the Executive Committee, and S. Scott is the new Chairman of the Canadian ODP National Committee.

Barnes reported that Canadian membership contributions are secure for the next year, however continued interest expressed by the Australians, and the desire to ease funding strains have encouraged the Canadian ODP community to pursue a consortium agreement with Australia. Barnes circulated copies of a draft Proposal for a Canada-Australia Consortium for Ocean Drilling.

The proposed consortium will be based on a 2:1 ratio, which will determine the Canada:Australia representation on ODP panels and committees. The current idea is that Canadian and Australian representatives will take turn attending EXCOM and PCOM meetings, and the remaining positions on other JOIDES panels will be divided, based on the 2:1 ratio. Australia will be establishing their own ODP national structure and a new MOU will be signed between Canada, Australia and NSF.

P. Cook reported that funds for the Australian membership contribution to the consortium have been identified for three years. The Australian Research Council and Bureau of Mineral Resources will provide most of the funding, with smaller contributions coming from the Antarctic Division of the Dept. of Environment, and the Australian Vice-Chancellor's Committee. Bids to house the National Secretariat have been received from four Australian universities and a decision is expected soon.

Barnes said that the final documents have not yet been signed and it is unlikely that the 1 October, 1988 deadline will be met, however all parties involved would like to see the agreement go into affect as soon as all the appropriate documents are in place. Barnes welcomed any input from EXCOM and both Barnes and Cook expressed enthusiasm and optimism for the new consortium.

W. Merrell and J. Briden expressed concern over the alternating attendance of Canadian and Australian EXCOM and PCOM representatives. Both felt that this would result in a lack of continuity which would be particularly problematic with regard to the detailed science planning performed by PCOM. J. Baker pointed out that the consortium would represent one membership in ODP, as is the case with the ESF Consortium, and that however the consortium is organized internally, it is generally understood that there will be only one consortium representative to the PCOM and one to the EXCOM. N. Pisias suggested that perhaps a two-year Canadian, one-year Australian arrangement could be made with alternation based on a longer time frame.

Both Barnes and Cook responded that the functions of the ODP Planning Structure would be kept in the best interests of the consortium and that this issue would be reconsidered, based on the previous discussion. The EXCOM asked that a general welcome to the consortium be recorded, and agreed to formulate a formal motion under a later agenda item.

ESF CONSORTIUM for OCEAN DRILLING

J. Stel reported for the Consortium. He said that at the last EXCOM meeting the ESF Consortium had voiced concern with the late arrival of the JOIDES Journal issues. He said that a solution has been worked out and thanked the JOI, Inc. and JOIDES Journal staffs for their cooperation. Stel also reported that a final report on the fourth ECOD workshop held last May in Helsinki will be available in a few weeks. He said several drilling proposals will be forthcoming as a result of the workshop.

JAPAN

K. Kobayashi reported on behalf of Prof. T. Nemoto and the Japanese ODP scientific community, that the appointment of Japanese drilling engineer, Mr. Matsuoka, as a shipboard engineer onboard the JOIDES RESOLUTION is very welcome.

Kobayashi also reported that Japanese geophysicists are working to prepare instruments for long-term downhole observations of temperature variation, microseismology and magnetotellurics. He said the best is being done to squeeze the necessary funding out of existing budgets in order to continue such geophysical research.

In early August the eastern portion of the Nankai Trough was investigated by a chartered ship, KAIKO-MARU V, using 6-channel seismic profiles and magnetics. Ten complete profiles crossing the accretionary wedge, trench bottom, ocean slope and Zenisu Ridge compressional swell were analysed. Although their locations are slightly east of the proposed drill sites, because the survey was attempted for the French-Japanese KAIKO program, their general features will provide much information for ODP interpretation.

Also early this summer, a Japanese submersible, SHINKAI 2000, made a series of dives at Okushiri Ridge, in the northeastern Japan Basin. An outcrop of basaltic rocks was found near the obduction zone and results from the dives will help in considering proposals for Japan Sea drilling.

Japan has begun preparations to receive the JOIDES RESOLUTION in Japanese waters. Kobayashi expressed hopes that there will be no difficulty in clearance issues.

UNITED STATES

National Science Foundation

D. Heinrichs reported that NSF has received, and is working with Canada to finalize, the draft MOU for the Canada/Australia membership consortium. He said the content is the same as MOU's currently in effect with the other member countries.

Heinrichs reported that an MCS/Seamark study off the Oregon margin has been funded, with V. Kulm (Oregon State Univ.) and C. Moore (Univ. California, Santa Cruz) as co-chiefs. Additional proposals are under review for site survey work in the East Pacific with the primary review panel scheduled to meet soon.

U.S.Science Support Program

T. Pyle reported for the U.S. Science Support Program. His written report is attached as Appendix J.

Pyle said that five workshops have been funded this year. Details on any of these workshops is available from the JOI/USSAC office, or through the JOIDES Journal. Site survey augmentation includes support for three programs:

- Analysis of Heat Flux from the East Pacific Rise (Crane and Aikman)
- Support of Phase II of the Geoprops Probe (Karig)
- SeaBeam and SCS across Jurassic magnetic lineations E. of Japan (Lonsdale)

Pyle reviewed fellowships granted for the upcoming year and once again encouraged participation in the two U.S. logging schools which will be held in conjunction with the Geological Society of America meeting (29 October, 1988) in Denver, and the American Geophysical Union meeting (4 December, 1988) in San Francisco.

He also reported that two CD-ROM disks are being developed for distribution the first part of next year. One will contain only DSDP geophysical data, the other will contain all other available DSDP digital data. Software will be supplied on floppy diskette, and ODP partner and JOI institutions requests for limited gratis copies are encouraged. Those interested should contact JOI, Inc.

456 EXCOM ACTION ON NEAR TERM PLANNING

D. Caldwell reviewed actions required by EXCOM concerning revision and adoption of Terms of Reference for the Executive Committee, Budget Committee and JOIDES Advisory Structure. Caldwell called for reports from the three subcommittees.

W. Merrell reported for the subcommittee responsible for revising the EXCOM Terms of Reference. He reported that the subcommittee had updated the existing Terms of Reference and presented a final version for EXCOM review.

C. Helsley reported for the subcommittee responsible for preparing Terms of Reference for the Budget Committee. Helsley presented a list of changes to the existing BCOM mandate for review. After adding statements regarding quorum, and membership, the BCOM Terms of Reference were agreed upon.

D. Hayes presented revisions to the Site Survey Panel mandate. After some minor changes in wording, EXCOM agreed to that the new mandate be inserted into the Terms of Reference for the JOIDES Advisory Structure.

EXCOM Motion:

> EXCOM accepts and adopts revised Terms of Reference for the JOIDES Executive Committee, JOIDES Budget Committee, and JOIDES Science Advisory Structure. (Motion Steele, second Duerbaum)
>
> Vote: 15 for, 0 against, 1 absent

H. Duerbaum added that it should be quite clear that the reason for the changes in working was that pre-site investigations in some cases were not sufficient, that, therefore, the Site Survey Panel should review the data base of all mature proposals, and that PCOM should take into account critical reports of the SSP seriously.

W. Merrell suggested that the date of adoption be noted at the top or bottom of each document for easy reference to the most current version. Copies of the approved Terms of Reference for EXCOM, BCOM and the Science Advisory Structure are attached as Appendix K.

D. Caldwell called for nominations to replace K. Kobayashi as non-U.S. EXCOM representative to the Budget Committee. Jan Stel was nominated and the following motion was approved.

EXCOM Motion:

> EXCOM elects Jan Stel to act as non-U.S. representative to the Budget Committee. (Motion Duerbaum, second Merrell)
>
> Vote: 14 for, 0 against, 1 absent, 1 abstain (Stel)

457 INTERNATIONAL PARTICIPATION IN ODP

CANADIAN/AUSTRALIAN CONSORTIUM

Based on discussions held during the Canadian Country Report (see p.11 above) the following motion was forwarded:

EXCOM Motion:

EXCOM recommends that the Canada-Australia consortium for Ocean Drilling be accepted as a member of JOIDES. This will supersede the Canadian membership when an appropriate MOU is signed with NSF. (Motion Steele, second Briden)

Vote: 15 for, 0 against, 1 absent

LESSER DEVELOPED COUNTRIES

T. Pyle reported that a quantitative survey was sent out in July to assess the status of lesser developed countries participation in ODP. So far only a few responses have been received but final results should be available at the next EXCOM meeting.

USSR MEMBERSHIP

B. Lewis reminded EXCOM that the USSR Academy of Science previously expressed interest in joining the ODP and that despite problems which developed, they are still interested in obtaining membership in the program. The following motion was forwarded for consideration and discussion:

EXCOM Motion:

Whereas the USSR has a long and distinguished record of accomplishments in earth sciences, and was an active and valued partner in the International Phase of Ocean Drilling and,

The USSR continues to have an active interest in global earth sciences as does the Ocean Drilling Program, and

EXCOM responded to the USSR interest in joining ODP by inviting them to open negotiations with NSF in 1985, but noting that

the U.S. Government has not yet offered to enter into a Memorandum of Understanding with the USSR, and recognizing that:

The USSR is still interested in joining ODP as a full member, but the USSR cannot keep this potential commitment open indefinitely,

Therefore: EXCOM reaffirms its previous resolution and recommends that the U.S. Government immediately take appropriate steps to secure full membership in ODP for the USSR. (Motion Lewis, second Briden)

Vote: 15 for, 0 against, 1 absent

Heinrichs said he will actively pursue NSF action in response to this resolution.

458 FUTURE MEETING SCHEDULE

Participants agreed on the following schedule for the next two EXCOM meetings:

31 May - 2 June 1989	Palisades, NY (hosted by LDGO)
3-5 October 1989	The Netherlands (hosted by ESF Consortium)

B. Biju-Duval extended an unofficial invitation for EXCOM to hold its Fall 1990 non-U.S. meeting in France. He said a field trip might be arranged to see the new French vessel.

459 OTHER BUSINESS

JOIDES OFFICE ROTATION

D. Caldwell reminded the group that the JOIDES Office will rotate to the Hawaii Institute of Geophysics on 1 October, 1988. He also said that after HIG there was no official plan for further rotation of the JOIDES Office. N. Pisias said that after Hawaii, each of the eligible U.S. institutions has hosted the JOIDES Office for one tenure with the exception of the University of Texas, Austin. Pisias noted T.Shipley, the UT Austin representative to PCOM, will be rotating this year and that hosting the JOIDES Office would be an important consideration for UT Austin in naming Shipley's replacement.

EXCOM Motion:

The JOIDES Office will rotate to the University of Texas, Austin following its tenure at the Hawaii Institute of Geophysics. (Motion Friedman, second Helsley)
Vote: 15 for, 0 against, 1 absent

J. Baker raised the question as to whether or not the JOIDES Office should rotate outside the U.S. As UT Austin is the last U.S. institution to host the JOIDES Office, Baker said this would be a good time to consider the issue. It was pointed out that the Terms of Reference just approved state that the JOIDES Office will rotate among the U.S. institutions only, with the exception of those which are subcontractors to JOI, Inc.

D. Caldwell said that EXCOM's major accomplishment over the past two years has been to get the budgetary process under control. Caldwell said the Budget Committee has held primary responsibility for this achievement and thanked all BCOM members, past and present, for their efforts. He also extended his thanks to Nick Pisias for his efforts as PCOM Chairman, and to the JOIDES Office staff. A. Maxwell thanked Doug Caldwell on behalf of EXCOM for his service as Chairman, and C. Barnes extended thanks and best wishes to Caldwell, Pisias and the JOIDES Office staff.

ADJOURNMENT

There being no other business to consider, the meeting adjourned 15 September 1988.

APPENDICES

A. Long-term Thematic Priorities as identified by LITHP, SOHP and TECP

B. Outline for Long-Range Planning Document

C. Organization chart for revised JOIDES panel structure

D. Performance Evaluation Committee report

E. National Science Review Board report

F. PCOM motion: call for drilling proposals

G. Science Operator report

H. Wireline Logging Services report

J. USSSP report

K. Revised Terms of Reference for JOIDES Executive Committee, Budget Committee, and Science Advisory Structure

LITHP INPUT FOR LRP

implementation plan

Phase 1 (1989-1992)

- Establish detailed planning groups (DPGs) on "Deep crustal drilling", "Ridge crest drilling", "Sea floor seismic observatories", and "Global geochemical and stress mapping"
- Develop a long-term engineering development plan to improve crustal drilling technology, including cost estimates, manpower needs, and test-leg requirements
- Begin site survey work for at least 6 candidate sites for deep crustal drilling, 4 sites for ridge crest drilling, and 5-10 seismic observatories
- Complete 2 legs of deep crustal drilling at Hole 504B, or at another suitable deep crustal drill site
- Complete 4 legs of drilling on sedimented and unsedimented ridge crests of the eastern Pacific
- Carry out recommended pilot experiments for the establishment of a sea floor seismic observatory, probably at a site near Hawaii

Phase 2 (1993-1996)

- Complete site survey work for deep crustal holes, ridge crest drilling and seismic observatories
- Drill two or three holes 2000-3000 m into the crust (1 leg/yr for four years), including one hole near a large fracture zone (SWIR or North Atlantic)
- Begin Mid-Atlantic Ridge drilling; complete second phase of EPR drilling (1 leg/yr for four years)
- Establish 5 sea floor seismic observatories and drill 25-50 shallow crustal holes for global geochemical/stress mapping (2 legs/yr for four years)

Phase 3 (1997-2000)

- Extend one crustal hole to Moho (1-2 legs/yr for four years)
- Complete second phase of MAR drilling (2 legs)
- Establish a sea floor volcano observatory on a volcanically active part of the mid-ocean ridge system (1 leg/yr for four years)
- Establish 15 sea floor seismic observatories and drill an additional 25-50 shallow crustal holes for global geochemical/stress mapping (2 legs/yr for four years)

In this scenario, 4-5 legs (8-10 months) of drilling would be required per year

SOHP WHITE PAPER:
==========

1 **Short period changes - Neogene Paleoceanography**
- Heat budget
- The Carbon cycle
- Biological evolution

2 **The history of sea level**
- three approaches:
  - Passive Margins
  - Atoll drilling
  - Oxygen isotope record

3 **Longer period changes - Pre-Neogene Paleoceanography**
- Pre-psychrosphere Eocene
- Post-psychrosphere Eocene and Oligocene
- Mesozoic Oceans

4 **Paleo-upwelling and productivity**
- History & distribution of upwelling systems
- Relationships between upwelling systems & global climate
- Role of small, high-prod. ocean basins in global productiv.
- Nature of diagenetic reactions

5 **Geochemical cycling, diagenesis, metallogenesis**
- Chemical processes within sediments
  - Fluid ciculation
  - Diagenetic overprint stratigraphy
  - Metallogenesis

6 **Depositional manifestation of continental uplift and erosion**
- Sealevel history & sedimentary cycles
- History of sedimentary basins
- Sediment mass balance
- Origin of unconformities
- Volcaniclastic sedimentary facies
- Submarine fans
- Slope stability
- Melanges and diapirism

Each theme is structured:

Overview and importance of theme
Scientific objectives and opportunities for the future
Drilling strategy
Technology issues

TECP WHITE PAPER:

1 **Sublithospheric structure and processes**
   seafloor and subseafloor noise
   islands and seafloor stations

2 **Plate kinematics**
   hot spot reference frames
   seafloor age
   Mesozoic plate motions
   paleomagnetism

3 **Plate dynamics**
   intraplate stresses and the driving forces
   plate boundary stresses and deformation

4 **Processes at divergent plate margins**

5 **Processes at convergent plate boundaries**
   stress in the wedge & mechanics of deformation
   hydrogeology
   collisional processes

---

each theme is structured as:

Tectonic significance
State of knowledge
Contributions to be made by ODP
Background data and technical developments
Drilling strategy and locations

Outline for Long Range Planning Document: Input from Thematic Panels

I. Overview of Scientific Objectives of the First Phase of the Ocean Drilling Program.

COSOD-I Objectives
JOIDES Objectives as defined by Thematic Panels.

II. Scientific Achievements of ODP to date.

A. What is the present status in achieving the thematic objectives discussed in Section I. Some of the lithosphere objectives have not been addressed but technical advances have been made. [This section should, obviously be written in terms of major problems of earth science that have been addressed by ODP and not a leg-by-leg list of achievements. I include a quick draft, written in one day, of scientific achievements of ODP inserted in the FY89 program plan and may give you an idea of the type of thing I would like. Please improve if you can]

B. What practical spin-offs have come from ODP [section mostly for the Canadian industrial contributors].

III. Scientific Opportunities and Objectives for the Future.

A. Scientific Objectives as defined by COSOD-I and COSOD-II. Section should integrate the objectives into a set of objectives for future drilling.

B. Scientific Objectives recognized by JOIDES as being of high priority but not directly addressed by COSOD conferences.

C. Technical/logistical requirements defined by the scientific objectives outlined in IIIA and B.

D. Status of the Scientific Objectives at the end of the present phase of ODP.

1. Scientific objectives of COSOD-II that will be addressed in the next four years

2. Technological developments that are planned to be prepared for drilling beyond 1993.

IV. Prioritizations and implementation of objectives.

A. Scientific Prioritizations of objectives.

Can these priorities be defined as a sequence of scientific goals

that need to be addressed so that the next level of priorites can be better addressed.

B. Implementation plan

1. Planning for necessary technological developments.

   a. Drilling developments

   b. Logging and bore-hole measurements

   c. Ship facilities, alternate vessel as a necessity to achieve objectives. [How to address the question of alternate vessels is not clear to me. There is the question of using alternate platforms as part of the ODP "facility" or using platforms that are available from other agencies, countries, or by leasing. Planning for these two types of alternate vessels would be some what different. We should address the scientific goals of the program and then examine the issue of how to implement and alternate vessels is just one aspect.]

2. Needed Pre-Drilling Data Bases and Identification of most likely regions where drilling can address high priority objectives.

   a. Define the pre-drilling regional studies necessary for drilling in areas to address major scientific objectives (seismic surveys, sediment studies etc.)

   b. Define regions which are likely candidates to be drilled to address scientific objectives of ODP.

3. Implementation plans at different levels of effort:

   a. 50% increase as recommended by COSOD-II

   b. 10% increase in effort

   c. Steady State Effort (meaning inflationary increases only).

V. Relationship between ODP and other Global Initiatives.

RIDGE, GOFS, WOCE, Global Seismic Network etc.

Time Scale for Writing the Long Range Plan:

1 August, 1988. Thematic panels have completed drafts of "white papers" sent to the JOIDES Office for distribution to PCOM. White papers must include a long range implementation plan with potential areas of drilling (global map) and beginning estimates of drilling efforts. Technical development also need to be discussed.

14 August, 1988. PCOM meets in England for summer meeting. Discusses contents of white paper and thematic panels implementation plans. PCOM formulates issues to be further discussed by thematic panels. Also, begin implementation of new panel structure.

Fall, 1988. Thematic Panels meet and refine white papers and implementation plans. Initial cost estimates for drilling and other technologies should be obtained from TAMU, LDGO and other sources.

1 November 1988. First draft of Long Range Plan is generated to be distributed to PCOM. This draft will contain PCOM's integration of thematic panels implementation plan into a "coherent" planning strategy.

25 November 1988. PCOM meets for annual meeting and discusses draft Long Range Plan. Prepares final set of issues to be sent to thematic panels to be discussed in their winter meeting.

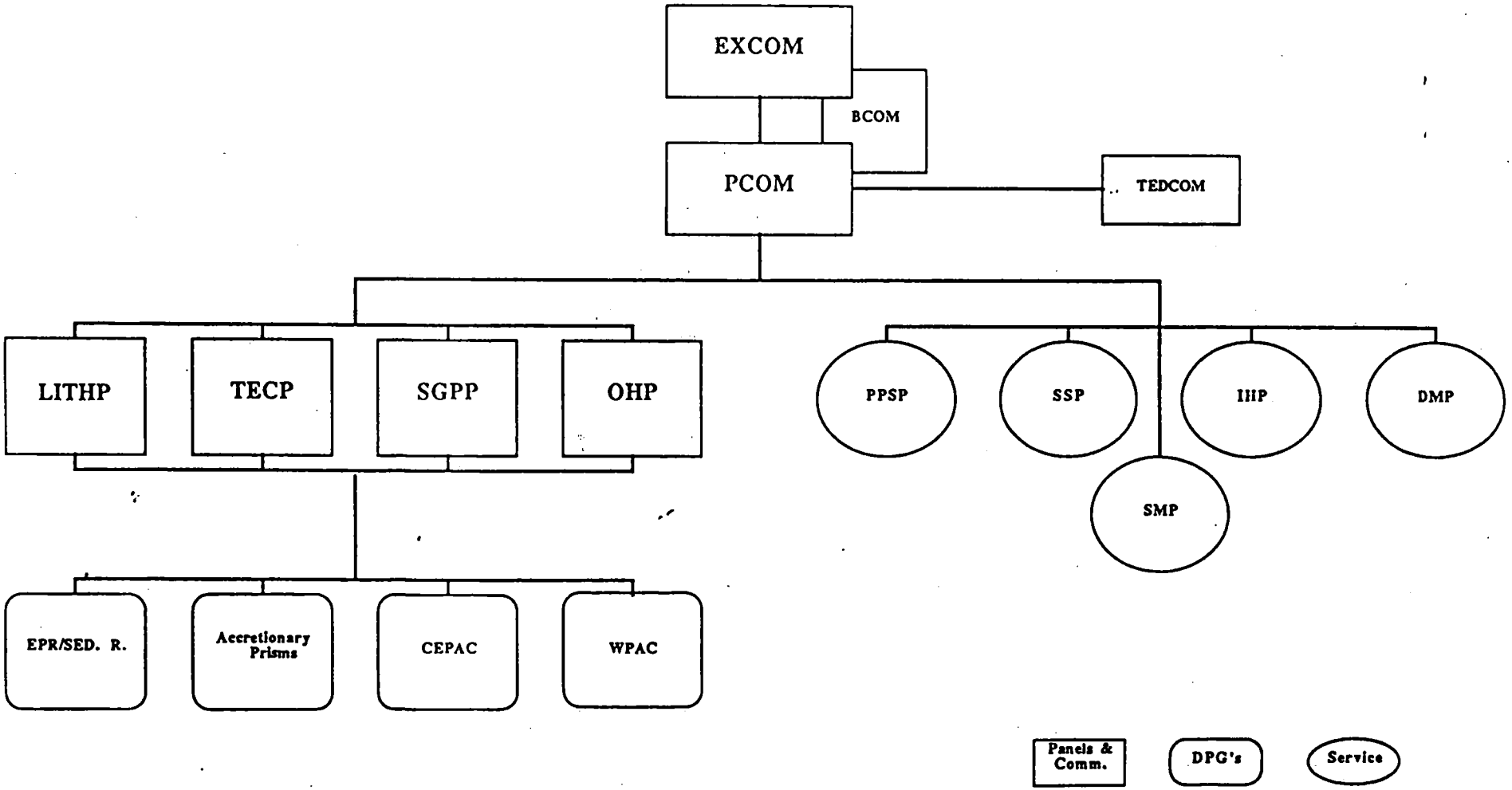
Winter, 1989. Thematic Panels meet for final discussion of LRP.

1 April 1989. Final Draft prepared.

April 1989. PCOM examines final draft.

May 1989. Final Draft presented to EXCOM and ODP Council

ORGANIZATION OF REVISED JOIDES PANEL STRUCTURE



APPENDIX C

REPORT

OF THE

JOI

PERFORMANCE EVALUATION COMMITTEE II

August 30, 1988

ADVANCE INFORMATION ONLY; DOES NOT INCLUDE SUBCONTRACTOR RESPONSE

PLEASE DO NOT QUOTE OR CITE

APPENDIX D

A. Introduction

The contract between NSF and JOI states that a performance evaluation committee will review the management of the ODP every few years. The PEC interpreted this charge to mean that it should examine JOI management of the entire program, the logging activities at LDGO, the drilling operations activities at Texas A&M University, and the operations on the drilling ship itself. Because the drilling vessel was in the Indian Ocean and the cost involved in viewing the vessel in a remote port would be high, because there were few complaints about the vessel itself or its operations, because of the improbability of learning very much that could not be gleaned from the co-chief scientists and the personnel interviewed at the various operations centers, and because of the desire to complete the review with dispatch, PEC regretfully decided to deny itself the privilege of paying a visit to the vessel.

To do this review properly, it was necessary for PEC to familiarize itself with the current activities and mode of operation of JOIDES as well as the activities of USSAC. JOIDES is not part of the formal management structure under review, although it is the principal source of advice and its recommendations determine the direction of the program. As such its activities were examined with care. PEC did not review USSAC nor its equivalents from other participating countries because these were not included in its franchise. USSAC is separate from JOI/ODP, but bears a close relationship because of its activities in support of scientific personnel on the ship, data reduction for at least Part A of the Proceedings, and site surveys. There were some concerns about all three of these areas; they should probably be examined by some group that is reviewing the overall US activities related to ocean drilling, perhaps a committee convened by NSF.

The PEC spent one day at JOI headquarters discussing the JOI responsibilities in management of the program, two days at LDGO discussing logging and data bank operations, and three days at TAMU discussing shipboard operations, engineering support, and curation and publications. It was fortunate that the past co-chief scientists were meeting there at the time so that insights could be gained from them.

In general the PEC found the program operations to be going very well and was impressed by the dedication of the personnel. PEC asked many pointed and critical questions and got satisfactory answers to nearly all of them. Indeed, as amplified in the next section, many of the concerns and suggestions involve long-range thinking and future plans rather than the details of the effective ongoing program. The committee is grateful to all of those with whom it had contact for their informative presentations, valuable discussions, and candor.

A roster of the committee members, a list of persons interviewed, and the terms of reference are given in the appendices.

B. Conclusions and Recommendations

Committees charged with evaluating any operation seem destined to concentrate on perceived deficiencies -- one can rarely concoct cogent recommendations for a flawless operation. We therefore emphasize at the start that the Ocean Drilling Program is alive and functioning well, and that the following conclusions and recommendations are an attempt to improve a commendable operation. The rationale for these recommendations is iterated more fully in Section C.

1. Overall Management -- JOI and JOIDES

JOI has recently changed its management from passive to a more active "hands-on" style. On the whole this is good, but it creates a different situation with respect to JOIDES and its panels and the dealings with TAMU. Therefore, the structure of JOIDES needs a hard look and probably should be modified. We recommend that:

a) The respective roles of JOI, JOIDES, and the operation be reexamined, especially in the context of the change from a regional to a thematic approach. The lines of communication and authority need clarification and better definition.

b) The custom of having the chair of both PCOM and EXCOM at the same institution should be reconsidered.

c) The position of BCOM in particular should be spelled out (e.g., it might better be a creature of JOI). In any case, it should not report to or direct the operator.

2. Future Finances

Strictly speaking this is not under our perview, but it controls the fate of ODP. We recommend to JOI, NSF, and all concerned that they tread carefully in any further raising of the dues, lest that result in fewer partners. A better tactic might be to seek more partners.

3. Logging

The enthusiastic LDGO group is doing a good job in developing tools and techniques, but aboard-ship logging is still

something of a stepchild. LDGO has made a good attempt at spreading the gospel, but more is needed. We recommend that:

a) Co-chiefs be introduced to logging earlier in the cycle.

b) LDGO logging personnel attend all pre and post cruise meetings.

c) Estimates of the total time required for logging a hole be improved.

d) Shipboard procedures be reexamined to allow easier correlation of logging results with other core measurements.

e) The policy of restricting publications by the Borehole Group (especially its director) be relaxed. This is important for maintaining the present high quality group.

4. Engineering

The group is functioning well. The idea of a special engineering leg is probably a good one, but should be reevaluated after it has been tried.

5. Shipboard Facilities and Procedures

a) Despite the increased space on the SEDCO compared to the Glomar Challenger, laboratory space still seems to be at a premium. Yet gear such as the SEM apparently get little use. We recommend reexamination of shipboard labs and equipment and concentrating efforts on (1) obtaining the data for Part A and (2) measurement of ephemeral properties.

b) We did not visit the ship but note that the report of the first PEC cites deficiencies in living conditions. Recent co-chief scientists confirm this criticism and report little change since the earlier report. We recommend that this be looked into.

6. Staffing

Recent budget stringencies have dictated cuts in personnel at TAMU. The most serious categories are staff scientists and marine technicians. Both groups are at a critical minimum and morale is beginning to suffer. Performance will inevitably deteriorate unless some relief is forthcoming. We realize this is not under the control of the program management, but we are concerned about a potentially serious situation.

7. Core and Sample Handling

As noted in the discussion, this activity is functioning well. We recommend:

a) That the need for long-term refrigeration of most sediment cores be reexamined.

b) That the geriatric studies proposed by the ODP staff be undertaken as soon as possible.

8. Data, Publications, and Information Transfer

The one very serious defect in ODP today is the excessive time it takes for publishing the data and interpretations. Not only is this undesirable for potential consumers of samples and information, it could well jeopardize continuation of ODP beyond 1993.

a) Part A, essentially the initial core descriptions, is needed for sampling requests, yet so far has averaged about 16 months to produce. Despite the acknowledged difficulties we strongly recommend that Part A be essentially complete by the end of a cruise and that it be issued in less than one year post cruise, even if this means some sacrifice in appearance and makes for unhappy paleontologists.

b) Part B, the scientific interpretation, is being changed to a refereed publication, thereby removing it from the "gray" literature. Even so, the projected time of 30-36 months seems excessive. Moreover, as long as it is called "Part B" it will remain "gray" in the minds of many people. We recommend (1) that a new name be considered for Part B (and perhaps even a different cover) and (2) that every effort be made to publish it in less than 30 months.

c) As the program becomes more thematic in accordance with the COSOD I plan, there is greater need to synthesize material for more than one cruise. Even Part B as now conceived may become obsolete. We recommend that consideration be given to a new series or format, synthesizing information over broad regions and/or topics. We suggest that an effective way would be to cooperate with the scientific societies in organizing (and partially supporting) symposia on such topics. The results could be published as the proceedings of the symposia.

C. Observations and Comments

1. Quo vadimus?

ODP was conceived as a program to extend until 1993. When the program was reviewed by the National Science Foundation as a part of the decision to continue ocean drilling beyond IPOD, the question was asked how ocean drilling compared with other ventures in the earth and ocean sciences in terms of scientific value. At that time it was the opinion of the review committee that its scientific value was so strong that it should be continued with the hope that half of the support for the program could be obtained through partnership with countries other than the USA. Other exciting scientific initiatives have been advanced since that time, and it is by no means certain that ocean driling will be viewed as having higher priority than one or more of these when it next is reviewed.

ODP is a viable and successful program that is producing excellent results, but its long-range future may well depend upon its ability to capture the enthusiasm and active involvement of a broad community of earth scientists, based upon achieved scientific goals and new opportunities. In the US, for example, competition for funding will come from the continental scientific drilling program (DOSSEC), the global seismic earth-imaging program (IRIS), crust-lithosphere imaging consortia (PASSCAL, COCORP, CALCRUST, etc.), continental margin seismic efforts (EDGE, ets.), the global change program (IGBP, to which ocean drilling can contribute), and from marine and solid earth science programs in general. Equally tough competition for funding of science is faced by the international partners who also have marine programs, programs for deep seismic exploration, and continental drilling.

ODP is in a good position to demonstrate its value because it is in full operation. We are, however, concerned about a sense of complacency, not so much with the quality of its science, which is being continually tested, but with its immortality. There appears to be a tendency to assume that since it is doing well, its continuation will be automatic. The future of ODP will depend not on the number of feet cored or holes logged, but on the number and quality of papers published. But publications are <u>not</u> being produced in a timely manner and there is some question about whether the mode of publication is optimal. Nor do the publication plans seem to recognize the new emphasis on a thematic approach to drilling rather than a regional approach.

There is a need to move rapidly toward faster publication of scientific results complementary to the cruise reports and to pay more attention to thematic questions posed. Easy access to data, funding for advanced analysis and interpretation, and more varied

and flexible publications need high priorities. Publications should address the broad themes in a progressing and iterative style rather than awaiting a final authoritative summary.

2. Scientific Objectives: COSOD I Versus ODP

The ODP is based very largely on the need to solve scientific problems about the earth as defined in the COSOD I conference of November 1981 (modified by the recognition that riser drilling would not be available in the early stages). Twelve scientific topics were chosen in COSOD I as top priority objectives for the next decade, and support for ODP was argued and won both in the USA and in the non-US participating countries. The JOIDES advisory panels were structured to emphasize developing a drilling program with thematic objectives implemented through regional panels.

In evaluating the progress and achievements of ODP, it is therefore reasonable to examine how far the thematic objectives of COSOD I have in fact been met, or at least what mechanism exists to ensure that they will be met in the future.

The PEC examined in detail the publications policy of the ODP to see to what extent participants were encouraged to follow through from the detailed descriptions of data acquired from surveys, from samples, and from logging to an evaluation of the achievement of the scientific directions of ODP. It recognized that while the Proceedings of ODP (Part A, Initial Reports and Part B, Final Report) gave scope for full scientific interpretations of individual legs, there was no planning for using the data obtained on a wide variety of legs, supplemented by other relevant data from outside the Program, to answer the questions posed by the thematic objectives.

PEC believes that the overall evaluation of ODP toward the end of its current phase will assess its achievements against its declared objectives. Early consideration and high priority should be given to the appropriate mechanism to ensure a match between these two. Several options were debated, recognizing that no substantial extra funds were likely to be available. One favored option would be to encourage learned societies to hold symposia on the themes outlined in COSOD I, mixing papers from ODP participants with those working in the field, but outside the project, and for the societies to publish fully refereed symposia volumes. If the theme is scientifically attractive, as indeed it should be, the volumes would be self-financing or even profitable. ODP could be a joint sponsor with the society, contributing towards expenses and travel funds for speakers, and should take the initiative in approaching learned societies in different countries. This scheme would have the additional advantage of demonstrating the relevance and value of ODP to a

wider geoscience community. It would be important, however, that such symposia did not wait until completion of the Part B Proceedings, but were conducted parallel with these; otherwise, few thematic syntheses would be available before the end of the current program.

As JOIDES progressively emphasizes its thematic approach, so should it plan that this will be reflected throughout the operational and post-operational phases, with the thematic panels playing a role through to the final thematic symposia. Care should be taken not to switch thematic objectives to those posed in COSOD II before those of COSOD I are adequately evaluated.

3. Is There JOI in Mudville?

JOI management provides the JOI corporate institutions with greater responsibilities for ODP than the previous arrangement in which NSF contracted directly with one institution. JOI management can be passive and consist largely of passing through funds, or it can be active and consist of significant management of the overall program. At the start of ODP, the former mode seemed to be operational with JOI acting in a Gramm-Rudman-Hollings mode of budget control; there now seems to be a trend toward a more active role with selective advice to the operators coming from JOI. The PEC likes this shift and so, apparently, do PCOM and the operators. If JOI continues its more active role, it will be important that the lines of communication with JOIDES and between JOIDES and the operating bodies be clarified and that JOI be especially sensitive to the international character of the overall program.

PEC considered the question of the need for an EXCOM in view of the existence of the JOI Board of Governors and the NSF Advisory Council of non-US members of the program. Since EXCOM is the only policy-making body in which all of the member countries and institutions are represented and to which all of the JOIDES panels report, it was concluded that if EXCOM did not exist, something equivalent to it would have to be created.

The possibility of a rise in dues for the ODP program was raised in view of inflationary increases in vessel and logging operations. This possibility should be examined with great care by the NSF Advisory Council, JOI, and JOIDES EXCOM. Many countries are having science budget problems these days and are reexamining priorities in science. There is a possibility that a significant rise in the dues for the program might actually reduce the revenues through dropouts rather than increasing the revenues through larger contributions. Efforts to increase the number of non-US partners seems to be more fruitful approach to budget problems; these should continue and be strengthened.

4. The Actors in the Great Passion Play

A curious anomaly exists in the structure of JOIDES. The non-US participants can draw upon their entire scientific community to play leadership roles in JOIDES because their participation is national rather than institutional. In the USA, the leadership is drawn only from the JOI institutions. JOI will have to face this anomaly directly if it decides to take the initiative in fields other than ocean drilling. JOI cannot claim to speak for the entire oceanographic community, and it certainly cannot claim to speak for the entire solid earth science community or even the scientific drilling community. If one looks, for example, at satellite oceanography, JOI did a real public service in pulling the community together to spell out time priorities for various competing satellites, but if JOI goes farther than this it must find mechanisms through which to involve non-JOI institutions and individuals in a manner which they accept as fair and equitable.

JOI represents the blue water oceanographic institutions in the country, but the demography of oceanography has changed over the years and a large number of talented people who could play leadership roles in JOIDES are disenfranchised. PEC recognizes that JOIDES panels can be and are drawn from other institutions, but PCOM and EXCOM are restricted. The effect of this is two-fold. First, JOIDES is denied talent that might make major contributions to the program. Second, there is a significant marine constituency outside JOI whose stake in ODP is small and whose exclusion from decision-making positions in JOIDES may influence attitudes towards priorities in the earth and ocean sciences.

Coupled with this problem is the present system in which the Chairman of EXCOM and the Chairman of PCOM must come from the the same institution if from the USA. This system has its origins in the initial organization of JOIDES in 1964, and it made good sense at that time when JOIDES consisted only of four US institutions. But JOIDES at present is much larger and international in scope.

The members of EXCOM tend to be heads of laboratories with long tenure and deal with overall policy. There are very good reasons why the chairmanship of EXCOM should rotate; perhaps the rotation period should be even shorter to better distribute the responsibility among the member countries and institutions.

The chairmanship of PCOM, on the other hand, tends to be assigned to a working scientist, often supported by soft money in the US, and PCOM has the heavy responsibility of directing or overseeing the various panels and committees that provide the program planning and, through JOIDES, advice to JOI. The PCOM

chairmanship is a large job and a shorter rotation period may be detrimental, especially if the incoming chairman is not presently on PCOM and cognizant of the latest developments. The question might be asked whether a longer term for the PCOM might be desirable, but this would run afoul of the tradition in which the Chairmen of PCOM and EXCOM come from the same institution. A longer term may also be viewed as career-threatening to an investigator supported by soft money. The question might also be asked whether a PCOM chairman from the USA must be from the same institution as the EXCOM chairman or even from a JOI institution. This question becomes even more pertinent as the emphasis shifts from a regional focus to a thematic focus.

5. JOIDES, Its Spawn, and Catch-22

JOIDES operates through a series of panels. These may be thematic or regional in the case of site selection or topical in the case of specific activities. Most of these are spelled out in the structure described in the JOIDES Journal, a notable exception being BCOM, a new committee designed to examine budgets and to suggest ways in which economies might be made. If these committees are to be useful, they must be advocacy committees, composed of experts who are dedicated to the subject of their responsibility. They should make strong cases for putting all the resources of the program into their areas of responsibility. If the overall program is to be successful, the considered opinions of these panels must be thoughtfully reviewed by a body responsible for the entire program prior to promulgation. The responsible body is PCOM, and ultimately EXCOM. PEC developed a gnawing feeling that the lines of responsibility are today rather blurred; that some of the panels may be under the impression that they provide advice directly to the operators rather than to JOIDES. If this is the case, micromanagement by panels and use of panels by the operators as advocacy bodies are strong possibilities. The opportunities for mischief and confusion abound. The reporting lines of the panels must be clear to all. It is especially important the BCOM be scrupulous in observing the proper lines of communication.

A continuing problem is when the safety panel should be drawn into the discussions. This panel may have difficulty in estimating hazards in some areas unless the data sets are comprehensive and complete. On the other hand, if the hole is likely to be rejected on grounds of safety, it may not be desirable to devote limited funds to the collection of the detailed data. This Catch-22 situation is amplified by the fact that TAMU, the operator, has its own safety panel for its own protection. In principle, this panel could reject a site passed by the JOIDES panel, but in practice the two panels are in close communication and to date the dual structure has posed no real difficulties.

6. Logging: Innovation and Frustration; Legislation and Education

PEC was delighted to find that the logging program is much stronger today than at the time of its first evaluation. The current management of the logging program has shown a willingness to determine the solution to logging problems and then to develop the tools or techniques to do the job. LDGO has added to or improved on its suite of radioactivity tools to a degree that exceeds the data acquisition requirements of most service companies. Activation analysis has been shown by LDGO to be a primary link to the problem of correcting logs to cores and/or detecting minerals that can be cored to detect chemical changes or diagenetic occurrences within the uncored rock units. These efforts have demonstrated that logging can be very beneficial to the success of the ODP.

BCOM recommended that the Stanford contract be considered for termination. If this is done, Zobach should be given the time and funds to test the prototype packing tool. Subsequent modification and testing should be done at LDGO. Efforts should also be made to obtain a suitable BHTV from industry and to test the new MFC (Schlumberger's FMS) tool against it when the latter is available.

Few geoscientists outside of industry have had the opportunity to use well logs to any great extent. As a result, the scientific parties on various legs, including the co-chief scientists, are usually much more enthusiastic about obtaining more core or deepening a hole than they are about taking time to log a hole. JOIDES PCOM and/or EXCOM obviously have become educated to the value of logging since they have passed an edict that all holes deeper than 400 meters must have standard logs. Perhaps this was necessary in order to obtain any data at all. But by now sufficient data has been collected that the logging group can readily demonstrate the value of logs to future scientific parties. If the scientific parties are sufficiently educated, they will demand logs, not look on them as a consumer of time better spent in collecting more core. Education can be far more productive than legislation, but it will probably be less effective if logging is taught as an advanced graduate course and more effective if taught as an introductory course. After all, most of us are too embarrassed to ask "stupid" questions, so the answers to the stupid questions have to be provided without asking. The staff scientists should also be kept informed of new developments, as PEC understands they are now, since they can act as missionaries both prior to cruises and aboard the vessel. LDGO logging personnel should attend all pre- and post-cruise co-chief scientist meetings, and should participate in cruise debriefings.

One cause of friction with regard to logging has been underestimation of the total time required for logging operations including hole preparation. TAMU is working to perfect a method of sweeping the borehole with weighted mud systems to facilitate cleaning and stabilizing the borehole and this should have high priority. To make the tool heavier just to spud through a bridge is not good procedure. If the sweeping technique fails, the side door sub should be used.

The PEC was impressed by the overall performance of the logging program and by the dedication and the competence of the logging group. It was pleased to see the progress that has been made in logging technology and the general increase in success of the logging and in the use of the time allotted for logging. It hopes that the heave compensation device, which was put to the test in the recent high-latitude legs, will prove capable of providing the kind of vertical resolution that will make the logs most useful.

7. Engineering, Drilling Operations, and Institutional Hangups

The engineering group appears to be well managed with activities in line with current identified responsibilities, but there is room for more effective integration, especially with the logging program. The engineering group responds to the scientific needs by working hard to improve core recovery and to make it possible to drill and log in more difficult locations. It is not entirely clear to what extent the group is responsible for new technology as opposed to operational improvements on existing technology. But it is clear that the engineering group and the TAMU managers have not fallen into the trap of developing tools just because they can. Their developments and improvements are well focused on the collection of samples and scientific data. The activities, including better data collection, testing of new tools and techniques, development of the hard rock base, and employing mining technology for drilling, appear to be very promising and the group is enthusiastic and dedicated.

Engineering cannot be done in the abstract; new tools and techniques need to be tried and improved as found wanting. This takes time and for the co-chief scientists, whose responsibility starts and ends with one leg, the consumption of time for the benefit of future co-chiefs may have a low priority. One solution is the proposed engineering leg in which new tools and techniques, including logging, are to be tested. Since the co-chiefs on this leg will be engineers, one can expect engineering to have a high priority. It remains to be seen whether this is a more effective method of proving new developments than to make the tests an integral part of the normal program. Another solution may well be education. If it is clear to the co-chiefs how they may benefit from new or improved tools and techniques,

they may be more willing to allot time for testing -- especially if the new tools have the possibility of enhancing their own results.

With regard to both drilling and logging, it would seem useful to examine time estimates and drilling objectives more realistically than appears to be the case. If too many holes drilled to too great a depth in too many locations are built into the original plans for a leg, there will be constant conflicts and numerous communications from the ship to TAMU asking for an additional few days to complete a program. As the emphasis of the program changes from regional to thematic it will become more and more important to achieve the objective at fewer holes than to drill more numerous holes. This may well require more extensive logging and innovative engineering.

Finally, the division through which LDGO has the responsibility for logging and TAMU for operations and engineering serves the useful purpose of protecting the logging budget from overruns in operations, but it creates some other anomalies. Logging sometimes seems to be considered an add-on rather than an integral part of the operations. In addition, the shipboard operations manager is responsible to TAMU. If a situation develops in which either logging tools, on the LDGO budget, or a bottom hole assembly, on the TAMU budget, are at risk, the manager may feel some pressure to protect the budget of his home institution by risking the logging tools. This may not have occurred, but perhaps some thought needs to be given to means through which this cannot be a factor in shipboard decision-making.

8. Shipboard Laboratories and the Core Description Crunch

Despite the fact that the laboratories on the JOIDES Resolution are larger than those on the Glomar Challenger, space seems to be at a premium, especially for some disciplines. The problem seems to be particularly acute in biostratigraphy. One might suspect that equipment was purchased to fill the space available within the available budget rather than to respond to a well-defined need. If so, the makeup of the technical party will be dictated more by the instrumentation that is available and that must be kept operative than by the defined needs of shipboard science.

The purposes of the shipboard laboratories need to be reexamined. Obviously they are not for the purpose of complete and final exaination of the core, log, and geophysical data or there would be no need to take samples or data back to home laboratories for further analysis. Equally obviously there will always be advocates for any particular piece of equipment even though the information it provides might be better obtained post-

cruise. It seems to the PEC that the fundamental purpose of the shipboard laboratories is to obtain the basic information for Part A of the Proceedings and to make measurements that must be made immediately before the properties of the cores change. If this premise is accepted, then a number of questions need to be asked.

a) What should be in Part A and who should decide what this should be: If the co-chief scientists have this responsibility, are they trying to include too much? Does the existence of instruments create an obligation to include measurements made with them?

b) Are the laboratories organized and equipped so that the necessary data can be collected and organized during a particular leg? This question is particularly relevant to logging since the laboratories should be equipped with instruments that will make comparisons between fresh cores and logs meaningful.

c) Does the makeup of the technical support staff reflect the above? Since core description seems to be the major problem, should more technical staff be devoted to this area and less to operating the SEM?

d) What should be done in order to better achieve the objective of having Part A essentially complete by the end of a leg? Again the major problem seems to be space and manpower for core description and biostratigraphy. A good biostratigrapher's work is never done, but Part A is an initial report, not a comprehensive final analysis.

If the shipboard laboratories are organized so that Part A can be essentially complete by the end of a leg, then publication of Part A can be more timely, perhaps a few months after the cruise ends, and the post-cruise energies of the scientific party can be directed toward producing Part B with more dispatch than now appears to be the case.

e) A related problem is the recent reduction (dictated by budget constraints) of the number of technical staff available for sea duty. That number seemed to the PEC to be at a critical minimum and the reduction will lead to a deterioration in both morale and performance. Indeed several of the recent co-chief scientists have already noted possible "technician burnout". A reorganized laboratory set-up might help relieve pressure on the reduced staff, although an increase of funds would be a better solution.

9. Core Curation and Storage and Common Wisdom

The ODP staff responsible for core curation and archiving are highly competent, responsive, and dedicated. They are to be commended. They recognize the need to keep strong control of the collections and to preserve the material under the best conditions of storage as defined by studies and tests of various storage environments. Core sample requests appear to be processed efficiently and responsibly. The complete rephotographing is an excellent contribution and the video discs are an excellent potential data source and index. This should be broadly advertised when it is available. Geotimes or EOS and similar publications in member countries would be appropriate.

The ODP cores are kept in refrigerated storage at considerable expense. The common wisdom of refrigerating cores dates back to the beginning of DSDP in 1968. Refrigeraton of the cores on board, and in transit, is appropriate in that it maintains the cohesion of unconsolidated sediments and probably leads to more care in handling in transit because of the obvious special nature of the containers. Blanket use of refrigeration for all core material in storage is not based on well designed tests and studies. The primary objective of storage is to preserve the integrity of cores and to permit resampling of the cores at points defined by the original descriptions. This need not mean maintaining the water content. Dry cores will shrink and crack. The degree of this reduction in dimension is a function of original in situ bulk density. Cores of consolidated sediment will show minimal shrinkage; unconsolidated sediments will shrink by as much as 50% for near-surface sediment. If inert markers are inserted in the fresh archive core sections at time of collection, the relative position of sub-samples can always be determined, even with complete dessication. Core photographs also provide a permanent reference that can be used to determine original natural marker features.

The geriatric core studies proposed by ODP curation staff are of primary importance in quantifying the changes due to the archiving environment. Cores should be stored in a responsible and cost-effective fashion. Time of exposure to air and light and the air temperature of the processing spaces on the drillship should be minimized. The repository environments should be based on controlled tests and not on superstition and myths. Unnecessary storage conditioning is not cost-effective. It can also artificially alter conservative properties. These effects must be documented. Such studies should have been made 20 years ago.

Although there are advantages to keeping the materials from a given hole together, it may prove to be more cost-effective (given that all will be preserved in the best condition for scientific use) to separate unconsolidated sediments,

consolidated sediments or lithified sediments, and crystalline rocks in different storage environments. Geriatric core testing will document this choice.

Freezing selected samples of cores does preserve the volatile organic content and should be continued. Geriatric studies of frozen cores would be of primary value. There may well be a limit to the "life" of such samples. In any event, these samples are a small volume compared to the main core storage.

Curation of the collections must be long-term and not simply for the duration of the project. Regardless of the ultimate storage environments defined by geriatric core research, these collections must be curated for their useful lives. Untended collections will rapidly lose their value and integrity. These materials are an international resource and their preservation should be a first order priority. The collections in the existing repositories should not be brought together in a single facility. Such transport would severely damage the unconsolidated sediment samples from early cruises. Lithified or crystalline materials are less subject to damage, but loss could occur from damage to their containers.

10. Data Management and Publications

The data management systems developed at LDGO and TAMU, like the core curation and information dispersal systems, seem to be in good order, with the exception that further efforts need to be made to integrate the underway geophysics and logging data into the VAX on the ship. However, there are some problems with publications, both conceptual and temporal.

First of all, the Proceedings of ODP have been divided into two parts, A and B. Part A is the preliminary data report, similar to similar reports of DSDP and IPOD. In the best of all worlds it should be essentially complete by the end of a leg and published certainly within a year, hopefully much earlier.

Part B represents a new concept, one in which the scientific results of a particular leg will be presented in a reviewed publication rather than in the gray literature. This is an interesting concept, but it rasies some questions.

a) First of all, it will be difficult to convince people that Part B is a part of the reviewed literature if it is called Part B. It would be better to disassociate it from A by making it a separate series with a name such as Scientific Results of Leg X of ODP. No Part B reports have yet appeared so this should be possible.

b) Second, one could ask whether it could be published more rapidly, at lower cost to ODP, and with a wider distribution by a scientific society or a consortium of societies. Final reports of the International Geodynamics Project, for example, were jointly published by AGU and GSA.

c) Third, PCOM, following the recommendations of COSOD I, has emphasized a thematic approach while the new Part B is strictly focused on individual legs. Would it be more appropriate to begin a series that faces up to the thematic approach? Should ODP publish this or should it, perhaps, help to subsidize symposia in which the problems and findings would be examined, with publication the responsibility of a co-sponsoring scientific society? JOIDES, JOI or the ODP Director could send to society presidents copies of COSOD I and II, together with summary sheets of the major themes, and offer to co-sponsor and support within reason and budget limitations symposia, workshops, sessions and special publications.

Turning to the temporal problem, PEC feels that efforts should be made to publish Part A as rapidly as possible. The goal is 12 months, but this is complicated by the fact that the post-cruise meeting of the scientific party may not take place until seven months after the end of a leg.

The goal for Part B is 36 months, although none have yet appeared. Some of the delay time for Part B can be reduced by inserting some strong science editors into the system. The external editorial board member can best serve in that role. These people are senior, knowledgeable scientists who are willing to give time and effort to ODP work. Strong deadlines can be assigned -- say 18 months after the end of the cruise. It is hard to believe that 36 months is the minimum that can be achieved. In the current system, with slippage and a few slow authors, the Part B volumes could well be far behind schedule and not available when tough decisions have to be made about the future of the project.

Sometime around 1991, perhaps earlier in some participating countries, the future of ODP after 1993 is going to be examined. If the latest information on scientific results is from 1988 or even earlier, it may be difficult to convince waverers that the program is deserving of continuation. There is an emotional attachment to having all of the information in one place or in one series, but perhaps the emotions can be satisfied by maintaining a continuously upgraded bibliography of publications that are based on ODP materials and data that is readily available on-line or in hard copy. This actually might turn out to be more useful to customers than Part B, as previously conceived.

In general the PEC was nervous about ODP entering into the serial publications game. The scientific societies would probably look upon this as unwelcome and subsidized competition for science that they would like to publish, and there are serious questions whether ODP can afford the time or funds required to publish a serial, open-submission journal.

The PEC realizes that the budget-driven reduction in the number of staff scientists at TAMU complicates the problem of speeding up publication as well as creating other operational difficulties, and hopes that future budgets will allow some expansion of their ranks. Nevertheless, the excessively slow rate of publication is probably the most serious problem faced by ODP today and could well dictate the program's fate in 1993. A strong effort is needed to correct the current situation.

11. Bean Counting and the Bright Side of Aides

Administration and fiscal responsibility for ODP at TAMU is in the hands of the Texas A&M Research Foundation, and good hands they seem to be. This office handles all fiscal matters (payroll, budgets, etc.); administrative services (licenses, insurance, purchasing, travel, meetings, etc.); and contracting. The small staff seems to be exceptionally competent and has the refreshing philosophy that they are there to ease and aid rather than to obstruct and pick. They seem to work well and efficiently with all the other pieces of the operation.

12. Quo Eramus?

PEC was impressed by the scope and quality of the activities carried out under the banner of ODP. The field program is running about as smoothly as an experimental program operating in remote and difficult waters, with a tight budget, subject to political complications resulting from changing national jurisdictions, and with multiple objectives generated by many scientists from a number of countries, might be expected to run. It is an impressive example of international cooperation at its best.

But like any program, it could be better and we trust that our comments will be taken in the spirit of helping to make it better. Like any program it could do more if the budget permitted, and it could function, though with less innovation and degraded results, if budget realities demanded this. We reiterate our feeling that the search for additional partners is a more likely way in which the budget can be continued at present levels, or even enhanced, than by increasing the dues of the present participants.

APPENDIX I

MEMBERSHIP OF PERFORMANCE EVALUATION COMMITTEE II

Dr. Charles L. Drake, Chairman
Department of Earth Sciences
Fairchild Building
Dartmouth College
Hanover, NH 03755

Dr. Donn S. Gorsline
Department of Geological Sciences
University of Southern California
Los Angeles, CA 90089

Prof. Pierre-Charles de Graciansky
Ministere de l'Industrie,
des P.T. et du Tourisme
Ecole Nationale Superieure des
Mines
60 Boulevard Saint Michel
75272 Paris Cedex 06
France

Dr. Alfred H. Jageler
7501 East 103 Street, South
Tulsa, OK 74133

Sir Anthony Laughton
Institute of Oceanographic
Sciences
Deacon Laboratory
Brook Road
Wormley, Godalming,
Surrey, GU8 5UB
United Kingdom

Mr. Dan Motyka
Vice President Production
Gulf Canada Resources Ltd.
P.O. Box 130
Calgary, Alberta T2P 2H7
Canada

Dr. George A. Thompson
Department of Geophysics
Stanford University
Stanford, CA 94305

Prof. Dr. W. Ziegler
Forschungsinstitut Senckenberg
Senckenberganlage 25
D-600 Frankfurt a. M. 1
Federal Republic of Germany

NSF Liaison

Mr. Alexander Sutherland Jr.
Ocean Drilling Program
National Science Foundation
1800 G Street, N.W.
Washington, D.C. 20550

Staff Support

Dr. William E. Benson
National Research Council
Board on Earth Sciences
2101 Constitution Avenue
Washington, D.C. 20418

APPENDIX II
PEOPLE INTERVIEWED

1. JOI Headquarters, Washington, D.C., 17 March 1988
   D. J. Baker
   T. Pyle
   J. Clotworthy
   D. Rucker

2. Lamont-Doherty Geological Observatory, 18-19 March 1988
   N. Pisias (Chairman, PCOM)
   R. Anderson
   R. Jarrard
   C. Barton
   X. Golovchenko
   C. Brenner (Data Bank)
   G. Karner

3. Texas A&M University, 22-24 March 1988
   a. ODP Personnel
      M. Friedman (Dean, College of Geosciences)
      P. Rabinowitz
      L. Garrison
      R. Olivas
      B. Hamlin
      B. Harding
      G. Foss
      M. Storms
      D. Reudelheuber
      S. Serocki
      S. Howard
      A. Milton
      J. Baldaut
      S. O'Connell
      B. Clement
      E. Taylor
      S. DeVoge
      L. Holst
      W. Lancaster
      R. Merrill
      P. Brown
      C. Moto
      J. Beck
      J. Foster
      W. Rose
   b. Co-Chief Scientists from Recent Legs

P. Ciesielski	114
J. Backman	115
R. Duncan	115
J. Cochran	116
W. Prell	117
N. Niitsuma	117
R. von Herzen	118
P. Robinson	118

APPENDIX III

I. Terms of Reference for Performance Evaluation
(Revised September 1987)

During the life of the Ocean Drilling Program, JOI will periodically evaluate the management of the program and the performance of its subcontractors. This evaluation will be accomplished at two to three year intervals by a committee of experts appointed by the President of JOI. The President will consult with NSF, the JOIDES EXCOM, PCOM, and others as appropriate in the formation of the evaluation committee. The Performance Evaluation Committee (PEC) will report to the Board of Governors through the President of JOI. Terms of Reference for the evaluation will embody the following general procedures and criteria:

A. The committee membership will consist of experts in the fields of engineering, management, and science to be appointed by the President of JOI in consultation with NSF, the JOI Board of Governors, JOIDES and others. The committee should be chaired by an eminent scientist who should be knowledgeable about ODP but not currently active in the program. Committee members should not be currently active in the program.

B. The committee will review and evaluate the performance of Texas A&M, Lamont-Doherty, and other subcontractors in accordance with a schedule to be developed by the PEC chairman and approved by the President of JOI. JOI will provide for sufficient funds in the Performance Evaluation Committee budget to include the services of an Executive Secretary.

C. The committee will be briefed by the Chairman of the JOI Board of Governors and the President in advance of any scheduled performance evaluation. Following completion of the evaluation and receipt of subcontractor comments and plans, the committee will report its results to the JOI Board of Governors.

D. The committee will transmit in writing to the subcontractor being evaluated the scope and procedures of the evaluation together with any questionnaires or questions to be answered. Copies of such correspondence will be furnished to the President of JOI who will keep the Board of Governors informed.

E. The committee will conduct its evaluation at the headquarters site of the principal contractor and subcontractors. Sufficient time shall be allocated for a thorough review. The drillship also will be visited for evaluation when appropriate and convenient. If

scheduling is impractical, interviews will be conducted with members of recent past crew and past scientific parties.

F. The committee will evaluate the principal items of performance, including accomplishment of scope of work in the contract, particularly with regard to achievement of scientific objectives; program plan management and adherence; personnel policies and personnel management; overall management effectiveness and efficiency, including cost consciousness; subcontract management; reports and report management; public information, particularly in regard to scientific dissemination of data; liaison and relationships with JOIDES, JOI, NSF, and national and international scientific bodies; engineering maintenance, development, and application; attention to environmental conditions and adherence to environmental impact statements; safety procedures and safety record; staff morale; and other items considered important by the committee.

G. After completion of each evaluation, the Chairman of the PEC will discuss the committee's findings with the senior official of the subcontractor and/or the subcontractor's staff, as is mutually agreed. This discussion and its content shall be communicated to the President of JOI who shall in turn inform the Board of Governors.

H. Within two months of completion of site visits, the Chairman of the PEC will submit the performance evaluation report to the President of JOI who will discuss with and transmit the report to the subcontractors with a request for written comments, including plans for any action required.

I. The President of JOI, after receiving the subcontractors' comments and plans, will arrange with the Chairman of the PEC to present the final report and implementing recommendations to the Board of Governors. The President will then transmit a copy of the report and implementation plans to NSF, the JOIDES EXCOM, and PCOM. This should occur within two months after receipt of the report from the Performance Evaluation Committee. Those recommendations requiring consultation with EXCOM and NSF will be reviewed with these organizations prior to implementing action.

The foregoing procedures for performance evaluation will be refined and/or modified as experience is gained. The ultimate objective is to achieve a reliable and effective evaluation system that will best serve the scientific community, NSF, and JOI.

II. General Guidance

A. The PEC will visit JOI Headquarters in Washington, D.C., and the subcontractors at LDGO, TAMU, and the JOIDES office. The PEC will visit the JOIDES Resolution if the vessel is in a convenient part of the world.

B. The PEC will interview selected members of EXCOM and PCOM.

C. The Executive Secretary will transmit a list of issues and questions to be raised by the PEC, directly to the President of JOI and the subcontractors in advance of the visits. This document will be drawn up by the PEC Chairman and the Executive Secretary, who will also determine the type and style of paperwork to be provided, again in advance of interviews.

D. The PEC will decide its own interview process. It may be necessary, occasionally, for people to be interviewed privately or on a group basis, e.g., marine technicians, etc.

E. The PEC will have the right to call for any papers or information which it deems necessary.

F. The PEC should have the right to propose specific studies of ODP and its operations by professional consultants, as appropriate.

G. The report should consist of a descriptive section outlining activities, a section dealing with observations and impressions, and a section on conclusions and recommendations. The report must be accompanied by an executive summary. The draft report will be prepared by the PEC Chairman. It will then be circulated to other PEC members for comment, and revisions will then be made. The final report shall be submitted within two months following completion of site visits.

H. A record of the interviews will be kept on a strictly confidential basis and will be deposited with the President of JOI.*

* The PEC II declined to comply with this guideline.

REPORT OF THE ADMINISTRATIVE COST REVIEW PANEL (ACR) FOR THE ADMINISTRATIVE AND SERVICE ACTIVITIES AT THE HEADQUARTERS OF THE JOINT OCEANOGRAPHIC INSTITUTIONS, INCORPORATED (J.O.I.)

The ACR Panel met at J.O.I. Headquarters at 1755 Massachusetts Avenue, NW in Washington, DC on July 18, and 19, 1988. Following introductions and a general orientation by Vice President Dr. Thomas Pyle, the Panel held in-depth discussions on the organization and operations of J.O.I. with President Dr. D. James Baker and Dr. Pyle. The Panel spent the balance of the day interviewing staff members and briefly toured the facilities. The next morning was devoted to an exchange of views among Panel members and further discussion of key issues with Dr. Pyle.

Administrative staff members interviewed included: Acting Director of Contracts, Shawn Boo; Director of Finance, Gayle Hopson; and Director of Administration; Doris Rucker. We also interviewed scientific staff members, Dr. Ellen S. Kappel and Robin Smith. On our office tour we met and talked with several other members of the J.O.I. office.

The Panel found the size and configuration of the J.O.I. staff to be reasonable for handling the current portfolio of tasks. In addition to providing services and coordination for JOIDES and USAAC, J.O.I. serves an important and pivotal role in the interface between TAMRF and the NSF. The Panel felt that the interface between TAMRF and the NSF requires more effective skills. More specifically, the response/interface between J.O.I. Headquarters and ODP/TAMRF requires prompt attention.

The recent reorganization of the executive staff was, in our opinion, a positive move. Senior management is in need of improved reporting and communications with the administrative staff and consideration should now be given to combining the contract and finance groups under a new corporate officer. Prior to such a move, J.O.I. management might wish to invite a senior ODP/TAMRF manager to do a rotation assignment in the J.O.I. office. Both entities would gain valuable insight from such an experiment.

We believe that the science programs are coordinated and served in an excellent fashion at very reasonable costs. The team spirit which is so necessary in the management of scientific research programs exists in a commendable way. The science group seem to share tasks in a constructive manner.

In reviewing the budget and financial materials, we felt that these reports would be more useful to a lay-reviewer if footnotes were added to make clearer the Direct Costs versus the Indirect Costs. We believe that the staff organizational matrix could readily be adapted to handle additional contracts and were pleased to find senior management devoting considerable effort to identifying new business development. Additional contracts and a more equitable distribution of overhead would have the benefit of spreading the indirect costs and lowering or eliminating the direct charging of corporate officers. We encourage senior management and the Board of Governors to request a management fee from the National Science Foundation and any other potential research sponsor.

Respectfully submitted,

The Administrative Cost Review Panel:

Joseph Kiebala, Jr.
Richard L. Longfield
Robert M. Matyas
Richard Trowbridge

For the Panel,

Robert M. Matyas

August 4th, 1988

PCOM Motion:

The Planning Committee solicits and will evaluate proposals for approximately 12-18 months of drilling, in all oceans, to be conducted in FY92 and FY93. This drilling will complete the present phase of the Ocean Drilling Program. (Motion Cowan, second Kastner)

Vote: 14 for, 0 against, 2 abstain

PCOM Consensus:

In order to move the JOIDES Planning structure into the thematic mode, future planning will proceed in the following manner:

1. At the annual PCOM meeting in November, 1989, PCOM will choose a firm schedule for FY91, consisting of drilling in the Pacific.

2. At subsequent annual meetings, schedules will be chosen based upon the thematic values of the proposals which have reached the mature stage by that time. Modifications may be made in order to adapt the schedule to the logistical and technological capabilities of the Ocean Drilling Program.

3. PCOM will actively solicit proposals, responsive to the themes in the white papers, for drilling in all ocean basins.

4. Thematic panels will reconsider those proposals already submitted for drilling in regions outside of the central and eastern Pacific area.

JOIDES EXECUTIVE COMMITTEE

EDINBURGH, SCOTLAND 12-16 SEPTEMBER 1988

TEXAS A&M UNIVERSITY
--SCIENCE OPERATOR--

P. RABINOWITZ -
EXCOM LIAISON

I. SCIENCE OPERATIONS SINCE LAST EXCOM

LEG 121 - BROKEN RIDGE & NINETYEAST
(17 HOLES AT 7 SITES) SITES 752 TO 758

LEG 122 - EXMOUTH PLATEAU
(15 HOLES AT 6 SITES) SITES 759 TO 764

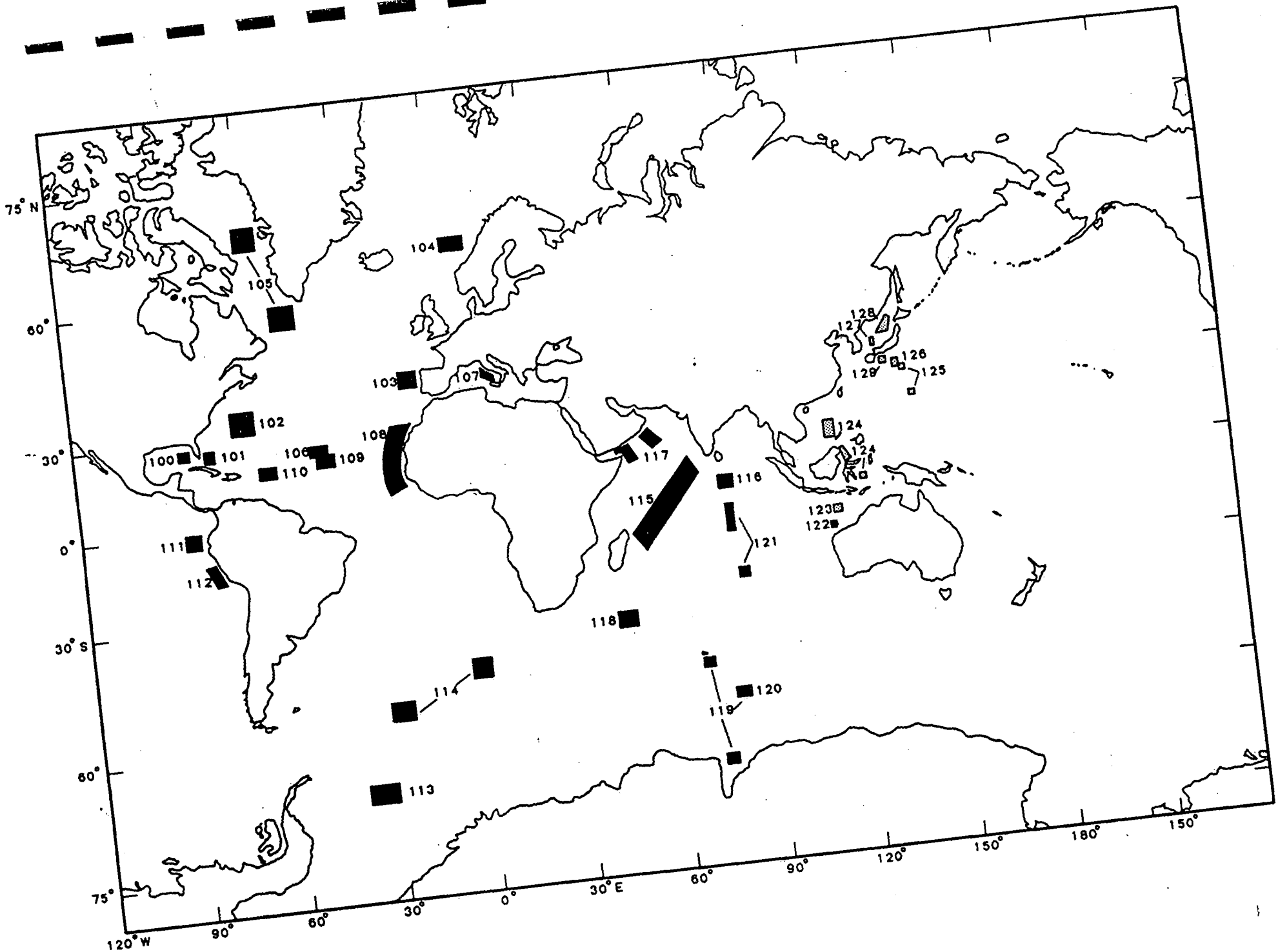
LEG 123 ONWARD

SHIP SCHEDULE

II. APPENDIX

- NATURE AND GEOTIMES REPRINTS/PREPRINTS

APPENDIX G


75° N
60°
30°
0°
30° S
60°
75°
120° W
90°
60°
30°
0°
30° E
60°
90°
120°
150°
180°
150°
100
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126
127
128
129

LEG 121 -- SUMMARY

BROKEN RIDGE & NINETYEAST

FREMANTLE, AUSTRALIA - SINGAPORE
(6 May 1988) (28 June 1988)

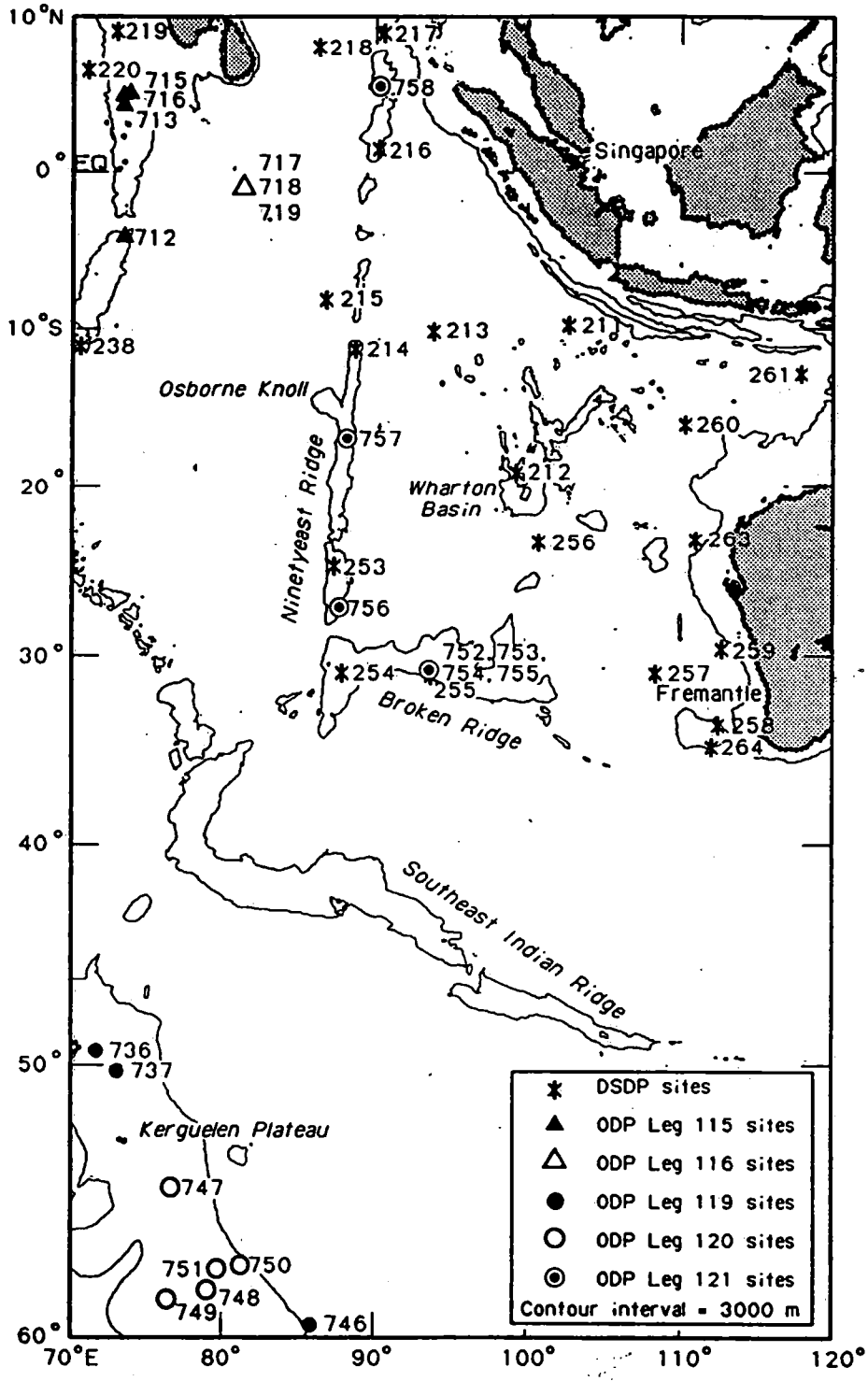
CO-CHIEF SCIENTIST: JOHN PEIRCE, PETRO CANADA
CO-CHIEF SCIENTIST: JEFFREY WEISSEL, LAMONT-DOHERTY GEOLOGICAL OBSERVATORY

TAMU STAFF SCIENTIST: ELLIOTT TAYLOR

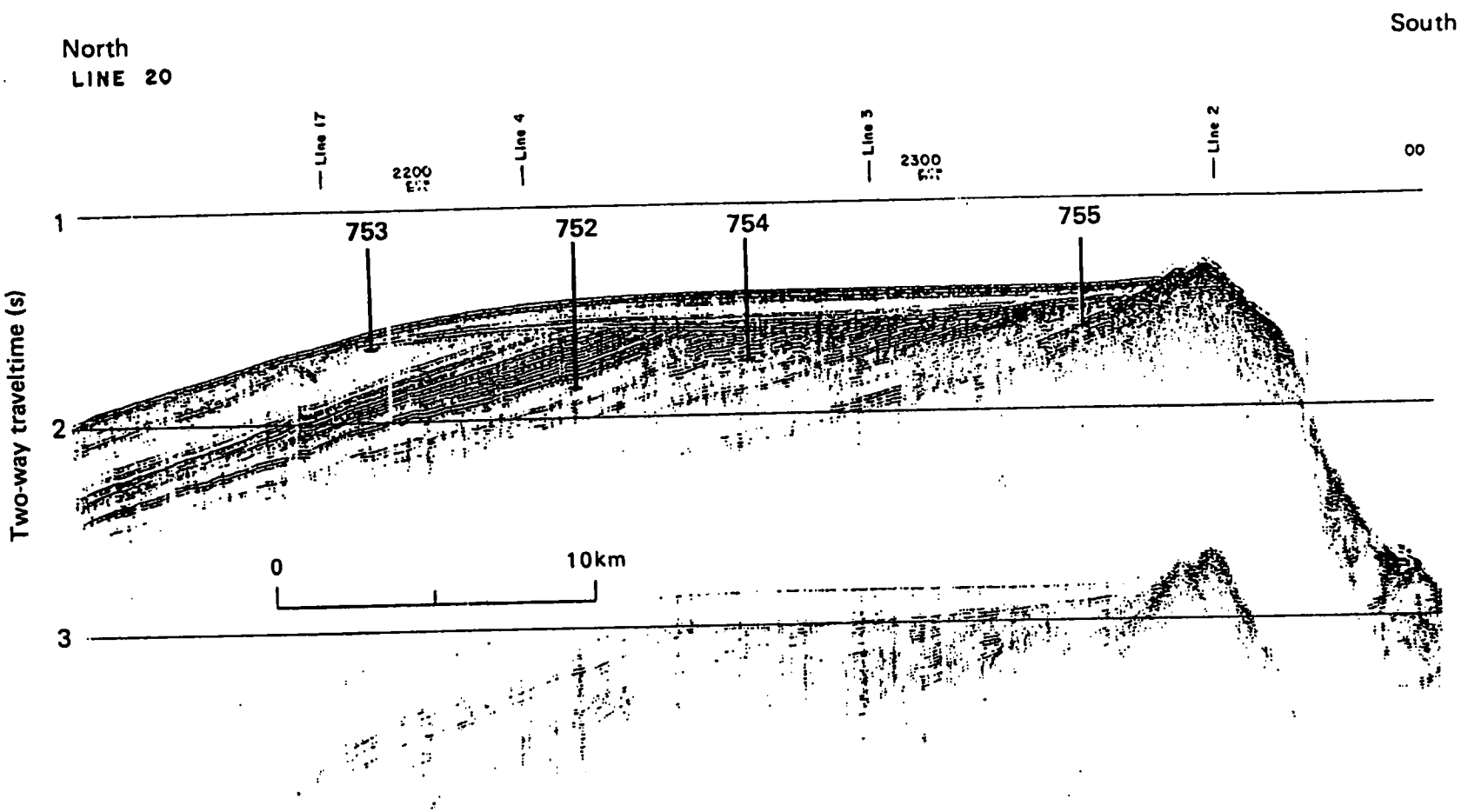
PRIMARY OBJECTIVES:

- TO STUDY RIFTING MECHANISMS AT BROKEN RIDGE. IN PARTICULAR, DRILLING RESULTS WERE INTENDED TO RELATE THE AGE OF TILTING OF THE SYN-RIFT AND PRE-RIFT SEDIMENTS TO THE KNOWN AGE OF INITIATION OF SEAFLOOR SPREADING BETWEEN THE SOUTHERN MARGIN OF BROKEN RIDGE AND THE KERGUELEN PLATEAU. THESE OBJECTIVES COMPLEMENT THE TECTONIC OBJECTIVES OF ODP LEGS 119 AND 120.

- TO STUDY THE GEOCHEMICAL RELATIONSHIPS IN SPACE AND TIME BETWEEN THE NINETYEAST RIDGE AND THE KERGUELEN HOTSPOT, TO DERIVE A DETAILED NORTHWARD MOTION CURVE FOR INDIA AND TO PROVIDE A NORTH-SOUTH PALEONTOLOGICAL AND PALEOCLIMATOLOGICAL TRANSECT OF THE EASTERN INDIAN OCEAN AT DEPTHS SHALLOWER THAN THE CARBONATE COMPENSATION DEPTH. THESE OBJECTIVES COMPLEMENT THE OBJECTIVES OF ODP LEGS 115, 116, 117, 119, AND 120.


10°N
0°
EQ
10°S
20°
30°
40°
50°
60°
70°E
80°
90°
100°
110°
120°
Singapore
Osborne Knoll
Ninetyeast Ridge
Wharton Basin
Broken Ridge
Southeast Indian Ridge
Fremantle
Kerguelen Plateau
DSDP sites
ODP Leg 115 sites
ODP Leg 116 sites
ODP Leg 119 sites
ODP Leg 120 sites
ODP Leg 121 sites
Contour interval = 3000 m

Leg 121


North
LINE 20
South
Line 17
2200
Line 4
Line 3
2300
Line 2
00
753
752
754
755
1
2
3
Two-way traveltime (s)
0
10km

Leg 121

LEG 121 RESULTS

17 HOLES AT 7 SITES
272 METERS CORED, 1,824 METERS RECOVERED (67%)

NINETYEAST RIDGE

- PALEOCEANOGRAPHY - MICROFOSSIL RECORDS WERE RECOVERED ALONG THE LATITUDINAL TRANSECT ACROSS DIFFERENT CLIMATIC ZONES -- TEMPERATE, SUBTROPICAL AND TROPICAL. THESE RESULTS SHOULD ALLOW BIOSTRATIGRAPHERS TO DETERMINE INTERZONAL RELATIONSHIPS AND THUS PROVIDE A MORE ROBUST TIME SCALE WITH WIDER APPLICABILITY.

- BASEMENT - TOTAL BASEMENT PENETRATION 310 M WITH 180 M RECOVERY (INCLUDING UNBROKEN BASALT PIECES UP TO~3.4 M). BASEMENT SAMPLED A THREE WIDELY SEPARATED LOCATIONS ON RIDGE SHOW A NORTHWARD INCREASE IN BASEMENT AGE CONSISTENT WITH ORIGIN OF NINETYEAST RIDGE AS THE TRACE OF THE KERGUELEN/NINETYEAST HOTSPOT ON THE INDIAN PLATE.

BROKEN RIDGE

- UPPERMOST SEDIMENTS BELOW ANGULAR UNCONFORMITY ARE OPEN OCEAN CARBONATE CHALKS OF MIDDLE EOCENE AGE DEPOSITED IN WATER DEPTH OF ~1,000 M.

- LOWERMOST SEDIMENTS ABOVE ANGULAR UNCONFORMITY ARE UPPER EOCENE CARBONTE OOZE CONTAINING REWORKED MIDDLE EOCENE SHALLOW WATER FORAMINIFERS WITH COARSE SAND AND GRAVEL.

THE ABOVE RESULTS, TOGETHER WITH THE LATE EOCENE (~42 MY) AGE OF INCEPTION OF SEAFLOOR SPREADING SOUTH OF BROKEN RIDGE SUGGEST A VERY BRIEF RIFTING EVENT STARTING 47-50 MY BP (MIDDLE EOCENE) AND LASTING ONLY 3-7.5 MY, DURING WHICH MORE THAN 2 KM OF UPLIFT OCCURRED AT THE SOUTH-FACING ESCARPMENT OF BROKEN RIDGE. IN ADDITION, THE DIPPING AND TRUNCATED SEQUENCE WAS DEPOSITED IN INCREASING WATER DEPTHS TO PRIOR TO THE RIFTING EVENT.

THESE RESULTS SUGGEST THAT RIFT INITIATION BY FAR FIELD (INTRAPLATE) STRESS (PASSIVE RIFTING), RATHER THAN BY A MANTLE CONVECTIVE PROCESS (ACTIVE RIFTING) WHICH WOULD LIKELY CAUSE A LONG TERM SHOALING TREND BEFORE THE ACTUAL RIFTING EVENT. BOTH BREVITY OF RIFTING EVENT AND LOW PRESENT DAY HEAT FLOW SUGGEST THAT UPLIFT OF BROKEN RIDGE WAS CAUSED BY MECHANIC PROCESSES RATHER THAN THERMAL.

- - - - - - - - - -

- EXPANDED SECTION ACROSS K/T BOUNDARY RECOVERED.

- NUMEROUS VOLCANIC ASH LAYERS IN DIPPING AND TRUNCATED SEQUENCE, SIMILAR IN COMPOSITION TO KERGUELEN-HEARD PLATEAU AND NINTYEAST RIDGE LAVAS ARE INTERPRETED AS RECORDING ERUPTIONS AT A HOTSPOT TO THE SOUTHWEST OF BROKEN RIDGE.

LEG 122 - SUMMARY

EXMOUTH PLATEAU

SINGAPORE - SINGAPORE
(3 JULY 1988) (28 AUGUST 1988)

CO-CHIEF SCIENTIST: ULRICH VON RAD, BUNDESANSTALT FUR GEOWISSENSCHAFTEN UND ROHSTOFFE

CO-CHIEF SCIENTIST: BILAL HAQ, MARINE GEOLOGY/GEOPHYSICS PROGRAM, NSF

TAMU STAFF SCIENTIST: SUZANNE O'CONNELL

PRIMARY OBJECTIVES:

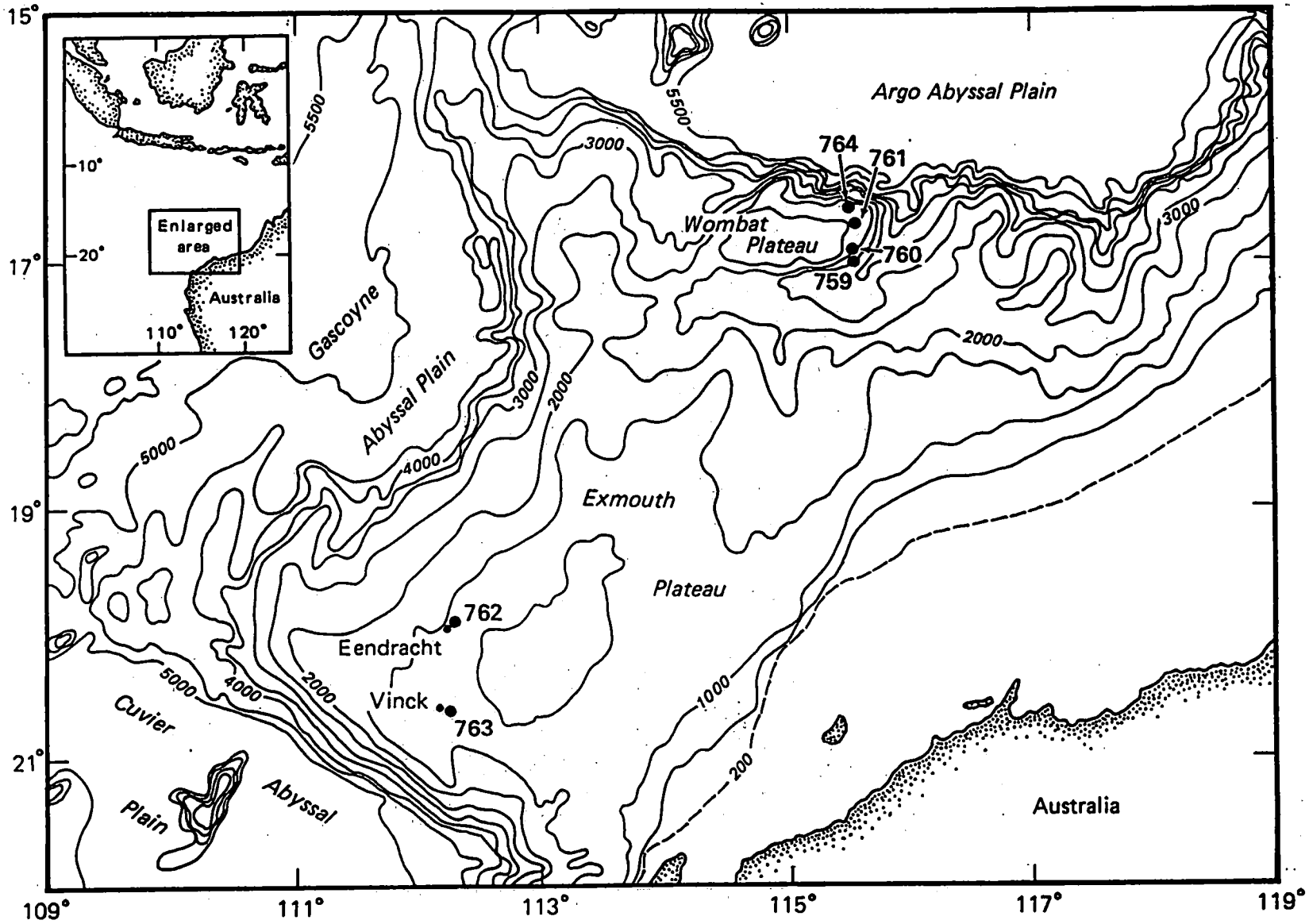
- TO UNRAVEL THE RIFT, RIFT-DRIFT TRANSITION, AND POST-BREAKUP HISTORY OF A SEDIMENT-STARVED CONTINENTAL MARGIN, AND TO UNDERSTAND ITS SEDIMENTARY AND PALEOENVIRONMENTAL DEVELOPMENT FROM A JUVENILE TO MATURE OCEANIC MARGIN.

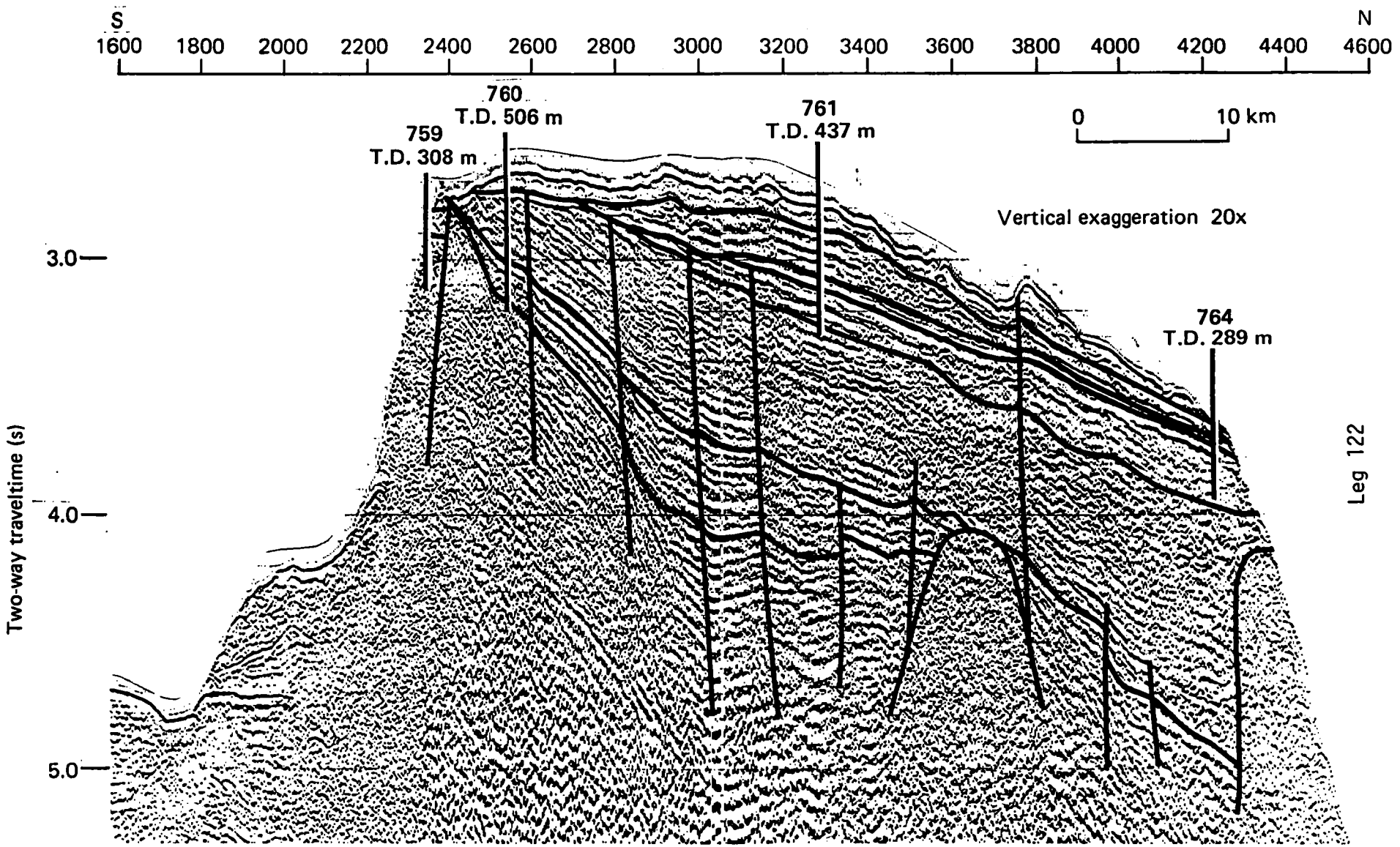
- TO DOCUMENT THE TEMPORAL AND SPATIAL DISTRIBUTION OF THE MESOZOIC AND CENOZOIC DEPOSITIONAL SEQUENCES.

- TO IMPROVE THE LATE TRIASSIC TO CRETACEOUS CHRONOSTRATIGRAPHY (MAGNETO-, BIO, AND CHEMO-STRATIGRAPHIES).

- TO RECOVER AND INVESTIGATE JURASSIC AND CRETACEOUS ANOXIC SEDIMENTS LEADING TO AN UNDERSTANDING OF THEIR GENESIS IN SHALLOW-MARINE AND OPEN-MARINE SETTINGS.

- TO RETRIEVE AND EXAMINE THE SECTION ACROSS THE CRETACEOUS/TERTIARY BOUNDARY IN ORDER TO TEST THE VARIOUS COMPETING HYPOTHESES ABOUT THE MASSIVE EXTINCTION EVENT AT THE END OF MESOZOIC.


Argo Abyssal Plain
Wombat Plateau
764
761
760
759
Gascoyne Abyssal Plain
Exmouth Plateau
Eendracht
Vinck
762
763
Cuvier Abyssal Plain
Australia
Enlarged area
5500
3000
2000
4000
5000
1000
200
15°
17°
19°
21°
109°
111°
113°
115°
117°
119°
10°
20°
110°
120°


S
N
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
759
T.D. 308 m
760
T.D. 506 m
761
T.D. 437 m
764
T.D. 289 m
0
10 km
Vertical exaggeration 20x
3.0
4.0
5.0
Two-way traveltime (s)
Leg 122

LEG 122 RESULTS

15 HOLES AT 6 SITES
3,710 METERS CORED, 2,446 METERS RECOVERED (66%)

- OLDEST SEDIMENTS EVER RECOVERED FROM BENEATH THE DEEP OCEAN FLOOR WAS ENCOUNTERED ON WOMBAT PLATEAU TRANSECT. THESE SEDIMENTS EXTEND THE RECORD OF MARINE SEDIMENTS TO BASAL LATE TRIASSIC (CARNIAN/ NORIAN, 231-215 MY BP).

- ON WOMBAT PLATEAU FOUR SITES FORM A N-S TRANSECT WITH SUCCESSIVELY YOUNGER MESOZOIC SECTIONS BEING TRUNCATED BY THE MAJOR ANGULAR UNCONFORMITY. THE CORES RECOVERED PROVIDE A REASONABLY COMPLETE RECORD OF THE LATE TRIASSIC TO RECENT EVOLUTION OF THIS MARGIN.

- RECOVERED OVER 1600 M THICK COMPOSITE SECTION OF NEOCOMIAN SYNRIFT DELTAIC CLAYSTONE AND YOUNGER CRETACEOUS AND CENOZOIC HEMIPELAGIC TO EUPELAGIC MARLS, CHALKS AND OOZES. THESE RECOVERED SEDIMENTS PROVIDE DOCUMENTATION OF EARLY CRETACEOUS TO QUATERNARY DEPOSITIONAL SEQUENCES AND CYCLES OF SEA-LEVEL CHANGE IN AN AREA WITH EXCELLENT SEISMIC STRATIGRAPHIC AND COMMERCIAL WELL CONTROL.

LEG	AREA	CO-CHIEFS/ STAFF REPRESENTATIVE	STAFFING	TERRITORIAL PERMISSION	Prospectus	Preliminary Report	COMMENTS
120 Feb.-Apr. 1988	Central Kerguelen Plateau Mauritius - Fremantle	Dr. Roland Schlich Dr. Sherwood Wise Dr. Amanda Palmer	29 Scientists 19 Technical Support	France Australia	*	*	Paleoceanography, tectonic history, nature and age of plateau.
121 May-June 1988	Broken Ridge/ Ninetyeast Ridge Fremantle - Singapore	Dr. Jeffrey Weissel Dr. John Peirce Dr. Elliott Taylor	27 Scientists 20 Technical Support	None Required	*	*	Northward movement of Indian plate, and seafloor spreading in southeast Indian Ocean.
122 July-Aug. 1988	Exmouth Plateau Singapore - Singapore	Dr. Ulrich von Rad Dr. Bilal Haq Dr. Suzanne O'Connell	28 Scientists 20 Technical Support	Australia	*		Subsidence of a continental margin and test of global sea level curve.
123 Sep.-Oct. 1988	Argo Abyssal Plain and Exmouth Plateau Singapore - Singapore	Dr. Felix Gradstein Dr. John Ludden Dr. Andrew Adamson	29 Scientists 19 Technical Support	Australia	*		Paleocirculation in Cretaceous Tethyan Sea and age of oldest Indian Ocean crust.
124 Nov. 1988-Jan. 1989	SE Asia Basin Singapore - Manila	Dr. Eli Silver Dr. Karl Hinz Dr. Marta von Breymann	25 Scientists 19 Technical Support	Philippines	*		Origins and ages of SE Asian basins.
124E Jan.-Feb. 1989	Engineering I Manila - Guam	N/A		Philippines	*		Operational evaluations of development-stage coring and logging equipment and techniques.
125 Feb.-Apr. 1989	Bon/Mar Guam-Tokyo	Dr. Patricia Fryer Dr. Julian Pearce	27 Scientists 19 Technical Support	Japan			Arc/forearc magmatism and tectonics.
126 Apr.-June 1989	Bon 2 Tokyo - Yokohama	Dr. Brian Taylor Dr. Tadahide Ui Dr. Russell Merrill	24 Scientists 19 Technical Support	Japan			History of rifting arc; nature of rift and arc basement; extent and chemistry of hydrothermal circulation. Nature of igneous basement.
127 June-Aug. 1989	Japan Sea I Yokohama - Hakodate	Dr. Kensaku Tamaki Dr. Kenneth Pisciotto	Underway	Japan			Nature and age of basement of basins; style of multiple rifting; timing of convergence and obduction of oceanic crust.
128 Aug.-Oct. 1989	Japan Sea 2 Hakodate - ?	Dr. Kiyoshi Suyehiro Dr. Jim Ingle	Underway	Japan			Paleoceanography; backarc extension tectonics; nature and age of basement.
129 Oct.-Dec. 1989	Nankai ? - ?	Dr. Asahiko Taira Dr. Ian Hill Dr. Andrew Fisher	Underway				Accretionary prism geotechnical studies.

ODP OPERATIONS EDULE

Leg	Objective	Departs Port	Departs Date	Arrives Port	Arrives Date	Port Days	Days at Sea
121	Broken Ridge & Nintyeast	Fremantle	5/06/88	Singapore	6/28/88	6/28-7/02	53
122	Exmouth Plateau	Singapore	7/03/88	Singapore	8/28/88	8/28-9/01	56
123	Argo Abyssal Plain & Exmouth Plateau	Singapore	9/02/88	Singapore	11/01/88	11/01-05	60
124	SE Asia Basins	Singapore	11/06/88	Manila	1/04/89	1/04-08	59
124E	Engineering I	Manila	1/09/89	Guam	2/15/89	2/15-19	37
125	Bon/Mar	Guam	2/20/89	Tokyo	4/18/89	4/18-22	57
126	Bon 2	Tokyo	4/23/89	Yokohama	6/19/89	6/19-23	57
127	Japan Sea I	Yokohama	6/24/89	Hakodate	8/20/89	8/20-24	57
128	Japan Sea 2	Hakodate	8/25/89	?	10/5/89		41
	- - - - - - - D R Y D O C K (14 D A Y S) - - - - - -					10/5-10/18	
129	Nankai	?	10/19/89	?	12/18/89	12/18-22	60
129E	Engineering II	?	12/23/89	?	1/21/90?	?	30?

Revised 9/5/88

September 13-15
Edinburgh

Ocean Drilling Program

Executive Committee Meeting

Wireline Logging Operator Report

A. Update of Performance Since Last EXCOM

Leg 120: Two holes logged, one lost to Bottom Hole Assembly plugged by flapper valve (prevented open hole logging) and poor hole conditions that threatened drillstring (prevented through-pipe logging). One hole lost to death of Lamar Hayes. Only one string (SS) run in each hole because of weather (> 80 knot winds, 40 ft seas) and tool problems (Lithodensity tool failed downhole). 753 of possible 812 m logged.

Leg 121: Three holes logged, one lost to medical emergency. 1280 m of a possible 1468 logged successfully. Poor hole conditions, bridges and time caused two holes to be logged with only two strings. Seiemic Stratigraphy tool lost because of broken centralizer. Fished successfully using minicone and drillstring overshot. Borehole televiewer run successfully in northern 90 east ridge site.

Leg 122: Six holes logged, none lost. However, 1000 m of loggable hole lost to bridging of sands (not clay swelling problem). When Side-entry sub was finally allowed to be used, it worked spectacularly allowing 1425 m of open hole to be logged. An additional 681 m were logged through pipe using the Geochemical Logging Tool. Lithodensity tool lost

onto sea floor when weakpoint pulled off at rig floor during recovery of BHA. Fishing unsuccessful. Hydraulic bit release failed at final hole. Led to establishment of JOI directive on fishing policy and hardware. Insurance does not appear to be at risk at this time.

B. Science

Leg 120-121: Kerguelen hot spot volcanism

Leg 121: Broken Ridge seismic stratigraphy

Leg 121: Elemental Analyses from Geochemical Logs

Leg 121: State-of-stress on the northern 90 east ridge

Leg 122: Sequence stratigraphy and sea level change

C. Technical Progress

Geochemical Log Calibration

Formation Microscanner

Wireline Packer

Engineering Test Leg

D. Future Developments

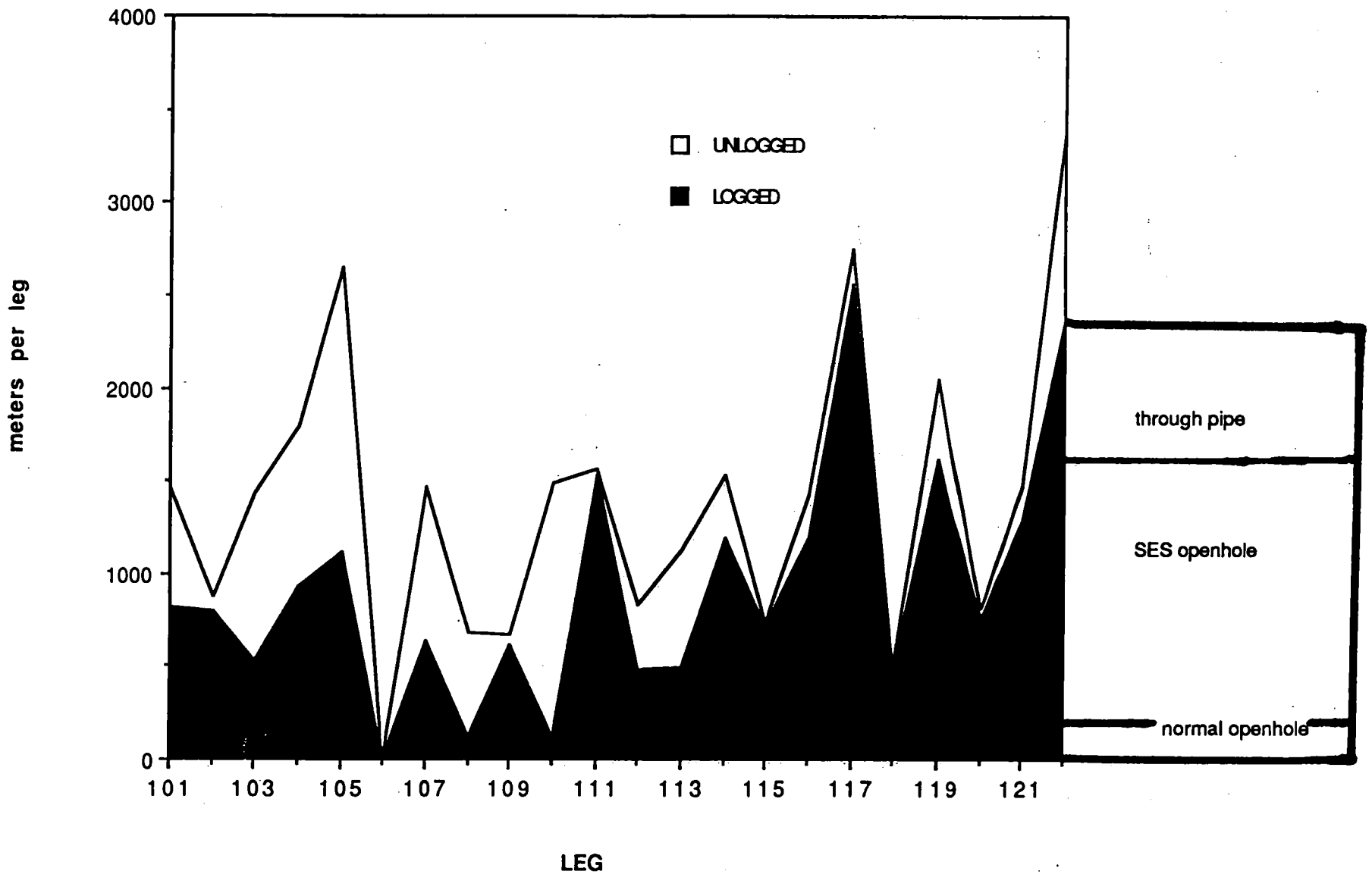
Logging Schools: GSA in Denver in November, AGU in San Francisco in December, still no Canadian School !

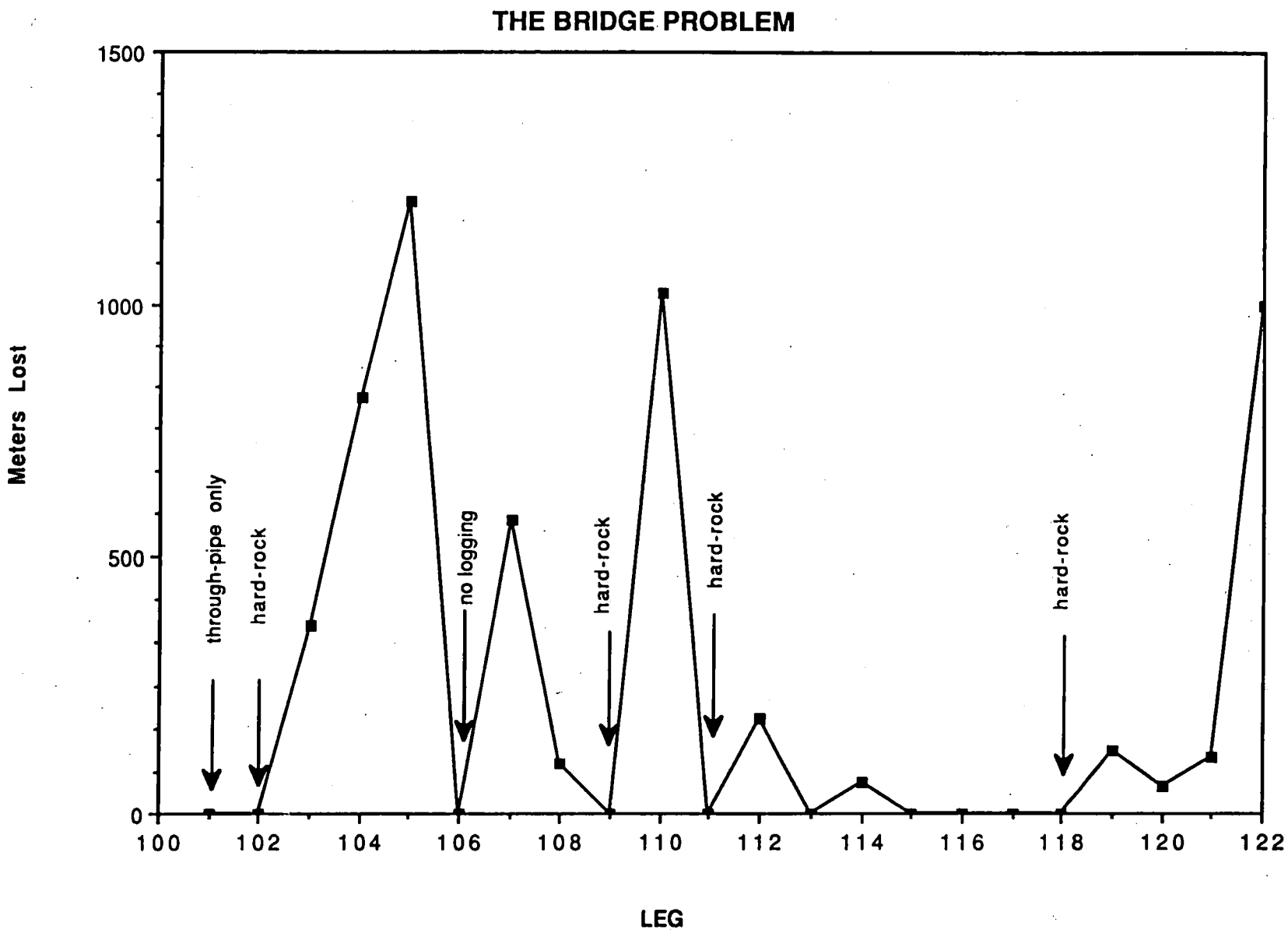
EXCOM ACTION: Invited to give Logging School at the

Institute of Crustal Dynamics, Beijing, in the spring of 1989. Should BRG do it?

Logging Data Exchange: The Coordinating Committee on Continental Drilling of the International Lithosphere Program (IUGG-IUGS) has requested that ODP Logging Data be included in the proposed International Logging Database for Scientific Drillholes, with repositories in Moscow and the U.S.

EXCOM ACTION: Should ODP Logging Data be included in this exchange directly through the BRG? indirectly through the NGSDC in Denver? or at all?


4000
3000
2000
1000
0
meters per leg
UNLOGGED
LOGGED
through pipe
SES openhole
normal openhole
101
103
105
107
109
111
113
115
117
119
121
LEG


THE BRIDGE PROBLEM
Meters Lost
1500
1000
500
0
100
102
104
106
108
110
112
114
116
118
120
122
LEG
through-pipe only
hard-rock
no logging
hard-rock
hard-rock
hard-rock

ODP WIRELINE LOGGING TOOL LOSS

AUGUST
25
THURSDAY

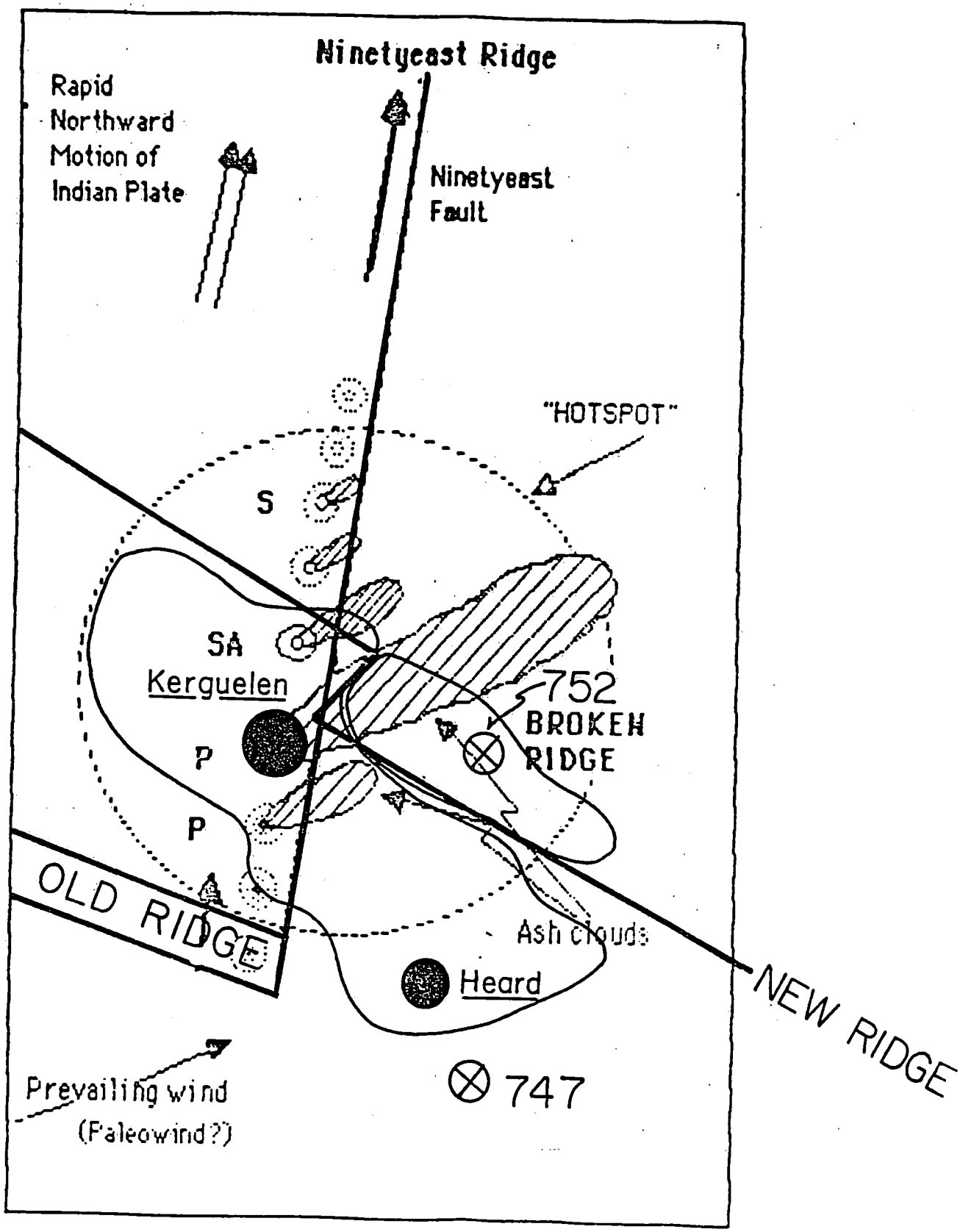
"Up! Up! Take me up!"

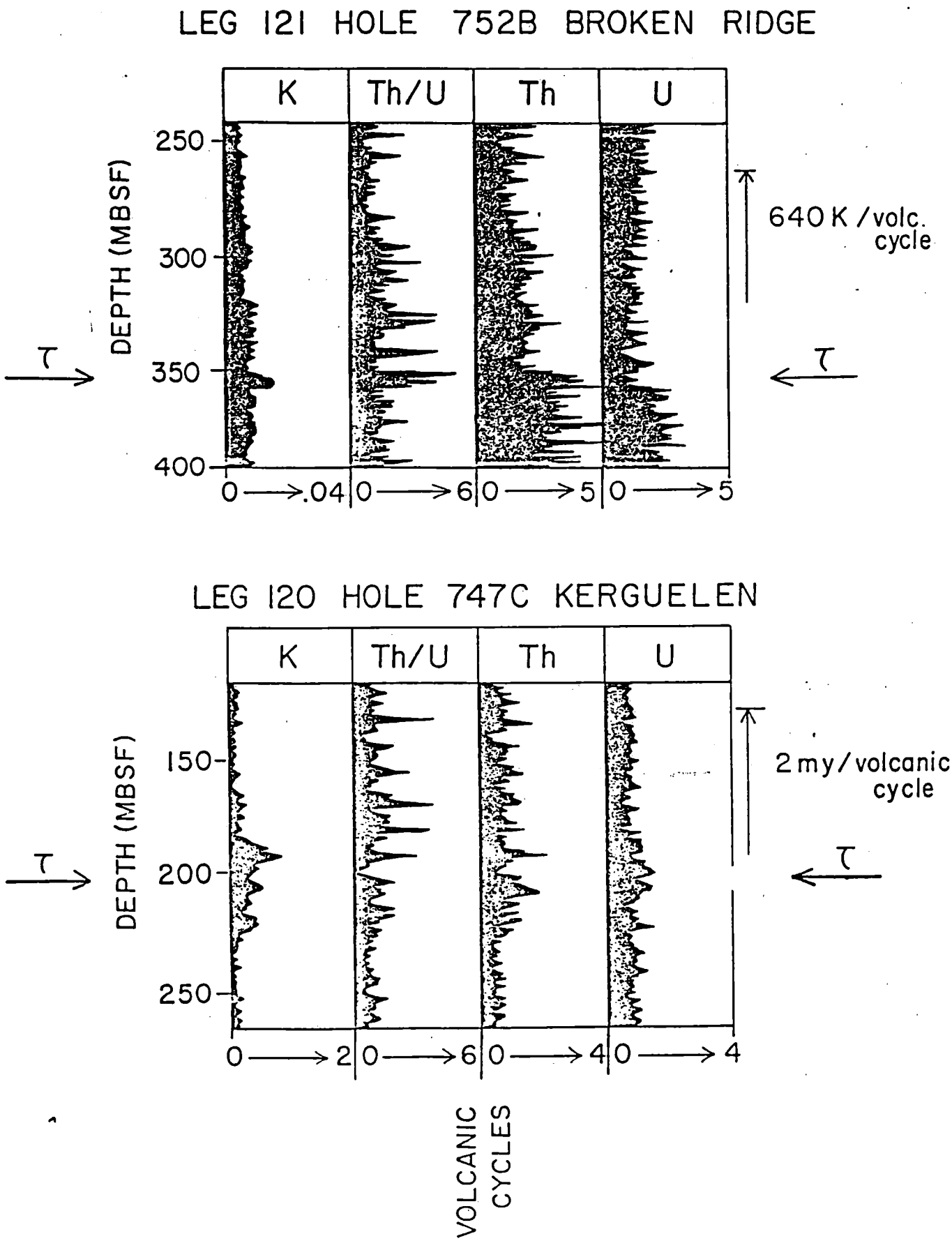
Policy:

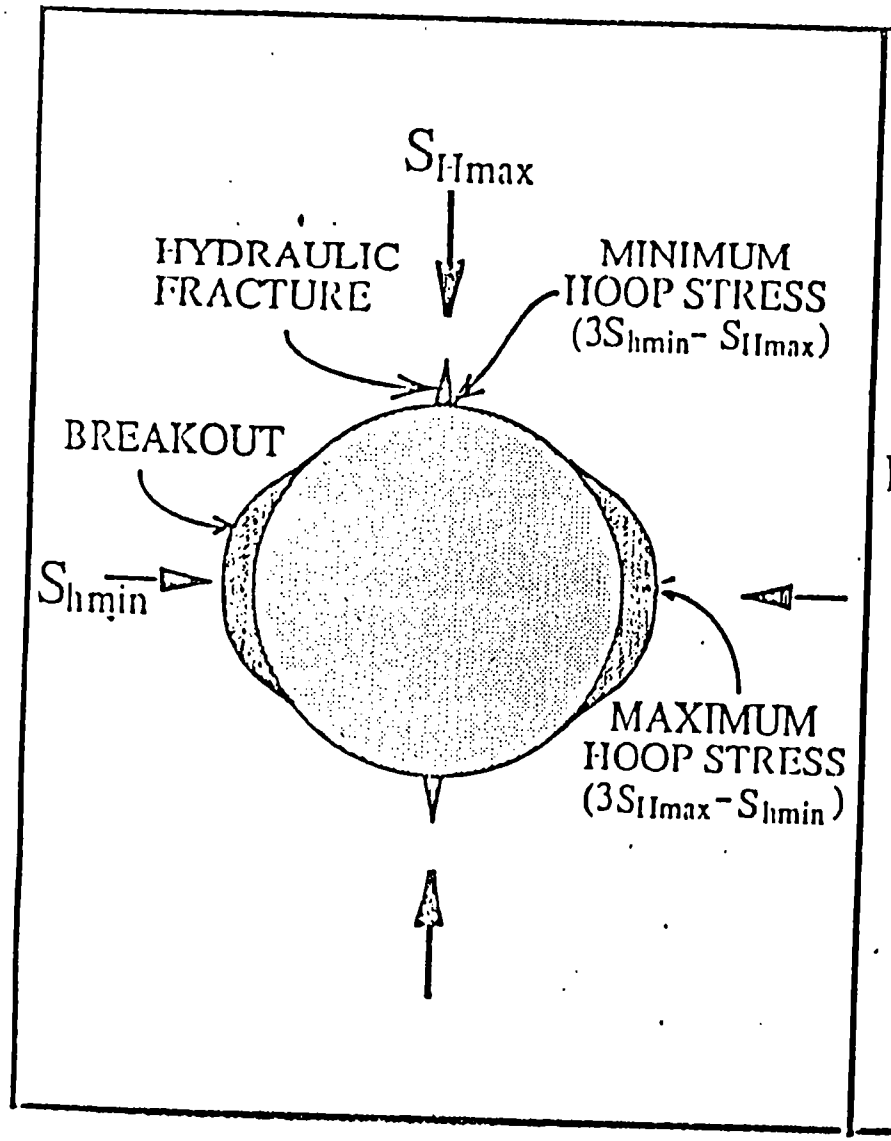
In the event that a logging tool is lost downhole, the Operations Superintendent will ensure that drillstring fishing is undertaken.

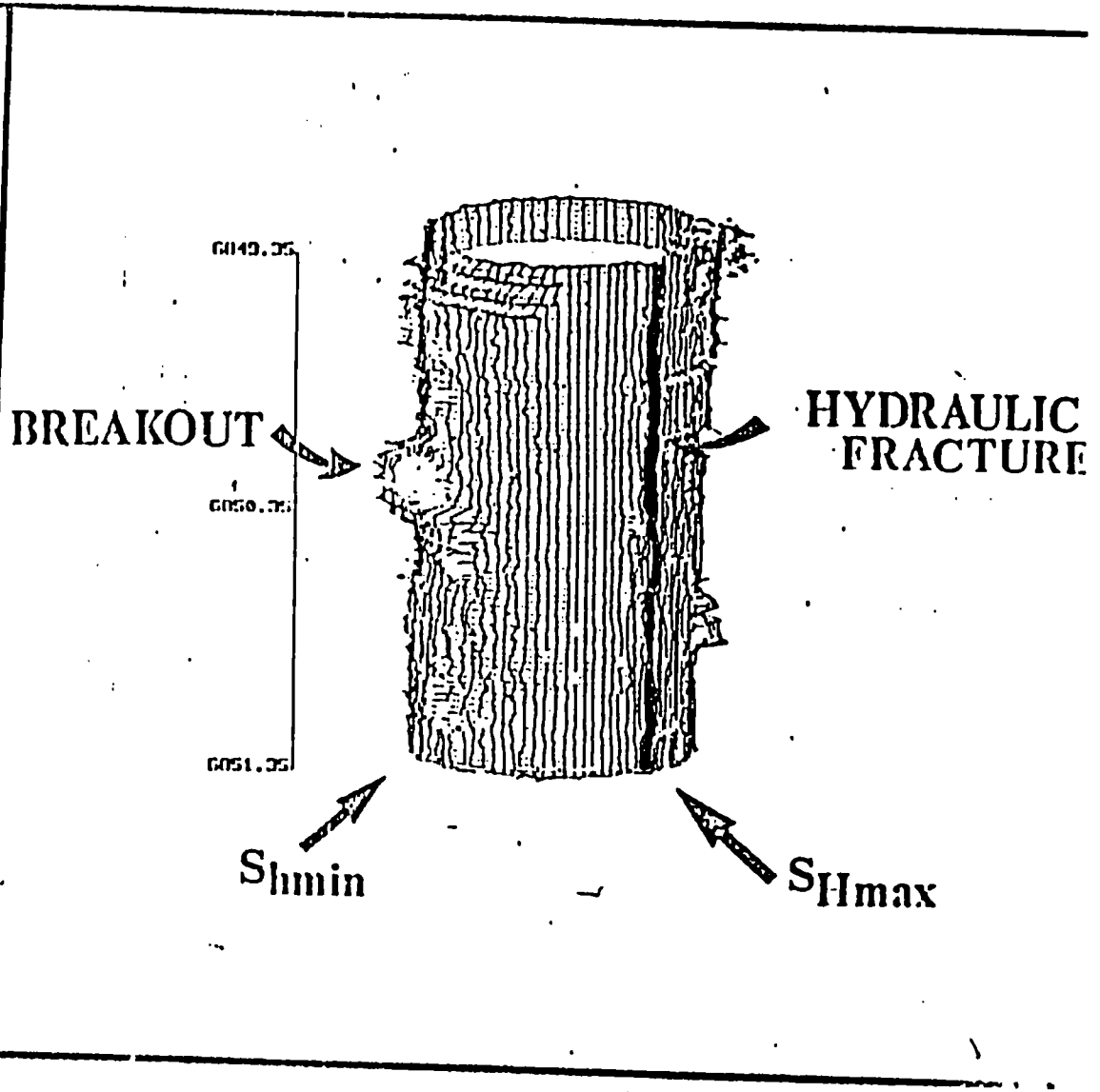
timated ODP Impact:

1. About 3 days per year of lost science (primarily logging data)
2. About 50% reduction in tool losses
3. No insurance cancellation.

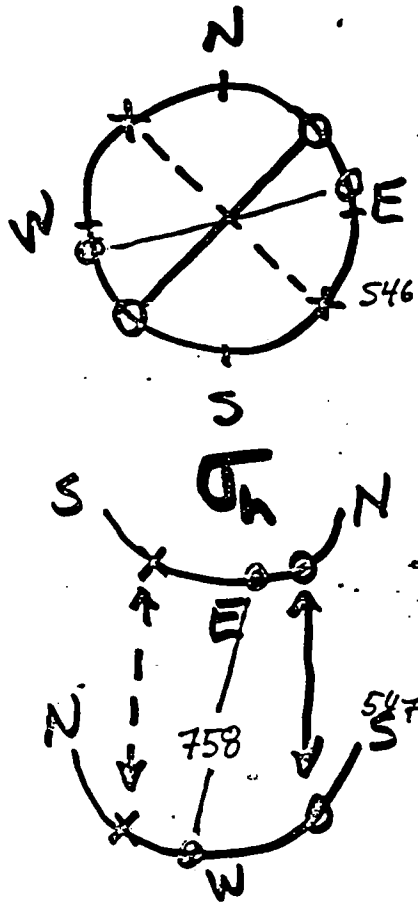

Ninetyeast Ridge
Rapid Northward Motion of Indian Plate
Ninetyeast Fault
"HOTSPOT"
S
SA
Kerguelen
P
P
752
BROKEN RIDGE
OLD RIDGE
Ash clouds
Heard
NEW RIDGE
Prevailing wind
(Paleowind?)
747


LEG 121 HOLE 752B BROKEN RIDGE
K
Th/U
Th
U
DEPTH (MBSF)
250
300
350
400
0 → .04
0 → 6
0 → 5
0 → 5
640 K / volc. cycle
τ
τ
LEG 120 HOLE 747C KERGUELEN
K
Th/U
Th
U
DEPTH (MBSF)
150
200
250
0 → 2
0 → 6
0 → 4
0 → 4
2 my / volcanic cycle
τ
τ
VOLCANIC CYCLES


S_{Hmax}
HYDRAULIC FRACTURE
MINIMUM HOOP STRESS ($3S_{hmin} - S_{Hmax}$)
BREAKOUT
S_{hmin}
MAXIMUM HOOP STRESS ($3S_{Hmax} - S_{hmin}$)

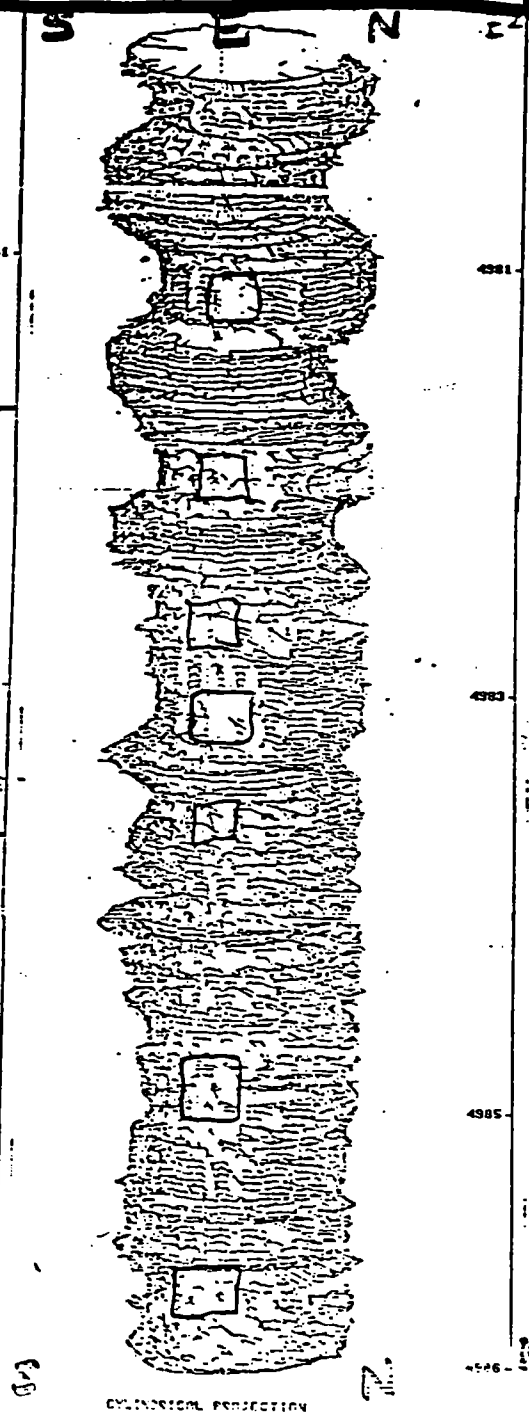

BREAKOUT
HYDRAULIC FRACTURE
S_{hmin}
S_{Hmax}

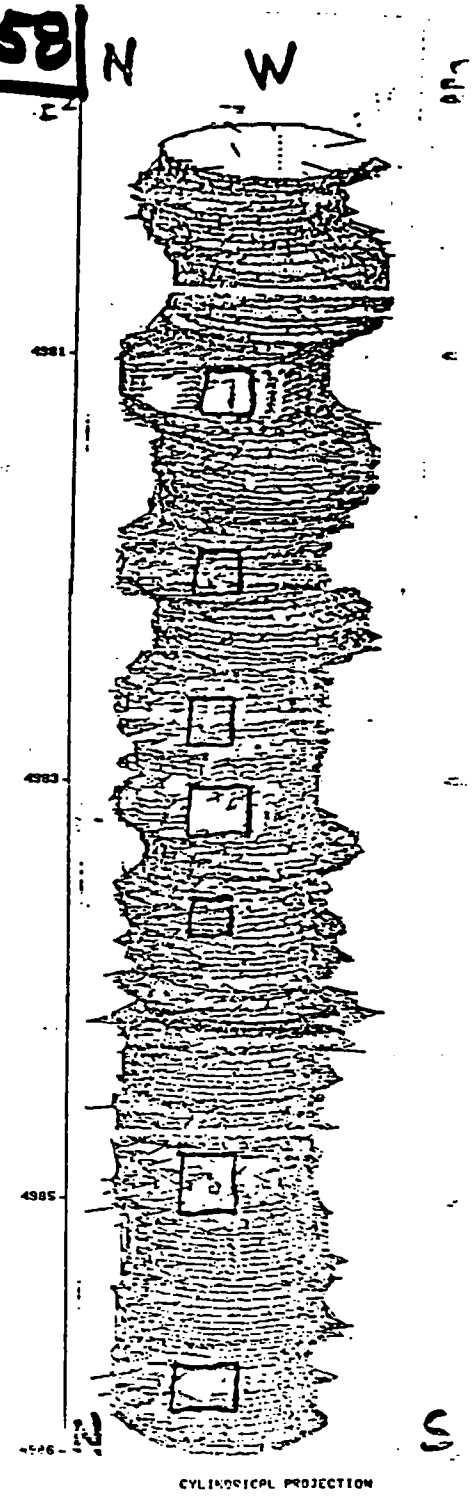
BOREHOLE TELSIKEWER Hole 758



BREAKOUTS

548
(mbsf)





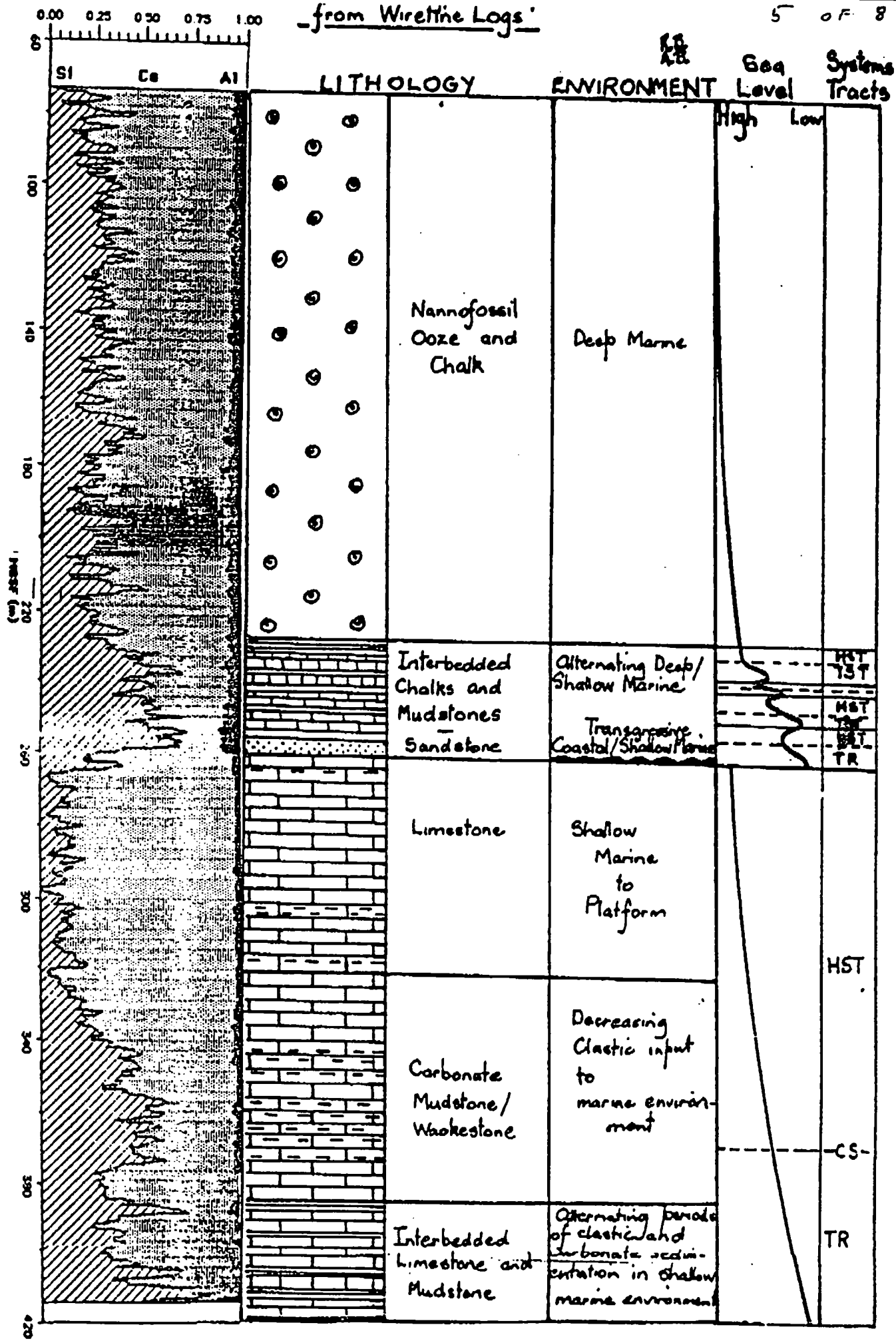
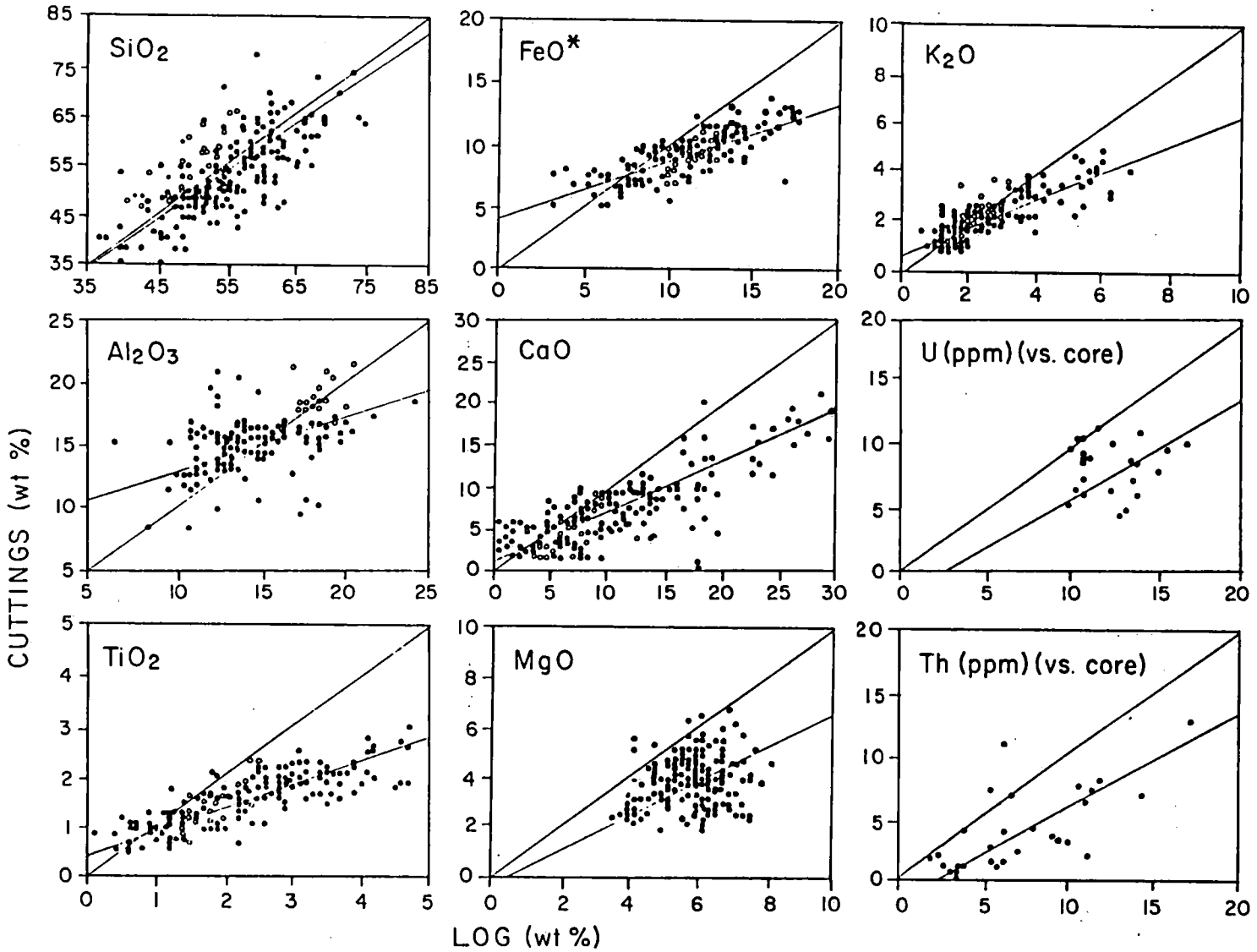
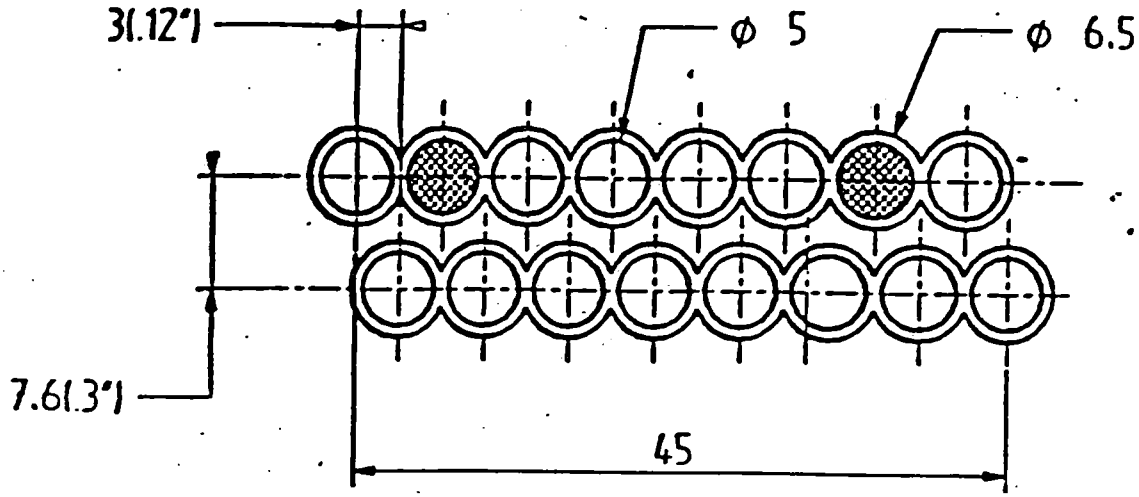


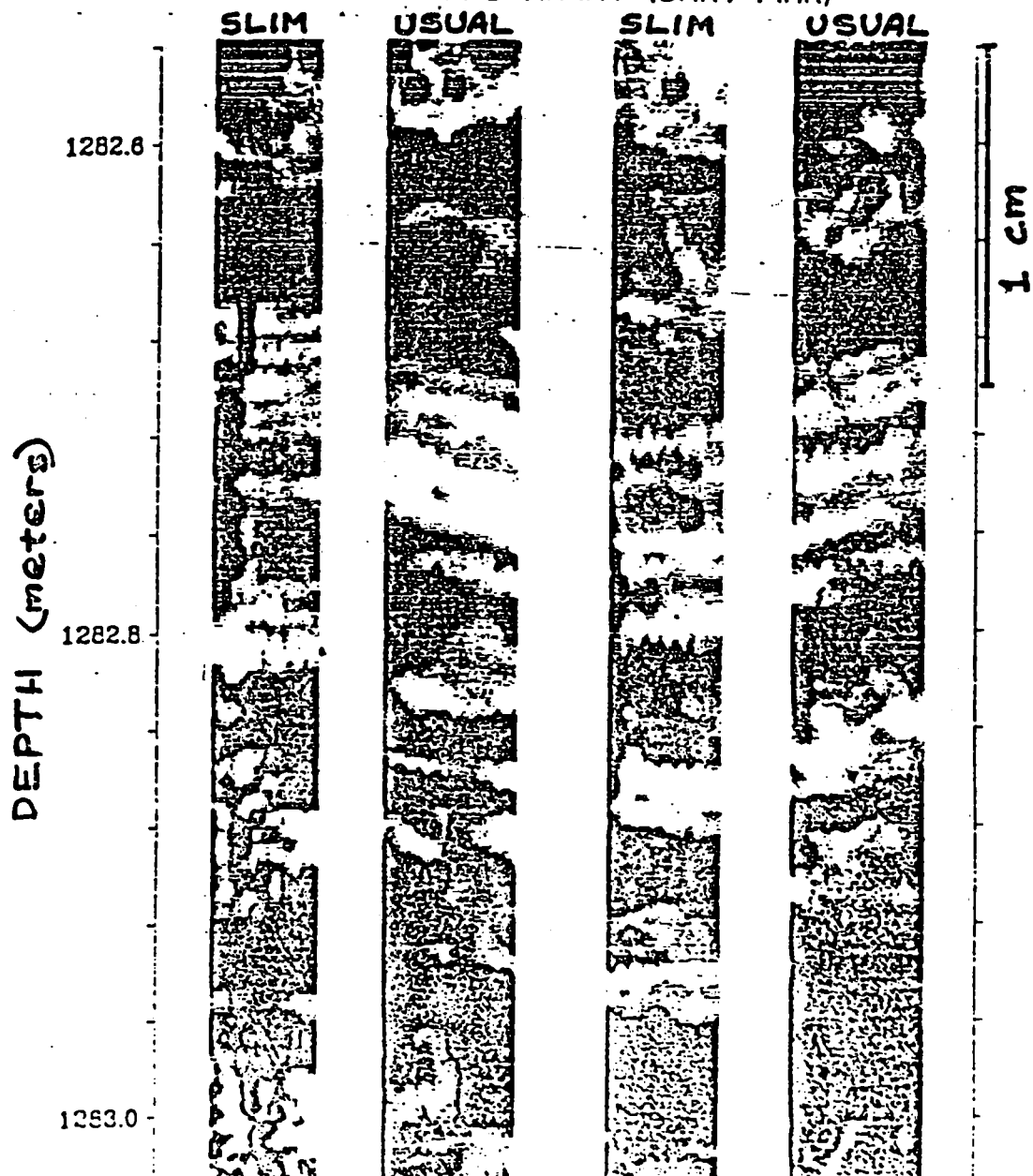
Figure 761 1-6


SiO2
FeO*
K2O
Al2O3
CaO
U (ppm) (vs. core)
TiO2
MgO
Th (ppm) (vs. core)
CUTTINGS (wt %)
LOG (wt %)

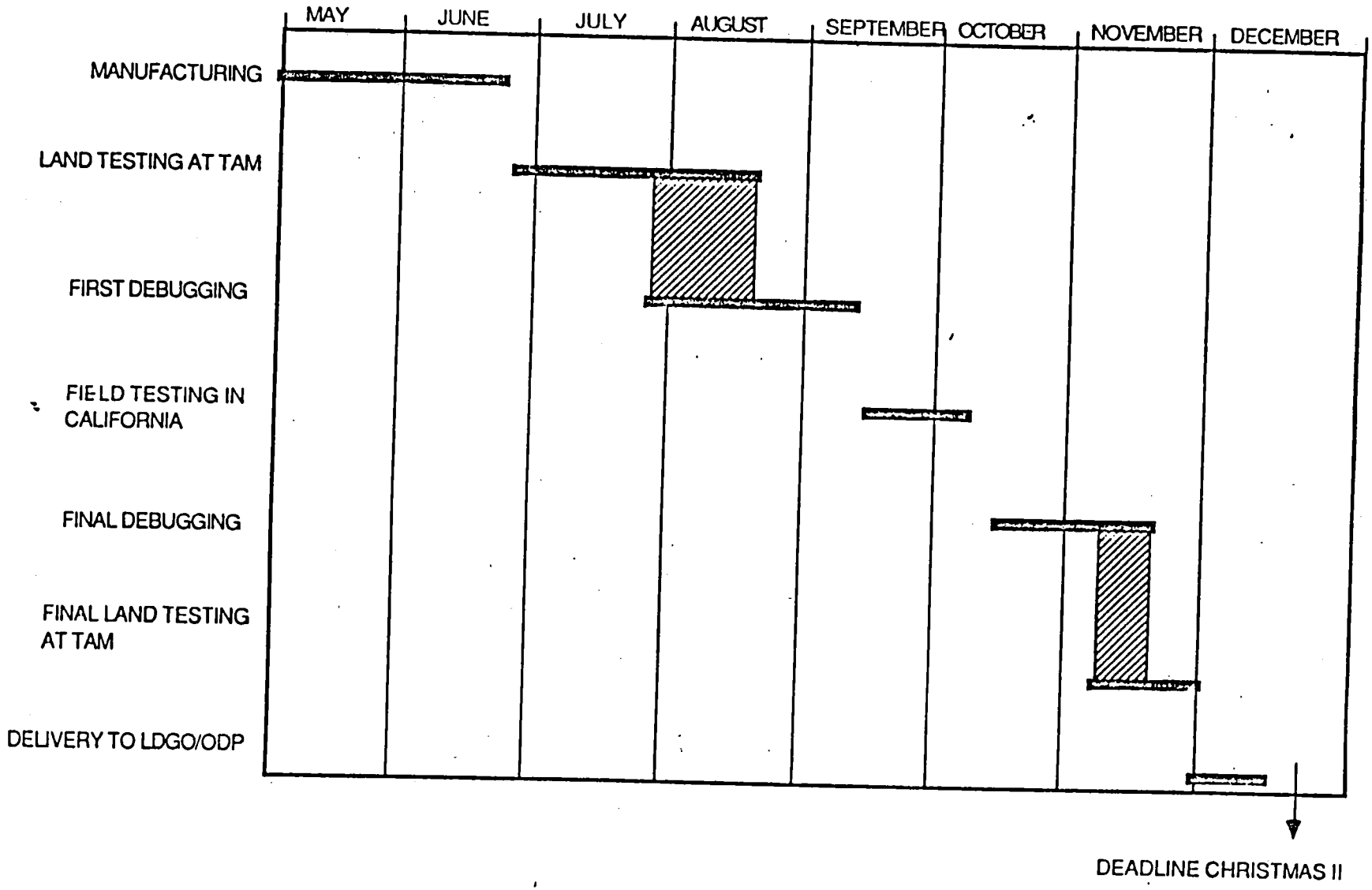
SLIM FORMATION MICROSCANNER (FMS)



HIGH RESOLUTION PAD ARRAY (SHR / MHR)



TIME SCHEDULE FOR TAM WIRELINE-PERMEABILITY-SYSTEM DEVELOPMENT



SITE NUMBER: ENG-2 (DSDP Site 453)

POSITION: 17°54.42'N, 143°40.95'E

JURISDICTION: North Mariana Islands (U.S. Commonwealth)

SEDIMENT THICKNESS: 455 m

PRIORITY: 1

WATER DEPTH: 4703 m

PROPOSED DRILLING PROGRAM:

Hole A: Dedicated hole drilled for Lamont/BRG logging tests. Hole to be drilled approximately 200 m into basement. Testing to include: Wireline Packer, Combined Geochemical/Lithodensity Nuclear Tool, Sidewall Entry Sub Hot Hole Logging System, Wireline Heave Compensator, FMS Slimhole Dipmeter deployment, and possible deployment of a Combined Borehole Televiewer/ Susceptibility/Three Component Magnetometer.

SEISMIC RECORD: Glomar Challenger profile collected during pre-site survey for DSDP Site 453 on Leg 60 (28 March 1978, 0240 UTC and 0325 UTC). Multichannel seismic profiles 2 and 3 collected on Robert Conrad cruise 20-06 (See also DSDP Leg 60).

OBJECTIVES: Evaluate all the above-mentioned logging tools (see proposed logging tools test plan) for use on standard ODP legs including evaluation of the SES as a possible means of cooling the borehole to acceptable limits for hot hole operations.

LOGGING: Defined above.

SEDIMENT TYPE: Pleistocene-Pliocene volcaniclastic mud, silt, and sand, overlying igneous and metamorphosed polymict breccias.

USSSP Programs and Current Committments
Contract Year 4
(as of September 1, 1988)

I. U.S. Planning Workshops:
CY 4 budget: 4 per year at $39,500 each= $158,000

1. "Broad-Band Downhole Seismometers in the Deep Ocean" Purdy (WHOI) and Dziewonski (Harvard) : $39,585

2. "Ocean Drilling as it Relates to the Resolution of Tectonic Frames of Reference" Carlson (TAMU), Sager (TAMU), Jurdy (Northwestern): $30,956

3. "Conference on the Deep Ocean Crust and Uppermost Mantle" Henry Dick (WHOI): $36,250

4. "The Causes and Consequences of Long-Term Sea Level Change" Dork Sahagian (Dartmouth): $5,000

5. "Ocean Drilling Program Mediterranean Workshop" Kastens and McCoy (both at LDGO): travel total $4,000

ODP Drilling & Investigation of Global Changes in S.L. Watkins (TAMU) & Mountain (LDGO.

TOTAL CY 4 Workshop Committments to date=$115,791
Amount remaining in CY 4= $42,209

II. Site Survey Augmentation
CY 4 budget: $250,000

1. "Analysis of Heat Flux from the East Pacific Rise" Crane (Hunter College and LDGO) and Aikman (LDGO): $35,210

2. Support of Phase II of the Geoprops Probe, Karig (Cornell): $10,000

3. SeaBeam and SCS across Jurassic magnetic lineations east of Japan, Lonsdale (Scripps): $48,000.

Total Survey Augmentation Committments to date: $93,210
Amount remaining in CY 4= $156,790

III. Fellowships

CY 4 budget: 4 1-year fellowships @$18,000 each= $72,000
+rebudgeting of CY 3 funds for 1 fellowship @$18,000= $90,000

1. Terry Plank (LDGO): "The Geochemistry of Sediments and Altered Oceanic Crust Approaching the Java Trench, Site AAP1B, Argo Abyssal Plain"

2. Sabine Apitz (Scripps): "Carbonate Diagenesis on the Flanks of Midocean Ridges"

3. Janet Pariso (UW) "A Magnetic Study of Gabbros Recovered During ODP Leg 118"

4. Steven Clemens (Brown U.; renewal): "Neogene Variability of Monsoon Winds as Recorded in the Eolian Component of Arabian Sea Sediments"

5. Jiaxiang Zhang (SUNY Stony Brook; defer until CY 5): "Failure Modes of Sedimentary Rocks from ODP Leg 129 in the Nankai Accretionary Wedge"

Total Fellowship Committments to date: $72,000
Amount remaining in CY 4= $18,000

IV. Logging Schools

CY 4 budget: 2 Logging Schools @ $10,000 each= $20,000

1. Geological Society of America: October 29, 1988

2. American Geophysical Union: December 4, 1988

Total Logging School Committments to date: $20,000
Amount remaining in CY 4= $0

V. Science Support

CY 4 budget: Travel: $302,400; Salary: $872,596; Science: $1,170,502

VI. Wireline Re-Entry

Three-year budget for project: $1,100,000
RFP issued late July (advertised in *JOI-USSAC Newletter*, *JOIDES Journal*, *Commerce Business Daily*, e-mail Drilling, Science, and Ocean bulletin boards, and by individual mailing of notice).
Proposals due at JOI on October 14, 1988 on or before 4:30 P.M.

VII. CD-ROM

Target date for distribution is January, 1989.
Two CDs being produced: one will contain only DSDP geophysical data; other will contain all other available DSDP digital data.
Software will be supplied on floppies. ODP partner & JOI inst. requests for limited gratis copies are encouraged (send a letter to JOI, Inc.)

VII. JOI-USSAC Newsletter

Two *Newsletters* issued thus far. Third will be out in November, 1988.
The *Newsletter* has been warmly received by the community.

(9/15/88)

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. Science Advisory Structure

The Science Advisory Structure of JOIDES will consist of a Planning Committee, a Technology and Engineering Development Committee, four thematic panels and five service panels. *Ad hoc* Detailed Planning Groups (DPGs) may be approved by the Planning Committee as requested by the panels or by the Planning Committee itself.

2. Committees, Panels, and Detailed Planning Groups

Each committee, panel and detailed planning group will operate under a mandate, along with guidelines as to membership and frequency of meetings. Mandates, guidelines, and amendments to them, for the standing panels, shall be proposed by the Planning Committee for approval by the Executive Committee. Mandates, guidelines and duration of operation for the short-lived Detailed Planning Groups will be specified by PCOM as required.

3. Planning Committee

3.1 General Purpose. The Planning Committee reports to the Executive Committee and advises JOI, Inc., the Science Operator and Wireline Services Operator, plans designated to optimize the scientific productivity and operational efficiency of the drilling program.

More specifically, the Planning Committee is responsible (a) for long term planning on the order of 5 to 10 years utilizing input from COSOD-type conferences and thematic panel input; (b) for developing a general science plan and general track of the drilling vessel about four years in advance of drilling; (c) for fostering communications among and between the general community, the panels, the Science Operator, the Wireline Logging Contractor and itself; (d) for soliciting, monitoring, and coordinating the evaluation of drilling proposals; and (e) for maintaining a 12 to 18 month scientific plan and for drafting a scientific drilling program at the Planning Committee Annual Meeting to be incorporated into the Program Plan for the next fiscal year.

3.2 Mandate. The Planning Committee is responsible for the mandates of the various panels and planning 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 at intervals determined by long-term science plans for ODP. PCOM, through the JOIDES Office, assigns proposals to thematic panels, DPGs and, if relevant, to service panels, for review. PCOM sets the scientific objectives of the proposals into final priority after they are reviewed by the panels. The Planning Committee nominates chief scientists to the Science Operator, who ultimately chooses them.

PCOM periodically reviews the JOIDES 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 detailed planning groups, *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 the panels and active DPGs 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. 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. The chief scientists of the Science Operator and Wireline Logging Services Contractor, the JOI program director 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 November, April and August, based on the timetable for producing the ODP Program Plan. Robert's Rules 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 and Wireline Logging Services Contractor institutions. The term of office is normally two years.

4. Thematic Panels

4.1 General Purpose. Thematic Panels are mainly, but not exclusively, process orientated. They are established by the Planning Committee to develop scientific drilling objectives based on COSOD-type conferences. The Thematic Panels play an important role in defining the long-term scientific objectives of ocean drilling.

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 including size and balance of expertise. Panelists will serve three 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.

4.2 Specific Responsibilities. Each thematic panel will be responsible for planning the drilling of sites at the following levels:

(a) Long-range identification of objectives and problems that are best solved by ocean drilling;

(b) Review proposals submitted to JOIDES, followed by written evaluations to PCOM for each proposal reviewed;

(c) Make recommendations for necessary site surveys needed to achieve the scientific objectives of a traget area;

(d) Make recommendations to PCOM for establishing Detailed Planning Groups for further developing drilling plans for specific target themes and/or regions;

(e) Advise the Planning Committee on the selection of possible co-chief scientists;

(f) Provide advice to PCOM on requirements for technical drilling operations, downhole measurements, and shipboard/shore-based sample handling (in consultation with the appropriate service panel, if necessary);

(g) Provide advice to PCOM on technical development needs required to achieve long-range scientific objectives.

4.2.1 In the course of the work specified in paragraph 4.2, the Thematic Panels will maintain the close contact with the appropriate DPGs and provide PCOM with written evaluations of the recommendations made by these planning groups.

4.2.2 Each Thematic 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.

4.2.3 The Thematic Panels will act as a means of disseminating and correlating information in the appropriate problem areas by:

(a) Monitoring the progress made by ODP cruise participants and other scientists on the results from shorebased research on samples; encouraging shore-based laboratory work on samples recovered through ODP drilling;

(b) Encouraging its members to contribute to 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;

(e) Providing input to PCOM for the summary of scientific achievements of ODP for inclusion in the ODP Program Plan.

4.3 Lithosphere Panel: Mandate

The Lithosphere Panel is concerned with the origin and evolution of oceanic crust and mantle. In particular, important areas of investigation are volcanic, metamorphic, hydrothermal, structural and alteration processes occurring in the ocean crust. Also of importance to the Lithosphere Panel are mantle-crust interactions, mantle dynamics and composition, and solid-earth geochemical cycles.

(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; aging of ocean lithosphere.

(c) Processes of mantle convection and melting and their relationship to basaltic rocks of the ocean basins. Mapping of mantle (geochemical) reservoirs and domains. Implications of solid earth geochemical cycles and fluxes of the global plate tectonic cycle. Mass balance problems.

4.4 Tectonics Panel: Mandate

Tectonics Panel is concerned with large-scale structural features and processes of deformation, including those active today at plate boundaries and those recorded in structures and sediments of former plate boundaries.

The Panel is also interested in the origin and evolution of large-scale constructional crustal features. The drilling-based tectonic studies that are evaluated and promoted by the Tectonics Panel fall into six groups, each listed below with some specific (but not exclusionary) examples:

(a) Passive (extensional) margins - rifting history, rift-drift evolution and associated igneous activity, structure and origin of continent-ocean boundary zones; structural symmetry/asymmetry of conjugate margins; passive margins in back-arc basins; structural variability along-strike; thermal and mechanical evolution; history of vertical crustal movements; post-rift subsidence, tectonism and sea-level history, their interrelations, and their effects on the sedimentary record; tectonic synchroneity.

(b) Sheared (translational) margins - deformational history including crustal extension, shortening and vertical movements; structure and evolution of continent-ocean boundary zones; effect of tectonics on syn-rift and post-rift sedimentary record.

(c) Active (convergent) margins - mechanics, kinematics, and mechanisms of deformation within accretionary wedges; thermal evolution and fluid flow; history of island-arc magmatism; sedimentation and deformation in fore-arc and back-arc basins; collision-associated deformation.

(d) Divergent oceanic plate margins - structural evolution of mid-ocean ridge axes along "normal" spreading segments; origin and evolution of ridge-axis discontinuities (small offsets, overlapping spreading centers, transform faults, etc.); tectonic segmentation along mid-ocean ridges; origin of structural/tectonic asymmetries across spreading centers and ridge-axis discontinuities.

(e) Origin and history of submarine plateaus, microcontinents, aseismic ridges, seamount chains, and other large-scale features constructed, fragmented, or deformed during ocean-basin evolution; history of vertical motion of these features and its relation to eustacy.

(f) Plate driving forces and sub-lithospheric structures and processes: Global stress measurements to evaluate plate-driving forces; global seismic network to monitor stress accumulation and release and; measurements of rates and magnitudes of strain at active plate margins and at deforming zones within plates.

4.5 Ocean History Panel: Mandate

The Ocean History Panel is concerned with the historical aspects of the sedimentary record in the oceans. Specifically included are:

(a) Long-term history and driving mechanisms of the evolution of the ocean, 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 effect on marine sedimentation and evolution of marine life.

(b) Short-term variability of the earth's ocean circulation and climate and their relationship to boundary conditions and external forcing.

(c) The processes and mechanisms of evolution of the marine biota.

(d) The biostratigraphic record and its relationship to chronostratigraphyt including radiometric dating, magnetostratigraphy, isotope and chemostratigraphy, lithostratigraphy and sequence stratigraphy.

4.6 Sedimentary and Geochemical Processes Panel: Mandate

This panel is concerned with marine sedimentation and diagenetic processes, origin and evolution of marine sediments and seawater chemistry, global sediment and geochemical mass balances, hydrothermal processes in sedimented regions.

Specifically included are:

(a) Sedimentary processes, facies and physical properties - The sedimentary processes of terrigenous, biogenic, volcanogenic and chemical sediments; sedimentation and tectonics, e.g. evolution of submarine fans, and evolution of basins; factors controlling the nature of sedimentary facies; the origin of unconformities, disconformaties, hiatuses and sedimentary cycles; slope stability and redeposition and; physical properties of sediments.

(b) Organic and inorganic sedimentary geochemistry and diagenesis - The rates and nature of early to late diagenetic processes; the evolution of sediment to rocks; geochemistry of interstitial and formation waters; petrology, mineralogy, magnetic and other physical properties, and geochemistry of diagenetic phases of bulk sediments; and chemical paleoceanography.

(c) Temporal and spatial global mass balances of sediments and cycling of elements - How much and what types of sediments being subducted; relationship of sediments to tectonic and paleoceanographic processes such as sea level fluctuations and anoxic events; unconformities and disconformities; the carbon, sulfur and phosphorus cycles; marine evaporites in early rifting systems and evaporite giants.

(d) Fluid circulation and geochemical budgets - Magnitudes and rates and plumbing systems of gravity and tectonically driven circulation in passive and active continental margins; chemical fluxes, biological activity, physical, mineralogical and geochemical alteration of margin sediments induced by fluid flow; interaction between submarine hydrothermal fluids and sediments, mineralogy, petrology, physical and

geochemical properties of the hydrothermally altered sediments, and the geochemical evolution of the hydrothermal fluids; the origin and distribution of base metal deposits in continental margins and sedimented hydrothermal systems.

(e) The aging of the oceanic crusts - Low to moderate temperature alteration of oceanic crust; rates and types of reactions and associated chemical fluxes; changes in physical properties and fluid circulation with age.

5. Technology and Engineering Development Committee: Mandate

The Technology and Engineering Development Committee (TEDCOM) is responsible for ensuring that the proper drilling tools/techniques are available to meet the objectives of ODP drilling targets, especially those for achieving highly-ranked objectives identified in ODP long-range planning.

TEDCOM identifies, within a proper time frame and within budgetary constraints, the new drilling tools/techniques to be developed, helps JOI and the Science Operator write RFPs for engineering firms which lead to the development of the tools/techniques, and monitors the progress of their development.

Members of the TEDCOM are engineers nominated by PCOM. Liaison should be maintained between TEDCOM and the Downhole Measurements Panel. An ODP/TAMU engineer is assigned to act as Science Operator liaison with TEDCOM.

6. Detailed Planning Groups: Mandate

6.1 General Purpose. Detailed Planning Groups are short-lived planning groups which may be created by the Planning Committee, in response to requests by the Thematic Panels or by the Planning Committee itself, for more intensive study of certain aspects of planning that may arise. The Detailed Planning Groups will be held to the minimum necessary membership and travel expenses. DPGs provide written documents to those thematic panel(s) specified by PCOM. The DPG documents are transmitted to PCOM with the written evaluation of the appropriate thematic panel.

6.2 Structure of Detailed Planning Groups.

The Detailed Planning Groups are responsible for:

(a) Helping Thematic Panels to translate their broad thematic programs and highly-ranked ODP proposals into concrete drilling plans;

(b) Recommending integrated drilling programs for their assigned topics and regions of interest;

(c) Advising on regional and site surveys needed for future drilling;

(d) Preparing drilling prospectuses which synthesize all thematic and site survey input.

6.3 Membership. PCOM chooses DPG members for their expertise and experience with respect to the assigned thematic topics and in regions where these topics can be addressed. Members are recommended by the thematic panels and by PCOM and are appointed by PCOM or by the PCOM Chairman if necessary. The chairmen are appointed by PCOM.

The DPGs are composed of a number of members from U.S. institutions, and should maintain full representation, if possible, from the non-U.S. JOIDES institutions. A maximum number of 16 members is suggested.

Active DPGs meet at the request of PCOM as frequently as required by ship scheduling and routing. PCOM establishes liaison between standing DPGs and Thematic Panels by the appointment of non-voting liaisons.

7. Service Panels

7.1 General Purpose. Service Panels provide advice and services to the JOIDES Advisory Structure, 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 can respond to specific requests from the Science Operator, the Wireline Logging Contractor, or JOIDES panels, but in all cases, must report their findings to the Planning Committee as well. When recommendations from the service panels involve fiscal decisions or major programatic changes, these must be channeled through PCOM.

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, including representation from the non-U.S. JOIDES institutions, under review.

7.2 Site Survey Panel: Mandate

7.2.1 General Purpose. 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.

7.2.2 Mandate. The Site Survey Panel is mandated to:

(a) Review site survey data packages prepared by the ODP Site Survey Databank and to make recommendations as to their adequacy to the Planning Committee in light of the needs defined in mature proposals of the Detailed Plannign Groups and thematic panels;

(b) Identify data gaps in proposed future drilling areas and to recommend appropriate action to ensure that either 1) sufficient site survey information is available for pinpointing specific

drilling targets and for interpretation of drilling results, or 2) that sites not be drilled;

(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 Databank.

7.2.3 Liaison. The Panel maintains liaison with the ODP Site Survey Data Bank Manager and the non-U.S. liaison at the JOIDES Office, who both attend SSP meetings.

7.3 Pollution Prevention and Safety Panel: Mandate

7.3.1 General Purpose. 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.

7.3.2 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: (1) site approval, (2) lack of approval, or (3) 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.

7.3.3 Liaison. The Pollution Prevention and Safety Panel maintains liaison with the Site Survey Panel, and a designated SSP member attends its meetings. A representative from the Science Operator also attends the meetings. The Planning Committee Chairman is a non-voting member of the Panel and normally attends meetings.

7.4 Information Handling Panel: Mandate

7.4.1 General Purpose. The general purpose of the Information Handling Panel is to provide information and advice to the Planning Committee and the Ocean Drilling Program 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.

7.4.2 Mandate. The Information Handling Panel is mandated to advise PCOM on:

(a) Types of publications to be produced; publication formats; schedules and deadlines; publications policy and goals of the ODP publications program;

(b) The operation of the core repositories; curatorial policy; filling of sample requests; curatorial data management; long-term goals for the preservation of the core materials and other physical samples obtained by ODP and DSDP; and establishment and operation of the various micropaleontology reference centers;

(c) The types and contents of the databases to be maintained by ODP; treatment of raw data; establishment of uniform procedures and standards for data handling and processing; structure, philosophy and goals of the information systems produced by the program; and management of databases, information systems and data centers. This last topic also includes coordination between various data centers established by ODP and those for DSDP archives;

(d) 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) Shipboard and shore-based computer facilities, equipment and procedures; software development; data collection techniques; and meeting the computational needs of shipboard and shore-based scientists, as well as providing access to data bases for all interested parties. Input from the Shipboard Measurements Panel on these issues, if necessary, should be reviewed;

(f) Long-term preservation of the raw data generated by ODP and DSDP; preservation of all past records bearing on sample history; and preservation of any other records of the program which might benefit future workers;

(g) 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.

7.5 Downhole Measurements Panel: Mandate

7.5.1 General Purpose. The general purpose of the Downhole Measurements Panel is to advise JOIDES on methods and techniques for determining 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).

7.5.2 Mandate. 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 PCOM on the the scientific desirability and technical feasibility of proposed programs;

(d) Monitor progress reports, results, tools and techniques from U.S. and international downhole instrumentation development groups;

(e) Solicit and expedite new logging capabilities and experiments;

(f) Evaluate new technology and recommend future measurement directions.

7.5.3 Membership. 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.

7.6 Shipboard Measurements Panel: Mandate

7.6.1 General Purpose. The Shipboard Measurements Panel is concerned with the inventory, operation, condition of scientific instrumentation on board the JOIDES RESOLUTION and data handling for onboard measurements.

7.6.2 Mandate. The objectives of the panel are:

(a) To provide expert advice and make recommendations to the Planning Committee regarding the inventory and utilization of scientific equipment on the drillship;

(b) To represent the interests of the ODP user community with respect to the scientific procedures and equipment on the RESOLUTION;

(c) To direct panel activities, via PCOM, toward acquiring and maintaining the best possible shipboard scientific capability within the constraints of the ODP budget.

The panel is concerned with general types of instrumentation and issues:

(a) Underway geophysical equipment;

(b) Equipment for handling core samples;

(c) Physical properties, paleomagnetics and geotechnical measurements;

(d) Petrological, mineralogical, sedimentological, biological, organic and inorganic geochemistry analysis and equipment for performing these measurements such as microscopes;

(e) Computers managing data from shipboard equipment (in consultation, if necessary, with the Information Handling Panel);

(f) Utilization of laboratory space on the RESOLUTION.

7.6.3 Membership. The panel will consist of members from U.S. institutions and from non-U.S.JOIDES members or consortiums. Representation from all non-U.S members should be maintained, if possible. The number of members should not exceed 15 and these should be appointed so as to represent the range of disciplines within the scope of the panel's activities.

Ideally, a majority of those serving on the panel should have participated on a cruise of the RESOLUTION.

7.6.4 Liaison. The SMP must maintain continuing liaison with the Planning Committee, the Science Operations of ODP/TAMU (in consultation with ODP/TAMU marine technicians and engineers), the Information Handling Panel, and the Downhole Measurements Panel. Ex-officio liaison representatives of these panels and organizations should attend each meeting.

7.6.5 Scheduling. As the SMP will normally not deal with time-critical issues, two meetings per year should suffice. Meetings at ODP/TAMU in College Station at regular intervals is recommended and occasional meetings that include a visit to the RESOLUTION would be valuable.

Ratified by EXCOM: 15 September 1988
Adopted by JOI Board of Governors: 15 September 1988

(9/15/88)

TERMS OF REFERENCE FOR

JOIDES Executive Committee for the Ocean Drilling Program (ODP)

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 membership of this committee is now comprised of one representative of each of the four non-U.S. countries or consortia with an active Memoranda of Understanding (MOU) with the National Science Foundation (NSF) [Canada, European Science Foundation, France, Federal Republic of Germany, Japan, and the United Kingdom] and one representative of each of the ten 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 at San Diego, Texas A&M University, Woods Hole Oceanographic Institution and Columbia University]. The appointment of additional members will be determined by the JOI 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 three non-U.S. members. A quorum shall constitute two-thirds of the Executive Committee. 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 with full authority to act for him or her in his or her absence.

6. The Executive 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 and a Budget Committee shall be established.

7. The Executive Committee, and all subcommittees thereto, shall keep written records of their proceedings.

8. Members of the Executive Committee, and members of subcommittees duly appointed thereby, while acting within the terms of reference, shall be indemnified, and held harmless by JOI, Inc. 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 and adoption by JOI, Inc. will supercede all previous JOIDES agreements.

Ratified by EXCOM: 15 September 1988
Adopted by JOI Board of Governors: 15 September 1988

(9/15/88)

TERMS OF REFERENCE FOR

JOIDES Budget Committee for the Ocean Drilling Program (ODP)

1. General Purpose. The Budget Committee (BCOM) provides JOIDES overview and first review of the ODP Program Plan and budgets therein.

   The ODP Program Plan is compiled by JOI, Inc., the ODP prime contractor. In it, a one-year Science Plan, developed by PCOM and the JOIDES advisory structure, is presented. Budgets in the Program Plan include those of the Science Operator and Wireline Logging Contractor. The Program Plan also includes a list of scientific and technological development needs, including estimated costs, which have been reviewd by the JOIDES Science Advisory Structure and which are required for successful completion of the Plan.

   The ODP Program Plan (including budgets) is then submitted in draft form to the National Science Foundation (NSF). BCOM meets as occasion demands, according to a program plan and budget timetable, in order to provide continuous guidance in developing the final version of the budget in the program plan. The committee consults with JOI, Inc. and the subcontractors if budget questions or problems arise. BCOM reports to EXCOM at its spring meeting (the joint EXCOM/ODP Council meeting). At that time the full EXCOM approves the final ODP Program Plan and a detailed budget for the upcoming fiscal year. BCOM's written reports are also submitted to PCOM.

2. Mandate. The Budget Committee is to review the ODP Program Plan and budgets therein and evaluate how well the program plan and budget address the priorities which have been defined by EXCOM and PCOM. This review is to be reported to EXCOM and PCOM.

   BCOM also acts on behalf of EXCOM on budget matters that EXCOM delegates to it. BCOM can request that liaisons from the ODP subcontractors, JOI or NSF attend its meetings.

3. Meetings. BCOM meets in accordance with a schedule for developing the ODP Program Plan (Appendix 1). Up to three meetings per fiscal year may be necessary to provide input on the ODP Program Plan and Budget. Meetings may be required in the entire phase of developing the budget and program plan.

4. Membership. BCOM consists of five members: three EXCOM members (2 non-U.S. and 1 U.S.) and two PCOM members, one of whom is the present PCOM Chairman. The second PCOM member is a U.S. member, ideally the immediate past PCOM Chairman. A quorum shall consist of two of the EXCOM members and one of the PCOM members. BCOM members are appointed by EXCOM. EXCOM or PCOM members representing JOIDES institutions with major ODP subcontracts will not be appointed.

Ratified by EXCOM: 15 September 1988
Adopted by JOI Board of Governors: 15 September 1988

JOIDES Budget Committee
for the Ocean Drilling Program

Appendix 1

Time table for developing Budget and Program Plan:

Aug/Sep	EXCOM advice to PCOM
Dec	PCOM plan & advice to JOI/EXCOM
Jan 5	NSF budget to JOI/JOIDES
Feb 2	JOI outline to NSF/JOIDES budget committee (BCOM) If no problems mail to EXCOM, if problems BCOM proposes solution
Feb	EXCOM meeting (if necessary)
April 1	JOI plan for NSF administrative review (includes JOIDES suggestions, if required)
April 7	JOI Revisions
April 15	JOI plan and NSF concerns to JOIDES BCOM, EXCOM and ODP council (Note: This is a draft program plan)
May 10	JOI review with JOIDES BCOM*
May 15	EXCOM/ODP Council meeting: JOI/BCOM give their input to EXCOM, EXCOM gives advice to NSF/JOI, ODP Council is consulted
July 15	NSF final review of revised JOI plan
July 22	JOI final modifications (if necessary)
Aug 1	NSF executes contract, JOI informs EXCOM and ODP Council (justifies changes), JOI informs PCOM
Oct 1	Start of contract year

* Meeting Scheduled only as needed.