JOIDES

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JOIDES Planning Committee

Austin, January 1985

CHECKLIST OF PAPERS

A. Meeting notice, agenda and papers for the PCOM meeting.

B. Letter from the PCOM Chairman regarding ship schedules.

C. Information papers.

D. Panel minutes relating to the Hawaii PCOM meeting (for information).

The following message was received today from NSF.

Memo. to Director,NSF on 31st December 1984.

Canada will become a full member of the Ocean Drilling Program. The announcement was made jointly on December 28, 1984 by the Honourable Robert Layton, Minister of State for Mines, and the Honourable Tom Siddon, Minister of State for Science and Technology.
In the Press Release, the Ministers summarised the importance of the Program as follows:
"Canada's decision to take part in ODP reflects the Governmnet's stated intention to add new vigour and depth to relations with the U.S. and enhances the Government's role in international relations, research and development, and the adoption of innovative technologies for industry."

31st December 1984
JOIDES Office,
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ERRATA for DRAFT MINUTES

JOIDES Planning Committee Meeting
21-23 May 1984
Paris, France

Page	Paragraph	Line	Instruction
14	5	1	Change vote from 8 for; 6 against; 1 abstain to read 8 for; 1 against; 6 abstain.
16	2	1	Change R. Buffler, TAMU to read R. Buffler, UT.

JOIDES PLANNING COMMITTEE MEETING

Hawaii Volcano National Park, Hawaii

24-27 September 1984

ACTION ITEMS

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8	PCOM Chairman	Possibility of convening an emergency meeting of PCOM
18	JOIDES Office	Invitation to M. Ball (U.S.G.S.) to join Pollution Prevention & Safety Panel
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22	PCOM Chairman	Baffin Bay/Labrador Sea proposals
30	PCOM Chairman	Formulation of policy concerning the roles and workloads of the IPOD Data Bank staff
31	PCOM Chairman	Review of Data Bank staff and workload
31	JOIDES Office	Incidental expenses of panel chairmen
32	R. Buffler/ JOIDES Office	Confirmation of date and location of next PCOM meeting in Austin, Texas.

JOIDES Planning Committee Meeting
Hawaii Volcano National Park, Hawaii
25-27 September 1984

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Appendix H	Summary of 11-12 June LITH meeting
Appendix I	Baffin Bay Site data
Appendix J	Guidelines for IPOD Data Bank
Appendix K	Site Survey Staffing at IPOD Data Bank
Appendix L	Functions of SSP

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MINUTES

JOIDES Planning Committee Meeting
25-27 September 1984
Hawaii Volcano National Park, Hawaii

PCOM Members

J. Honnorez, Chairman (RSMAS, University of Miami)
J. Aubouin (France)
H. Beiersdorf (Federal Republic of Germany)
W. Bryant (Texas A & M University)
R. Buffler (University of Texas)
J. Cann (United Kingdom)
D. Hayes (Lamont-Doherty Geological Observatory)
K. Hsü (ESF Consortium)
M. Kastner (Scripps Institution of Oceanography)
K. Kobayashi (Japan)
R. Larson (University of Rhode Island, PCOM Chairman Designate)
J. Malpas (Canada)
R. McDuff (University of Washington)
R. Moberly (University of Hawaii)
H. Schrader (Oregon State University)
R. von Herzen (Woods Hole Oceanographic Institution)

Liaison Observers and Guests

R. Anderson (LDGO, Logging Services Contractor)
D. Appleman (Smithsonian Inst., Chairman Information Handling Panel)
G. Brass (NSF)
L. Carter (New Zealand)
J. Clotworthy (JOI)
L. Garrison (ODP/TAMU Science Operator)
M. de Aguiar Gorini (Brazil)
C. Helsley (University of Hawaii)
R. Merrill (ODP/TAMU)
R. Price (Australia)
D. Rucker (JOI)
S. P. Srivastava (Canada)

JOIDES Office Liaison

D. Keith (University of Rhode Island)
D. Marszalek (RSMAS, Miami)

A. Mayer (University of Rhode Island)

485 OPENING REMARKS AND BUSINESS

C. Helsley (Director, HIG) welcomed PCOM members, observers, and guests to Hawaii.

The preliminary agenda was adopted after the addition of the following items for discussion: future COSOD meeting; site survey and IPOD Data Bank; and effectiveness of liaisons to ODP advisory panels.

Corrections to the minutes of the 21-23 May PCOM meeting in Paris, France:
-p. 14, item 475, motion (change vote from 8 for; 6 against; 1 abstain to read 8 for; 1 against; 6 abstain).
-p. 16, item 477 (change R. Buffler, TAMU, to read R. Buffler, UT).

The minutes were unanimously adopted as ammended by a motion introduced by R. Buffler (UT) and seconded by W. Bryant (TAMU).

486 OCEAN DRILLING PROGRAM REPORT

L. Garrison (ODP) reported.

Personnel:

R. Kidd has accepted the position of ODP Manager for Science Operations, beginning in November of this year. He will be assisted by A. Wright-Meyer (Asst. Mgr. Sci. Op.).

ODP Staff Scientists are:
-A. Palmer (micropaleontologist, Princeton Univ.)
-E. Taylor (physical properties, TAMU)
-C. Auroux (tectonics, Univ. Nice, France)
-A. Adamson (alteration petrology, UK)
-B. Clement (paleomagnetism, LDGO)
-G. Haase (downhole measurement, FRG)
-L. Gamboa (seismic stratigraphy,LDGO)

Three or 4 more staff scientists will be hired.

Marine technician, administration and other support positions have been filled. Publications staff will be hired when needed. About 80% of all non-science positions have been filled.

Key personnel and project organization are shown on the chart (Appendix A).

Sedco/BP 471 Conversion:

Conversion is proceeding on schedule. The work is being done by M & M Shipyards of Pascagoula, MS. Drydock is scheduled for Oct. and Nov.

Change orders are not anticipated because the conversion specifications are precise and consist of more than 200 engineering drawings and a voluminous text. Construction is expected to be completed by 1 November; instrumentation is to be installed during November.

Sea trials and two shakedown cruises will begin in early December. Two cruises are needed to train the two crews. The ship will then proceed to Galveston in late December. The priorities during the shakedown cruises are:

1. train the crews
2. test equipment
3. attempt to do some science in Gulf of Mexico - if convenient.

Engineering requirements will be tested by drilling two holes, a hole in about 1000 m water depth and another in about 3000 m water depth.

Project Plans

TAMU's safety review panel met 30-31 Aug. to review ODP Legs 101, 102, and 103.

Leg 101, Bahamas: All sites approved except one (Eleuthera Fan). Staffing is about 75% completed. W. Schlager and J. Austin are co-chief scientists. Clearance from the Bahamian government is expected this week.

Leg 102, ENA-3 (603), 417D, 418A, 395A: No safety review necessary. Co-chief scientists are J. Schlee and M. Salisbury.

Leg 103, Galicia: The Galicia Bank sites were approved. G. Boillot will be one of the co-chief scientists.

Status of other legs: O. Eldholm and J. Thiede are co-chiefs for Leg 104, Norwegian Sea. Clearances will be requested in the near future via the U.S. State Department.

Leg 105 sites in Baffin Bay were presented to the safety panel by F. Gradstein; Labrador Sea sites will probably be reviewed in April. Of the 3 Baffin Bay sites reviewed, BB-1 was approved, BB-2 not approved, BB-3 not approved but 2 alternate sites (BB-3A and BB-3B) were recommended by the safety committee as substitutes for BB-3.

Ship track/schedule:

The port call at Bremerhaven for Leg 103 indicated on the schedule (Appendix B) may be changed to Hamburg. Otherwise the schedule is accurate.

Day rates:

Day rates for the SEDCO/BP 471 are:

Conversion $7,849.
Shakedown $16,317.

Fuel est. $7500.
Catering $21./day/person

	RISERLESS	RISER
Drilling	$34,167.	$37,343.
Cruising	33,167.	36,343.
Standby	32,167.	34,343.
Inactive	22,567.	23,243.

Drilling limits:

In response to a request of the PCOM at the previous meeting, the following data on drilling limits are presented:

Working drill string - 5 1/2" and 5" diameter pipe to 30,000 ft.
Practical water depth limit - 27,000 ft.
Re-entry water depth limit - 20,000 ft.
Derrick capability - 600 T

Twenty-seven thousand ft. is the effective operating depth of the navigation beacons. Availability of a GPS (global positioning system), however, would make the use of beacons obsolete.

SEDCO has been purchased by Schlumberger, but the SEDCO management team is expected to remain as is for at least two years.

ODP/TAMU will provide the following on request:

a) Downhole tool report
b) Preliminary drilling time estimates (will be available as a technical report in about 1 month).

Cost overrun:

Details of conversion costs are given in the minutes of the August 28-29, 1984 Interface Working Group (Appendix C).

Some cost saving can be achieved by trimming various components of the program. The major influence on the ODP budget, however, is the number of full partners in ODP.

In summary, ODP will have a $1.5 M shortfall in FY 1985. This is not viewed as a serious problem. The major effects would be to remove some contingency funds, and to defer the purchase of shore based equipment.

Discussion:

R. Larson (URI) - How will NSF save $1.3 M? Will half of that amount come from USSAC funds, thus affecting the U.S. science program? J. Honnorez (PCOM Chairman) - The minutes of the Interface Working Group list how the savings will be made.

R. von Herzen (WHOI) - PCOM should make contingency plans if a sufficient number of partner countries do not join ODP as full members and the budget shortfall becomes serious. J. Honnorez - Such plans are not realistic until the exact number of partners is known.

R. Moberly (HIG) - The U.K., Canada and the ESF will decide before the next PCOM meeting.

C. Helsley (HIG) - There are three alternatives to consider, if two additional members join, the U.S. will pay the difference in the cost of the program. If that membership is not realized then, either cancel the drilling program, or pay the difference out of the U.S. science program.

A general consensus among the PCOM members resulted in a motion introduced by D. Hayes (LDGO) and seconded by R. Larson (URI).

MOTION: Move that an emergency meeting of the Planning Committee be called if between now and January two or three candidates for full membership decide not to join the Ocean Drilling Program. If the membership remains uncertain, then the issue will be reviewed at the January PCOM meeting.

VOTE: 14 for; 0 against; 0 abstain.

Bare rock drilling:

L. Garrison continued the ODP report.

An engineering meeting was held to discuss 3 main topics:

1. how to define the terrain required for bare rock drilling
2. how to "mark a spot" on the site survey
3. how the ship can return to the exact spot.

M. Purdy's group defined the bare rock drilling conditions as 2500-4000 m initial water depth (Kane FZ) and 3-6 km depth later in the program; penetration 0.5 to 2 km; sediment cover 0-40 m; terrain with less than 20^{o} slope and up to 1 m random relief. The terrain must be specified before the "guide base" can be designed.

A spot will be marked during the SEAMARC survey in January by placing a beacon with a frequency that will be recorded on the survey and the reentry transponder. An imaging sonar system provided by Mesotech-Canada will image the bottom during placement of the guide base. An ODP engineer will attend the next Tectonics Panel meeting to advise on bare rock drilling.

R. Merrill (ODP Manager of Science Services) continued the ODP report.

ODP/TAMU has assumed managership of the DSDP-ODP repositories, effective 1 October. Management and personnel are shown in the diagram below:

PCOM

R. Merrill (curator)

C. Mato (asst. curator)

West Coast Rep.
G. Bode

Gulf Coast Rep.
(FY 86)

East Coast Rep.
S. Asquith

G. Bode will be in charge of day-to-day curations; R. Merrill will be contacted if problems arise. The sample policy has been revised, reviewed by NSF, and appears in the October issue of the JOIDES Journal. The control over sample accounting has been tightened and the distribution policy has been broadened. In cases where duplicate core materials are available, some may be made available to educators.

Discussion:

J. Honnorez - Will frozen samples for organic geochemical studies be maintained? R. Merrill - Yes, although they may be stored in temporary facilities until ODP/TAMU freezers are ready.

M. Kastner (SIO) - Is this also true for samples retained for pore water studies? R. Merrill - Yes.

Shipboard computer system:

R. Merrill continued.

(A series of view graphs were shown, illustrating the computer system available on the SEDCO/BP 471. They are reproduced here as Appendix D.)

Discussion:

H. Schrader (OSU) - Is the system compatible with different software packages and will scientist spend a significant amount of time learning the system before they can use it? R. Merrill - The system can use a variety of software. It is designed for all user levels. We recognize that some scientists will not use it.

H. Schrader - What is the cost? R. Merrill - The cost of the entire system is $1.4 m. It is state-of-the-art and will remain useful over the 10-year duration of the program.

Publications:

Eighty-one volumes of the Initial Reports have been shipped to date. Vol. 80 will be shipped in mid-October. Vols. 82-87 are FY 1985 publications. Vols. 88-93 are FY 1986 publications.

DSDP will have completed all remaining tasks in FY 1987.

A delay of 1 year is being considered to save the project about $350 K. NSF plans to make publication funds available as they are needed, rather than commiting all funds at the beginning of the fiscal year.

Discussion:

J. Aubouin (France) - The IPOD contract included publication of the drilling results; this condition must be satisfied before the new program can begin. Since the cost of the publications is equivalent to a few days of drilling maybe it would be preferable to delay drilling by that amount of time rather than to delay the publication of past drilling results. What is the maximum publication delay anticipated? J. Clotworthy (JOI) - The maximum delay is one year, but it is likely to be less than a year.

Motion introduced by J. Aubouin, seconded by M. Kastner (SIO):

All IPOD/DSDP Initial Reports are to be published. Publication of completed volumes should not be delayed for more than one year.

(Ammended by the proposers to read:)

MOTION: All IPOD/DSDP Initial Reports are to be published.

VOTE: 14 for; 0 against; 0 abstain.

487 WIRELINE LOGGING SERVICES CONTRACTOR REPORT

R. Anderson reported.

Wireline logging operations are on schedule and will be ready for logging on ODP Leg 101.

A significant savings on tool insurance costs has been realized. During DSDP, log tool insurance was covered by the Univ. of California. This situation does not exist for LDGO and Columbia University, so an insurance bid was solicited from Lloyds of London. The cost was astronomical. Schlumberger then stepped in with an insurance coverage used for land-based small logging outfits; the cost is only $3,000./yr.

Tools offered to ODP by Schlumberger include:

1. standard suite of log tools
2. a nuclear array tool (gamma ray source, compensated neutron tool)
3. a well seismic tool (vertical profile)
4. tracer for flow rates (geiger counter).

The subcontract with U.S.G.S. is being shaped in part at Stanford University because M. Zobach has taken a position with Stanford.

Digital bore hole televiewer tools have been ordered from WDK of Germany.

The borehole televiewers and 12 channel seismic tools have been land tested in a 700 ft. deep, 6" diameter hole.

Software for the display and analysis of Schlumberger logs is in place at LDGO.

We are seeking a hole suitable for calibrating the tools against Schlumberger data.

Wireline heave compensator:

Design and performance characteristics of a wave motion compensator are detailed in the handout (Appendix E). Total cost to purchase and assemble the unit is $106,400. The problem is to sense and compensate for motion. Three options for detection of motion are:

1. accelerometer
2. altimeter
3. pressure.

The system we envision for use on board the drillship is based on a sheave-wheel system controlled by a hydraulic pump. The motion sensor will probably be an accelerometer. The piston will have a 10 ft. stroke.

Wireline packer:

The wireline packer is used to sample fluid pressures and pore waters. The packer is lowered into the drill hole, a series of collars are inflated to seal off sections of the tool within the hole, fluids are pumped out, and formation fluids are sampled and delivered to the surface in pressurized teflon coated sample containers.

Problems to be overcome include:

1. size (3 5/8" dia.)
2. licensing
3. time (to be operational by the Barbados Leg 109)

One of the key components is a small 1.5 hp motor to operate a pump at 5000 m depth. A system is available from Amoco (Appendix F). It will have to be miniaturized to fit ODP hole size.

Budget:

FY 1985 funds are for operations, not for tool purchases.

Seagoing staff:

We intend to have a "wireline scientist" on each leg, as well as the Schlumberger engineer and a LDGO engineer.

Discussion:

R. von Herzen (WHOI) - How much additional ship time is required for the tools which become part of the standard tool package (e.g. the vertical seismic profiles)? R. Anderson - The times for the various tools are given in the minutes of the recent Downhole Measurements Service Panel report.

G. Brass reported for NSF.

ODP membership:

Not much has changed since the Paris PCOM meeting.

United Kingdom - J. Bowman (U.K. EXCOM representative) recently called NSF and indicated that private industry is still seeking tax advantages which would affect some of the contribution to ODP. Industry is reluctant to contribute without some government accommadations.

Canada - Some action is expected after the recently elected government gets settled in office.

ESF - The ESF consortium now consists of the Netherlands, Italy, Switzerland, Norway, Sweden, and Spain. It will be difficult to increase membership further.

Discussion:

R. von Herzen (WHOI) - Are NSF funds available for downhole measurements experiments? G. Brass - Yes. USSAC oversees such work and at least two proposals relating to ODP are under review.

J. Honnorez - NSF has expressed concern that too many JOIDES meetings are being held outside of the U.S. Of 35 meetings between October 1983 and November 1984, only 13 were held outside the U.S. Two were in Europe (40% of panel membership was European), and 3 were the Mediterranean Working Group (80% European membership).

489 JOINT OCEANOGRAPHIC INSTITUTIONS INC. REPORT

J. Clotworthy (JOI Vice President) reported.

Contract activities:

The RSMAS-Univ. of Miami JOIDES Office contract is being phased out and a new contract is in place with URI. The JOIDES OFfice moves to URI effective 1 October.

An administrative decision has been made to extend the LDGO Data Bank contract for a period of 6 months. It can be extended for a longer period.

Project management:

Monthly reports to NSF are behind. The form and substance of such reports has been agreed upon by JOI and NSF, so reports will be more timely from now on. The June report has been distributed to the PCOM; the July report was sent to NSF last week. We hope to be on schedule with the reports to NSF by December.

The minutes of the last Interface Working Group meeting have been distributed to the Executive Committee and are available at this meeting.

Discussion:

J. Honnorez - What is the status of the site survey RFP for the Chile Triple Junction? J. Clotworthy - Two responses to the RFP were received; both were considered unacceptable. Comments for improving the proposals were sent out, and institutions were encouraged to submit a proposal to NSF for a grant for regional surveys in the area.

D. Hayes (LDGO) - USSAC actions have effectively removed the Chile Triple Junction from the list of potential ODP legs. JOIDES appears to be hostage to the USSAC.

J. Honnorez - Are site survey funds available for 1984-85? J. Clotworthy - No site surveys have been identified for that time period. JOI cannot request the funds until the surveys have been identified.

D. Hayes - Site surveys should be 5 years ahead of drilling.

J. Aubouin (France) - The problem is that JOIDES lacks medium range planning. The PCOM is responsible for long range and medium range planning.

R. Buffler (UT) - What is the USSAC mandate? G. Brass (NSF) - USSAC is a U.S. panel and should not be discussed here. However, the Committee is responsible for U.S.:

1. downhole measurements
2. funding U.S. participation cruises

3. production and evaluation of site surveys.
4. other U.S. planning activities

C. Helsley (HIG EXCOM rep.) - PCOM should be reminded of the criticism in the "Bally report." More site surveys are needed so that drilling can be more selective. An excess of surveyed areas are needed.

J. Malpas (Canada) - Time as well as cost should be considered. Long lead time is essential if situations like the Chile Triple Junction are to be avoided.

J. Cann (U.K.) - PCOM has produced a general shiptrack to 1991. What is required now from the PCOM is a menu of sites within those areas.

490 EXECUTIVE COMMITTEE REPORT

J. Honnorez (PCOM Liaison to EXCOM) reported on the 19-21 June 1984 meeting.

The EXCOM has requested that JOI formulate an ODP procurement protocol and distribute the document to all EXCOM members (J. Clotworthy remarked that it has been distributed).

Another item of interest to the PCOM is that JOI will record and distribute a record of how important budgetary decisions are reached.

EXCOM has requested that the JOIDES Office publish a list of ODP proposals in the JOIDES Journal. The initial list will appear in the October issue of the Journal (mailed 27 Sept. 1984).

To date the Office has received about 150 proposals and "ideas for drilling." The regional distributions of proposals is as follows:

39 Atlantic
10 Central and East Pacific
 3 Southern Oceans
19 West Pacific
50 Indian Ocean
17 Ideas
 4 Engineering and Technical

Copies have been sent to the IPOD Data Bank.

491 INFORMATION HANDLING PANEL REPORT

D. Appleman (IHP Chairman) reported on the 6-8 June meeting.

The IHP met on June 6-8, 1984, primarily to discuss publication policy and format for the Ocean Drilling Program. In attempting to prepare recommendations for the PCOM, the panel began by considering the strengths and weaknesses of the current DSDP/IPOD publications program. This publications scheme, consisting of a single published volume for each leg (the "Initial Report"), does a great job of keeping all the results of a particular leg together. It also ensures that the co-chief scientists maintain interest and control in the preparation of the reports. However, it hampers timely publication of significant results, since publication awaits the last paper received. It lumps site-specific and data compilation reports with the more interpretive, peer-reviewed sceintific papers. It has inflexible deadlines, hence cannot allow publication of significant work done after the deadline for a leg. Because it is totally leg-specific, it does not permit publication of syntheses involving data from many legs, or relevant papers by authors outside the shipboard party.

Based on information from interested scientists, the panel drew up a list of attributes desired in a publication scheme for the ODP, that should serve the needs of the shipboard scientific parties, the co-chief scientists, the outside scientific community of users of the results of the program, and the program operators and managers. The desirable attributes were prioritized, and various publication options were evaluated on how well they met all the priorities. Highest priority went to leg coherence (keeping all of the results of a given leg together); timeliness of publication; editorial scope (the ability to publish important results even when not tied to a particular leg); and editorial flexibility, so that good science need not be sacrificed to rigid deadlines.

After thorough discussion the panel recommended the following 3-part publications program.

1) A true Initial Report for each leg - Part A - containing the material ready at the post-cruise meeting, 8-10 months after the cruise. This hardbound volume would not require peer-review, would correspond with the front part of the present IR, and would appear 13-16 months post-curise. Early publication of this true Initial Report would remove the necessity for the present Initial Core Descriptions (ICDs).

2) A Scientific Report for each leg - Part B - containing the specialty chapters and scientific reports which form the back part of the present IR. This hardbound volume would appear 37-39 months post-cruise, like the present IRs. It would have two sections: peer-reviewed, interpretive scientific papers in one section; technical and data reports, usually not peer-reviewed, in the second section.

3) A Journal of Ocean Drilling, appearing perhaps quarterly, containing only peer-reviewed scientific articles. This is a critical component of the publications scheme, because it provides the important elements of flexibility, scope and timeliness which are lacking in the current publications. The Journal would publish significant scientific results of the program not tied to a specific leg; important results from a specific leg obtained after the deadline for the Part B Report for that leg; syntheses, symposia and reviews based on ODP and DSDP science.

The details of these proposed publications are given on pages 8-10 of our report. We feel that the 3-part publications scheme suggested here will come closest to satisfying the scientific goals of the ODP; we have also suggested priorities for the different components. If ODP proceeds as planned, the first Part A Initial Report volume could appear in May, 1986; the first Part B Scientific Report volume in April or May, 1988; and the first issue of the Journal in late 1987 or early 1988.

The panel also recommended immediate attention to coordination between data bases accumulated and managed by the ODP Science Operator at TAMU, and those accumulated and managed by the Logging Operator at LDGO, as well as relevant site-survey data.

Discussion:

K. Hsü (ESF) - Point of information: At the recent International Conference on Paleoceanography about 95% of the papers presented dealt with DSDP results. The majority of participants felt that a "Journal of Paleoceanography" was needed. Several commercial publishers expressed interest in such a journal focused on drilling results. AGU has decided to go ahead and publish the Journal; J. Kennett (URI) will organize the efforts.

H. Beiersdorf (FRG) - An ODP Journal would have an undesirable effect. It would enhance the perception that the ODP community is a "closed" community.

L. Garrison (ODP) - An ODP Journal can be viewed in the opposite sense - it would be a highly visible product of the ODP, and make the project more known to the community.

(The majority of PCOM members favored a two-part, A and B, publication of initial reports, but were against the idea of an ODP Journal).

The following motion resulted as introduced by J. Aubouin and seconded by K. Hsü:

<u>MOTION:</u> The Planning Committee recommends against publication of an ODP Journal.

VOTE: <u>12</u> for; <u>1</u> against; <u>1</u> abstain.

The following motion was introduced by R. Moberly and seconded by W. Bryant:

<u>MOTION:</u> Move that the recommendations of the IHP be accepted regarding publication, for each leg, of an Initial Report (Part A) to include a simple introduction, the site chapters with the ICD equivalents and a simple summary to appear about one year post-cruise and a scientific report (Part B) to appear three years post-cruise.

VOTE: <u>14</u> for; <u>0</u> against; <u>1</u> abstain.

492 POLLUTION PREVENTION AND SAFETY PANEL REPORT

J. Honnorez reported for PPSP.

L. Garrison has already presented the results of the 30-31 August safety panel meeting.

PPSP has lost two members, Folger and Thompson. G. Claypool (PPSP Chairman) has requested that M. Ball (U.S.G.S.) be approved as a panel member. His expertise is in the Caribbean-Bahamas region.

PCOM Consensus: M. Ball should be invited to become a member of the PPSP.

493 TECTONICS PANEL REPORT

J. Cann reported for the panel.

The panel will not meet again until after the next PCOM meeting. The potential drill sites for Legs 111-113 were ranked using a score of 1 to 10 for each of the drill sites. The three high priority sites are:

1) Peru = 7.7, highest priority, extent of subduction erosion through time
2) Chile Triple Junction = 7.1, subducting ridges, lower slope erosion, metamorphism, etc.
3) Barbados South = 6.8, LAF 7 is first priority, to assess rates of deformation.

A telex from J. Leggett (Tectonics Panel Chairman) summarizing the meeting was distributed to PCOM (Appendix G).

Discussion:

J. Cann - The Tectonics Panel recommends establishment of a Sunda-Banda Arc working group. Regional panel jurisdiction is not clear.

PCOM Consensus: A Sunda-Banda Arc Working Group would be part of a regional panel, not a thematic panel. Wait until after the Western Pacific Regional Panel meets before making a decision.

J. Cann - J. Leggett needs some guidance from the PCOM on when the ratings of the Indian Ocean proposals are due. R. Larson (URI) - The PCOM will begin in January to plan for Antarctic and Indian Ocean drilling. The Tectonics Panel should begin to review the proposals soon, by mail if necessary.

R. Moberly (HIG) - Panel chairmen will attend the January PCOM meeting in Austin, TX. They should present their ratings at that time.

494 LITHOSPHERE PANEL REPORT

R. McDuff reported on the 11-12 June meeting of the Lithosphere Panel.

The panel recommends:

1) Leg 111 - EPR 10^{o}-13^{o} N
2) Leg 112 - 504B
3) Leg 113 - 504B or EPR

The panel felt that it had insufficient information to rate the other drill sites.

EPR 10^{o}-13^{o} N was the first priority because it would serve as the "active hydrothermal natural laboratory." The minimum effort should be three 300 m deep holes. More details are given in the panel minutes (Appendix H).

Discussion:

J. Honnorez - Proposals do not yet exist for either EPR 10^{o}-13^{o} N or for 504B.

R. von Herzen (WHOI) - A working group should generate the proposal for EPR drilling.

H. Beiersdorf (FRG) - A proposal exists for the EPR. It is contained in the French "Blue Book" of ODP proposals.

J. Aubouin (France) - France could do more on the EPR with SEABEAM and a submersible. PCOM advice is needed.

R. von Herzen - EPR drilling will require new technology. Perhaps the objectives should be reconsidered.

M. Kastner (SIO) - ODP is a new project for which new technology is required. PCOM should encourage "new" type drilling such as the EPR.

R. Anderson (Logging Services) - Some high temperature logging tools are available now and more will become available over the next 2-3 years. Someone should make contact with the continental drilling program (Salton Sea drilling).

G. Brass (NSF) - I am forming a liaison with I. MacGregor (NSF, Continental Drilling). Hopefully, ODP can benefit from continental drilling expertise.

L. Garrison (ODP/TAMU) - If bare rock drilling is successful in the Atlantic on the Kane FZ, then it will probably be successful in the Pacific. The problem would then be what to do with the hole. PCOM should advise on this matter.

(R. McDuff continued with the Lithosphere Panel report.)

The Lithosphere Panel feels that it should have a liaison member with the Downhole Measurements Panel. None exists now and the panel recommends K. Becker. Also, J. Sclater has not yet attended a Lithosphere Panel meeting. Should he be replaced?

PCOM Consensus: The issue of panel membership and liaison will be taken up later.

495 SEDIMENTS AND OCEAN HISTORY PANEL REPORT

J. Honnorez reported that the panel members were contacted by telephone and asked to note potential drill sites for Legs 111-113. The SOHP priorities are:

1. NW Africa (Mesozoic) deep hole
2. Peru slope and transect
3. Ionian Sea

496 ATLANTIC REGIONAL PANEL REPORT

J. Honnorez attended the 10-15 September meeting in Grenoble, France and reported for the panel.

The Atlantic Panel heard presentations from the Mediterranean Working Group, the Caribbean Working Group, and from some proposal proponents.

The Caribbean Working Group recommended that Barbados drilling be expanded to include the Lesser Antilles and the Venezuela Basin.

The Mediterranean Working Group recommends that drilling occur in the Tyrrhenian Sea - not in the Ionian Sea.

After hearing the reports of the Working Groups, the Atlantic Panel recommended the following priorities:

1. Yucatan 2A
2. Barbados South
3. NW Africa - Mazagan

J. Honnorez requested that S. Srivastava (Canada) make a presentation on Labrador Sea drilling.

S. Srivastava made a brief presentation using charts and maps. The objectives of the Labrador Sea Leg fall into two categories:

1. Paleoclimate, paleocirculation
2. Age of basement.

Petro Canada has released a large volume of site survey data on Baffin Bay. Three sites in Baffin Bay have been selected, based on the survey data.

The selected sites (5, 9, and BB3) will require 50 days drilling time, equalling a 72 day leg. (Site data are presented in Appendix I.)

Discussion:

W. Schrader (OSU) - The sites must be reviewed again by the Sediments and Ocean History Panel.

J. Malpas (Canada) - The additional 14 days drilling are a result of PCOM's decision to include Baffin Bay in the Labrador Sea leg.

PCOM Consensus: Send the proposal to SOHP. Instruct them to consider PCOM's recommendation that Baffin Bay is a higher priority than the Labrador Sea. They should a) determine the drilling priorities, and b) if SOHP decides to add 14 days to the Labrador Sea leg, they should recommend a cut of 14 days from other SOHP legs (Weddell Sea, etc.).

497 CENTRAL AND EASTERN PACIFIC REGIONAL PANEL REPORT

H. Beiersdorf reported on the 12-14 September meeting.

Short term plans:

The panel discussed 504B, EPR 13° N, Costa Rica, Chile and Peru. Recommendations were:

1. 504B - deepen to layer 2/3 boundary. Ranked relatively low because of lack of data.
2. Chile Triple Junction - was not considered for Legs 111-113 because the panel felt that insufficient site survey data exists.
3. EPR 13° N - high priority but the scope is too broad (12 holes). Either expand to 2 legs or drill a cluster of fewer holes near a hydrothermally active area.

Long range plans:

The panel viewed the Pacific as 4 regions:

1. NE Pacific natural laboratory
2. N Pacific plate evolution, accretion and destruction
3. Jurassic/Cretaceous plate tectonics, paleoceanography, and volcanism
4. Southern Oceans.

The panel requests that working groups be established for each of the four regions. JOIDES funds would not be involved.

(The PCOM discussed the request to establish working groups and in general, was not in favor of endorsing a particular working group or set of working groups. Some members felt that in principle, workshops are a good way to channel plans, proposals, ideas, etc. into the ODP, and that national or international groups should be urged to hold workshops.)

498 SOUTHERN OCEANS REGIONAL PANEL REPORT

K. Hsü (ESF) reported on the 3-5 September meeting.

The Weddell Sea proposal was rated in two parts. The Southern Oceans Panel felt that the Antarctic part should be given first priority; the Subantarctic part is second priority.

The panel also established a "wish list" for drilling during the second and third austral summers:

-Kerguelen Plateau
-Prydz Bay, Antarctica
-Agulhas Plateau
-Crozet Plateau
-Central Antarctica/Australian mid ocean ridge
-Adelie land coast

The Kerguelen Plateau and the Adelie coast were identified as highest priority drilling during the second austral summer.

Discussion:

Several PCOM members voiced the opinion that panel chairmen should be reminded that planning decisions are made by the PCOM.

R. Larson (URI) - Did the panel discuss logistics? K. Hsü - Yes, the weather window in the Weddell Sea is about 70 days, which is shorter than for the Kerguelen Plateau. They requested that all 70 days be used, which would mean two short legs. The problem is that 2 short legs would mean more steaming time.

J. Honnorez - The panel requested that it consider south of 40° S to be in the Southern Oceans region.

J. Cann - Remind the panel that all regional panel boundaries were intentionally made fuzzy by the PCOM.

PCOM Consensus: The Southern Oceans Regional Panel recommendations for drilling during the third austral summer are viewed as being unrealistic.

499 INDIAN OCEAN REGIONAL PANEL REPORT

J. Honnorez reported on the 5-7 September meeting.

The Indian Ocean Regional Panel reviewed about 50 proposals, many of which were an outcome of the NSF-supported Indian Ocean Conference held at LDGO in June.

The Agulhas Plateau was considered to be the highest priority site in the western Indian Ocean. The panel also considered the Red Sea as high priority and requested that a Red Sea Working Group be formed.

The panel has made drilling recommendations beyond Leg 114:

Mar. 87	Leg 115	- Agulhas Plateau and S. Somali Basin
	116	- Red Sea
	117	- Makran
	118	- Arabian Sea
	119	- Rodriguez Triple Jct. or Chagos/Laccadive Rdg.
Jan. 88	120	- Kerguelen Plateau
	121	- Central Indian Ocean Basin
	122	- SE Indian Ridge transect $\pm$ Broken Ridge
	123	- NW Australia
	124	- East part of south margin of Australia
Nov. 88	125	- Sites not drilled on Leg 119.

Discussion:

J. Cann (U.K.) - The above list can be used to identify high-priority sites for site surveys.

PCOM Consensus: PCOM does not support the above ship schedule, but welcomes advice from panels in making its decisions. PCOM will consider the Indian Ocean Program in detail at its next meeting.

500 DOWNHOLE MEASUREMENTS PANEL REPORT

R. McDuff reported.

The DMP discussed the LDGO logging services group and was pleased with R. Anderson and the logging program. The panel considered new tools and gave priority to the following:

1. wireline heave compensator
2. wireline packer
3. 12-channel sonic tool.

The DMP recommends shipboard space for one Schlumberger engineer, one LDGO logging staff person, one logging scientist and one LDGO logging trainee (for log staff). DMP also recommends that the logging scientist be acceptable to both LDGO and to ODP/TAMU.

Discussion:

L. Garrison (ODP/TAMU) - Does PCOM agree with a log scientist on board for each cruise?

PCOM Consensus: The logging scientist position should be filled by one of the shipboard scientists having an expertise is logging as well as another geological discipline.

MOTION: Introduced by K. Hsü and seconded by J. Aubouin. Move that on each leg at least one scientist competent and interested in using logs for science be part of the scientific crew, and that other logging specialists on board should not be regarded as part of the scientific staff.

VOTE: 13 for; 2 against; 0 abstain.

A consensus of PCOM approved the plans presented for Leg 102, a downhole measurements leg.

501 SHORT TERM PLANNING

After reviewing the advisory panel reports, the PCOM attempted to rank each panel's recommendations of priority drilling in order to select sites for Legs 111 - 113. For voting purposes only the first three choices of each panel were considered. Panel recommendations were summarized:

TABLE A

Tectonics P.	Lithosphere P.	SOHP
1 Peru	EPR 10°-13°N	1a NW Africa deep hole
2 Chile TJ	504B	1b Peru Trench
3 Barbados S.	EPR or 504B	2 Ionian Sea
4 NW Africa		
5 Venezuela	**Atlantic RP**	
6 Ionian Sea	1 Caribbean, YB2A, Car 5, or YB 2C	
7 Costa Rica	2 Barbados S.	
8 Yucatan	3 NW African (Mesozoic)	

Cent. & E. Pacific RP
1 Peru Trench, EPR 13°N
2 EPR (another leg)

Discussion:

The PCOM attempted a straw vote to see if there was general agreement on the three sites needed for Legs 111-113. Some members objected to a straw vote without at least some discussion. Other members felt that all of the proposed legs had been discussed thoroughly during previous PCOM meetings.

It was decided that each member would briefly state his basis for voting:

R. Moberly (HIG) - Active margin drilling has been neglected, as has the Pacific.

K. Kobayashi (Japan) - Active margins have been neglected and are best drilled in the Pacific.

J. Aubouin (France) - It is time for "new" drilling - EPR bare rock and along the Andes.

R. von Herzen (WHOI) - Follow panel recommendations (Peru Trench); "new" drilling (EPR and 504B).

J. Cann (U.K.) - Panel recommendations.

R. MacDuff (UW) - Pacific has been neglected; Peru Trench

H. Schrader (OSU) - Panel recommendations; Peru Trench

M. Kastner (SIO) - New science, EPR and Peru-Chile

H. Beiersdorf (FRG) - Panel recommendations; Pacific has been neglected.

R. Larson (URI) - Peru-Chile, EPR (hope technology is available); also likes NW Africa.

R. Buffler (UT) - Panel recommendations; Yucatan is important.

W. Bryant (TAMU) - Agree with consensus so far, also views Yucatan as high priority.

K. Hsü (ESF) - New science in the Pacific (EPR, Peru-Chile, Chile TJ).

D. Hayes (LDGO) - W. side of S. America, but concerned about technical problems.

The PCOM then had a straw vote for the sites for Legs 111-113 with the following results:

1 Peru Margin
2 EPR 13^{o} N

3 NW Africa (Mesozoic)
4 Chile TJ

5 504B
6 Yucatan

(Each of the two legs in a set received relatively close votes; with clear gaps being present between sets.)

The vote resulted in the selection of the Peru margin and EPR 10 - 13^{o} N as preferred choices for Legs 111 - 112. Barbados S. and the Ionian Sea were eliminated. A motion was introduced by R. Buffler and seconded by R. Larson.

MOTION: The Peru Margin and the EPR 13^{o} N are adopted as two of the three sites for Legs 111, 112, and 113.

VOTE: 13 for; 0 against; 0 abstain.

(2 PCOM members were absent during this vote.)

The remaining alternatives for Leg 113 were the NW African margin and the Chile Triple Junction. Several PCOM members considered that drilling on the NW African margin,although interesting science,had potential technical difficulties. Subsequent discussion indicated that a Chile TJ leg would be very important from the standpoint of "new and exciting science" and such a leg would be logistically beneficial to ship scheduling as Leg 114 would be drilling in the Weddell Sea. However, several members felt strongly that earlier PCOM recommendations were not followed, and that insufficient time may remain to get additional surveys of the Chile TJ. The issue was closed by a motion proposed by Moberley and seconded by Aubouin:

MOTION: Move that for planning purposes,Legs 111 - 113 shall consist of the Peru margin,EPR 10^{o}- 13^{o}N and Chile TJ.

VOTE: 14 for; 0 against; 1 abstain

A further consensus was reached among PCOM members which stated that if any leg (Leg 101 - 111) was unsuccessful in a particular ocean (e.g. the Atlantic) then its alternate could occur in another ocean (e.g. the Pacific).

With that guideline in mind, the relative importance of Yucatan, 504B and NW Africa (Mesozoic) as alternates for Atlantic and Pacific drilling was then discussed. A vote gave the following result:

	504B	NW Africa	Yucatan	
1st vote:	3	6	6	1st prior.
2nd vote (only NW Africa and Yucatan):		7	8	1st prior.

Results: 1st priority - Yucatan
2nd priority - NW Africa
3rd priority - 504B

The results did not become a formal motion pending further comments from SOHP on Yucatan and N.W. Africa (Mesozoic) and from LITH on 504B .

502 SITE SURVEY SERVICE PANEL REPORT

H. Beiersdorf (FRG) reported on the 28-29 May meeting.

The Site Survey Panel discussed its role and requested that each of its members appoint an alternate so that all meetings are fully attended. Recommendations were made for future surveys, and guidelines were developed for surveys in specific environments; seven environments were recognized. The panel recommended that specific tools be used in each type of environment.

Working groups were established for the Indian Ocean and the Southern Oceans. E. Silver (UC) will be invited to the next meeting to represent the Western Pacific.

The meeting of the SS-SP went quite well. PCOM should wait until after the next meeting before reviewing the effectiveness of the panel. (J. Honnorez agrees.)

C. Brenner of the IPOD Site Survey Data Bank has formulated guidelines for the submission of data to the IPOD Data Bank (Appendix J).

PCOM Consensus: R. Larson (URI) and D. Hayes (LDGO) will decide on the most effective way to ensure that adequate site survey data are submitted with ODP proposals and will re-draft the instructions for proposal submissions to incorporate the guidelines (Appendix J) for submission of site survey data.

Site survey staff position:

D. Hayes (LDGO) distributed a position paper on the need for a staff member to handle site surveys (Appendix K). That person will need support and can be located anywhere, but a location at the IPOD Data Bank would be logical.

Discussion:

R. Larson (URI) - What is the Data Bank staff at present? D. Hayes - A senior geophysicist (J. Ladd) at one month/yr.; C. Brenner (full time); archivist (full time); draftsman (part time); and a secretary (part time). They are supported by JOI.

J. Clotworthy (JOI) - Beginning in FY 1985, the IPOD Data Bank contract will supported by comingled funds ($190 K/yr.).

R. Larson - Some or all of the staff work required for site surveys will be handled by T. Mayer (U.K.), now part of the JOIDES Office staff. (T. Mayer advised the PCOM that he would be able to perform many of the functions listed in the D. Hayes document, and that the remaining functions could be handled by the Site Survey Panel. He presented a paper on possible procedures to be adopted (Appendix L).).

D. Hayes - The problem with site surveys will not be solved until one person is assigned full time to site survey tasks.

PCOM Consensus: Examine the roles and workloads of the IPOD Data Bank staff, then decide if additional staff is needed.

J. Aubouin (France) - Who made the decision to pay for the IPOD Data Bank contract with comingled funds? J. Clotworthy - The ODP MOUs reflected changes in the way the ODP is supported. In the past, the

U.S. paid for the Data Bank and JOIDES paid for travel for U.S. scientists. Changes in the new MOUs included the transfer of travel costs for U.S. scientists from JOIDES to JOI, and the transfer of IPOD Data Bank support from the U.S. to comingled funds. These changes were stated in the ODP management proposal to NSF, and were reviewed by the partner countries.

(Several PCOM members felt that the decision to pay for the IPOD Data Bank with comingled funds should have been made by the Executive Committee.)

PCOM Consensus: R. Larson will review Data Bank staff and workload and will report to the PCOM at the next meeting. T. Mayer (JOIDES/URI) will visit the Data Bank at LDGO to become familiar with its procedures.

503 ODP LEG STAFFING

L. Garrison (ODP/TAMU) requested that the PCOM recommend co-chief scientists for upcoming legs.

Leg #	Co-chief Scientists	
101	Schlager, Austin	
102	Schlee, Salisbury	Invited by ODP & accepted
103	Boillot	

PCOM made the additional recommendations:

103	Winterer (alts. Watts, Ryan)
104	Eldholm, Thiede (invited by ODP)
105	Srivastava, Arthur (alts. Miller, Shore)
106	(Purdy, Silver, Cann, Juteau, Francis, Bryant, Robinson, Fox) PCOM will make final recommendations after consulting with the Lithosphere Panel.

504 SUPPORT FOR ADVISORY PANEL CHAIRMEN

J. Honnorez reported that the JOIDES OFfice has been asked by several panel chairmen for support to be used for costs incurred for JOIDES (xeroxing, secretarial, etc.).

PCOM consensus is expressed in the following motion introduced by R. Larson and seconded by J. Cann.

MOTION: Move that each thematic, regional, and service panel chairman receive up to $1000./yr. from JOIDES for incidental expenses.

VOTE: 15 for; 0 against; 0 abstain.

505 PANEL LIAISONS

J. Honnorez reported that PCOM liaisons are needed for several panels.

PCOM Consensus: R. Larson will appoint a liaison to the next Site Survey Panel meeting; PCOM will decide on panel liaisons at its next (Jan.) meeting.

506 COSOD MEETING

A PCOM subcommittee consisting of H. Beiersdorf, R. Larson, and R. Moberly reported that the optimum time for the next COSOD meeting is mid 1988. A report will be sent to PCOM members. The COSOD meeting may be held jointly with another meeting.

507 FUTURE MEETINGS

-8-11 January, Austin, TX (will be attended by panel chairmen)
-9-11 April, Norfolk, VA (visit drillship, dates to coincide with end of Leg 102)
-25-27 June, Hannover, FRG
-16-18 October, Rhode Island

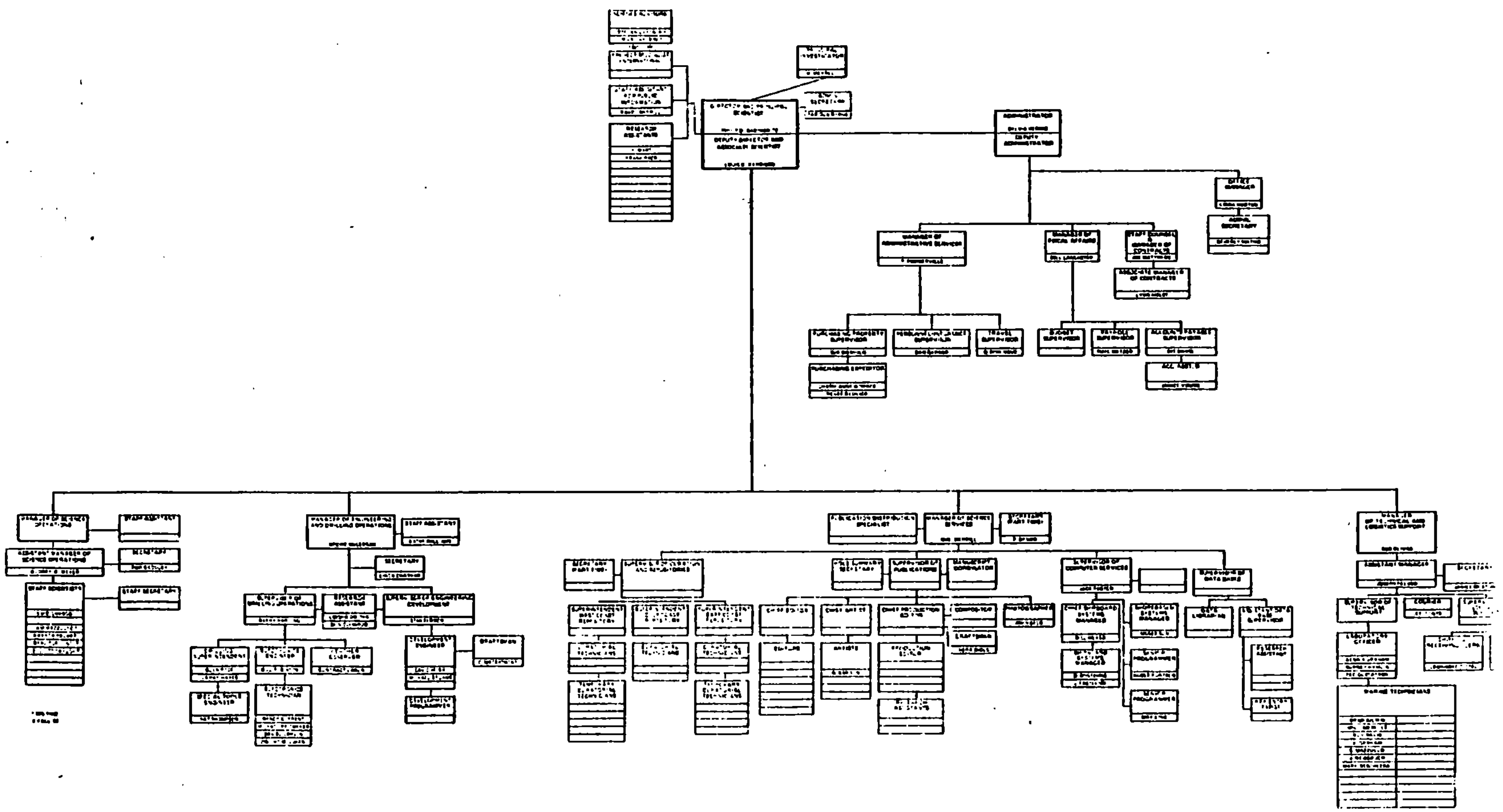
508 OTHER BUSINESS

The PCOM expressed its thanks to those involved in making the Ocean Drilling Program a reality during the past two years: J. Clotworthy, D. Rucker, and other JOI staff; L. Garrison, W. Merrill, P. Rabinowitz of ODP/TAMU; R. Anderson, Logging; NSF and others.

J. Aubouin, K. Kobayashi, and W. Bryant were thanked for serving on the Planning Committee.

The Planning Committee expressed their gratitude to J. Honnorez (outgoing PCOM Chairman) and the RSMAS-JOIDES staff and welcomed R. Larson as the new chairman.

APPENDIX A



ADMINISTRATOR
DEPUTY ADMINISTRATOR
OFFICE MANAGER
ASSOCIATE MANAGER OF CONTRACTS
TRAVEL SUPERVISOR
BUDGET SUPERVISOR
PURCHASING EXPEDITOR

APPENDIX B

ODP SHIP SCHEDULE

	Dates	Operating Days	Transit Days	Total Days	Port Days	Co-Chief Scientists
LEG 101 (Bahamas)	01 Jan - 15 Feb	41	5	46		J. Austin, UT W. Schlager, UM
PORTCALL (Ft. Lauderdale)	16 - 20 Feb				5	
LEG 102 (ENA3 417, 418, 395)	21 Feb - 08 Apr	41	6[a]	47		J. Schlee, USGS M. Salisbury, SIO
PORTCALL (Norfolk)	09 - 13 Apr				5	
LEG 103 (Galicia)	14 Apr - 09 Jun	42	15	57		G. Boillot, France
PORTCALL (Bremerhaven)	10 - 16 Jun				5	
LEG 104 (Norwegian Sea)	17 Jun - 03 Aug	42	6	68		
PORTCALL (Stavanger)	04 - 08 Aug				5	
LEG 105 (Labrador Sea)	09 Aug - 05 Oct	42	16[b]	58		
PORTCALL (St. Johns)	06 - 10 Oct				5	
LEG 106 (Mid-Atlantic Ridge/KFZ)						
LEG 107 (Tyrrhenian Sea)						
LEG 108 (N.W. Africa/Cenozoic)						
LEG 109 (Barbados North)						
LEG 110 (MARK-2)						
LEG 111						
LEG 112						
LEG 113						
LEG 114 (Weddell Sea)						

[a] Transit time depends on sites occupied.

[b] Includes transit times to and from drillsites in Baffin Bay from Labrador Sea.

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Appendix B

APPENDIX C

<u>Conversion Costs</u>
(In thousands of dollars)

	BUDGET	ACTUAL	CHANGE
A) DESIGN (Earl & Wright/SEDCO)	$ 550	$ 750	$ 200 over
B) PROCUREMENTS	6,961	7,837(1)	876 over
C) CONVERSION (Shipyard)	2,100	5,100(2)	3,000 over
D) CONVERSION DAY RATES, (including engineering consulting, shakedown cruise, testing	1,437	1,437	0
	$11,048	$15,124	$ 4,076 over

(1) Includes $375,000 for lab furnishing
(2) Includes $200,000 for SEDCO

	($ in millions)
JOI ODP Operations & Management	$30.210
SIO DSDP	2.775
DSDP Publications	0.360
NSF Miscellaneous	0.075
Total	$33.420
Estimated overrun from FY 84	4.100
Grand Total	$37.520

She then estimated the income for FY 1985 as follows:

	($ in millions)
NSF Contribution	$21.100
FRG Contribution	1.875
France Contribution	1.875
Trust Funds	3.000
FY 84 Year End Funds	1.525
DSDP Carryover	0.500
Total	$29.875
Plus two new members	3.750
Grand Total	$33.625

With reductions and deferments of NSF programs in FY 1985, an estimated $1.3M could be added to the ODP. As seen from the above, with the estimated request for FY 1985 totaling $37.5M and the estimated income for FY 1985 totaling $33.6M, there is an approximate $3.9M shortfall. If NSF can add $1.3M in FY 1985, there is a shortfall of $2.6M.

Sandra then outlined the FY 1986 outlook (Dollars in Millions):

Estimated Funding Requests

JOI ODP	$32.500
DSDP	2.200
Publications & Miscellaneous	1.000
Total	$35.700

Estimated Funds Available

NSF Contribution	$22.300
Five Members	12.500
	$34.800
Sixth Member	2.500
Total	$37.300

Summary

The following is a summary of the financial situation and things to consider.

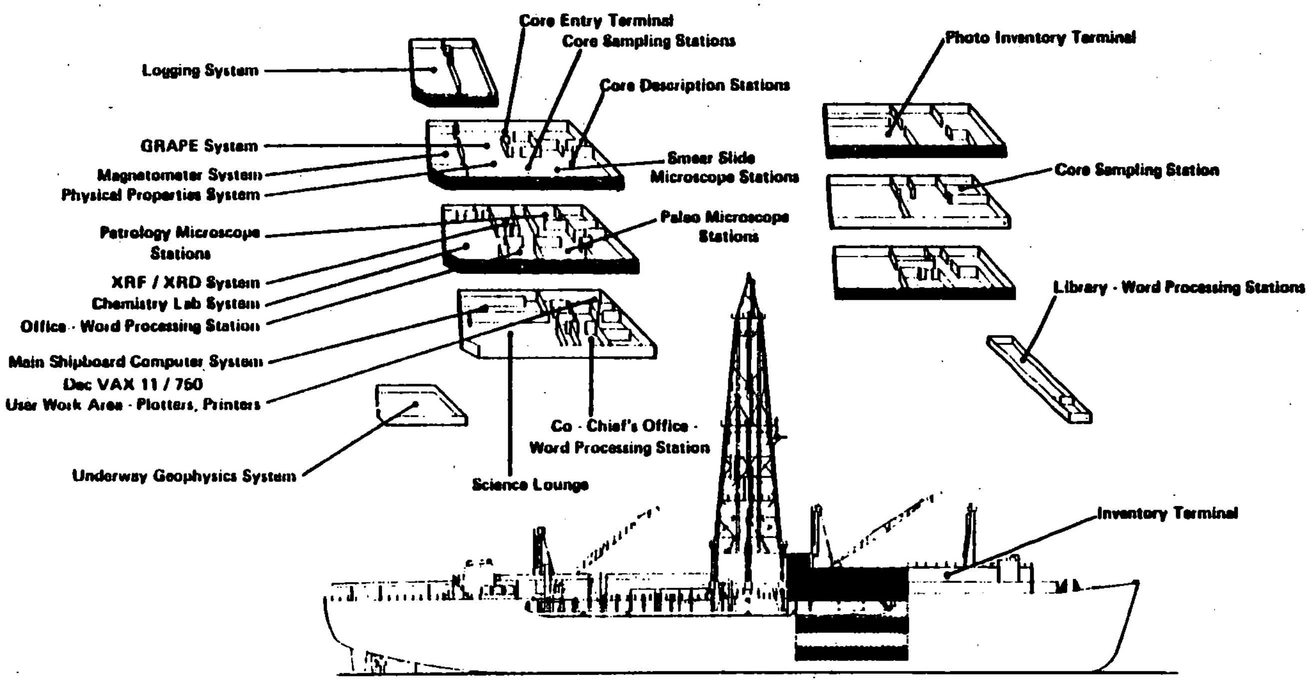
Finance:

	($ in Millions)
Needed for FY 1985	37.5
Available FY 1985	33.6
	- 3.9
Possible from NSF FY 1985	+ 1.3
	- 2.6
TAMU Savings FY 1984	+ 0.8
	- 1.8
JOI Savings FY 1984	+ 0.2
	- 1.6
JOIDES Savings FY 1985	+ 0.1
	- 1.5

APPENDIX D

COMPUTER SYSTEMS SUMMARY

NOTE! All Locations connected to main computer system via hardwired connections



APPENDIX E

INTRODUCTION / CONCLUSION

The purpose of this report is to summarise the present status in the evaluation of the proposed Wave Motion Compensator where no marine riser is present.

The hydraulics system has been reviewed in detail, and a design has been developed which should have the necessary sensitivity and durability to perform all the demands of this project. An outside vendor is prepared to produce this section as a complete package.

The various techniques of detecting wave motion have been reviewed, and three possible options emerge:

- Accelerometer
- Altimeter
- Pressure

At this time we feel that the accelerometer is likely to prove the most successful. However, we have not been able to locate any design of a somewhat similar system which is actually in operation. At this stage it must be considered as an experimental design - existing only on paper.

An approximate estimate of cost is as follows:

- Basic hydraulic package	$ 50,900
- Accelerometer modified for digital readout	8,000
- Altimeter	5,500
- Comparator/Hydraulic control package	6,000
- Hydraulic cylinder encoder	2,000
- Special engineering time 3 mos. x 8,000	24,000
ESTIMATED MINIMUM COST	$106,400

This is not the type of project normally undertaken by Field Support. However, we feel that it is within the capabilities of the group.

SYSTEM OVERVIEW

The Wave Motion Compensator is based on a sheave wheel system designed to compensate for the vertical motion of the drillship. All the sheaves are fixed except one - which is variable.

An outline of the system is illustrated below. A brief summary of the operation of the system is as follows:

The variable sheave wheel is controlled by a hydraulic piston.

The hydraulic piston is controlled by a reversible pump.

The pump is controlled by the output of a comparator.

One comparator input comes from an encoder on the cylinder.

The second comparator input is from the wave motion sensor.

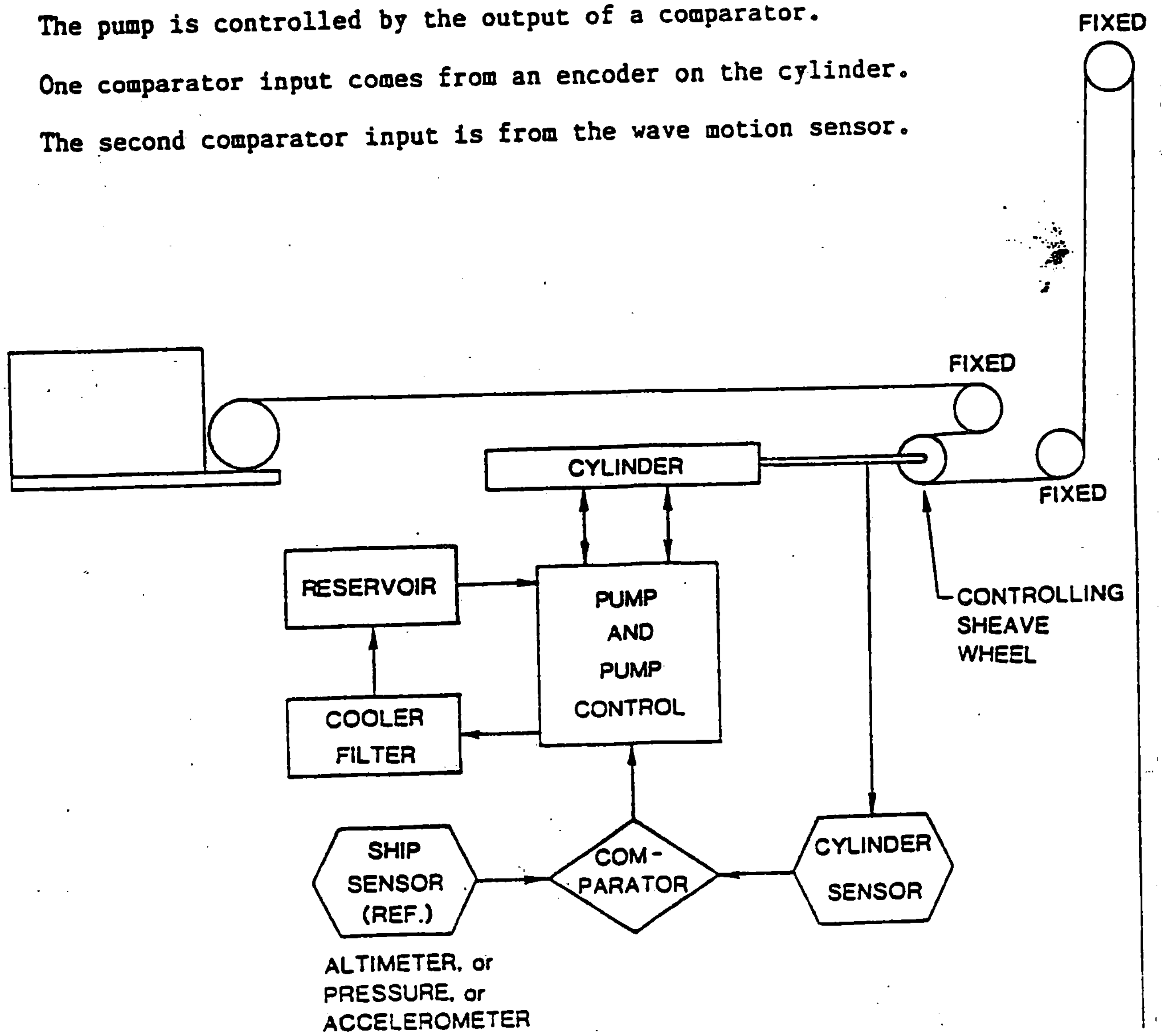


FIGURE 1.

HYDRAULIC SYSTEM

The pump selected is a Rexroth reversible pump. This was selected for the following reasons:

1. SENSITIVITY It has an infinite reversible output to a maximum of 110 GPM at 6000 psi.

2. DURABILITY This pump withstood a torture test of 4000 hours which is far in excess of our potential demands.

3. AVAILABILITY This pump is an "off the shelf" item and should be available quickly from any competent hydraulic dealer or the Rexroth factory. It is also the same basic design as used for the winch system.

4. SAFETY The working pressure of this pump is 6000 psi, and the maximum expected working pressure is 1818 psi,giving a margin of safety of 3.3. The maximum pressure of 1818 psi is based on a 15,000 lb. line pull.

The hydraulic cylinder has a 10 ft stroke, a working preesure of 5000 psi and a two year factory guarantee. The maximimum line correction is 20'.

The pump would connect directly to the hydraulic cylinder, thereby eliminating any external plumbing or valving.

Cooling will be accomplished with a seawater heat exchanger, and fluid will be filtered twice during each trip through the system.

The whole system is protected by a number of internal relief valves in the pump itself.

The pump is controlled by an electro-mechanical unit attached to the pump. This unit is supplied control voltages from the output of a comparator.

The maximum stroke cycles per minute is 6.

The hydraulic unit will be on a skid and waterproof to normal electrical specifications for this type of operation.

ELECTRICAL SYSTEM

The heart of the electrical system is a comparator module. It has two inputs - one from a cylinder encoder on the hydraulic cylinder and the other from the wave motion sensor.

The difference between the two inputs is translated into an error signal representing the necessary correction. The correction signal is given as a + or - -200 - 600 milliAmps.

The vertical motion of the ship can be established by (at least) three different techniques:

1. ACCELEROMETER — A very accurate accelerometer may be used to monitor vertical movement and translate the gravity forces into displacement. The resolution is estimated at 0.5 ft. It is by far the most expensive system.

2. ALTIMETER — An extremely sensitive altimeter may be used, and internally corrected for barometric pressure. The cost of this system is moderate.

3. PRESSURE — It would be possible to suspend 350 ft of tubing below sea level and monitor the pressure changes with a very accurate pressure gauge. This system should be the cheapest, but it might be affected by the on-board thrusters which maintain the ship in place.

Ideally at least two of these systems should be designed. The output of each system could be standardised. It would then be possible for the operator to select either system.

The question of redundancy must also be finalised.

The overall sensitivity of the system should have a resolution of the order of 0.5 ft. Based on a pump full cycle time of 4 seconds it is calculated that the maximum response lag (behind the wave) would be 2 Secs. It may be possible to reduce this lag time.

APPENDIX F

Appendix F

AMOCO WIRELINE PUMP TESTER

I1 ft

Pump sets packers, then draws down ~100psi passing fluid through interrogation chamber. at surface, operator decides when to stop flushing & when to direct fluid to sample chambers +Permeability + Pore pressure measured.

High Pressure 150 ml sample chambers

APPENDIX G

84-09-12 14:33
*
53654 UNINEW G
5292 84-09-12 14:30

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A. WE RANKED CANDIDATEFOR LEGS 111-113 IN THE FOLLOWING WAY. EACH OF THE TEN VOTING MEMBERS PRESENT AWARDED THE LEG, AND INDIVIDUAL TARGETS WITHIN THE LEG, A SCORE OF 0-10, USING 10 FOR HIGHEST PRIORITY. PROPOSAL PROPONENTS DID NOT VOTE FOR THEIR PROPOSALS. FIGURES REPORTED BELOW ARE AVERAGE SCORES:, THE SPREAD IS GIVEN IN PARENTHESEA.

1. PERU, 7.7(5-10 SPREAD):, TRUNCATION, 7.8(5-10):, UPPER SLOPE DRILLING, 7.4(2-10). PERU IS OUR HIGHEST PRIORITY BECAUSE IT OFFERS AND EXCELLENT OPPORTUNITY TO DETERMINE THE EXTENT OF SUBDUCTION EROSION THROUGH TIME:,EFFECTS OF THIS SUBDUCTION STYLE ON UPLILFT/SUBSIDENCE IN THE FOREARC, AND THE NATURE OF THE TRANSITION FROM ACCRETIONARY PRISM TO CONTINENTAL CRUST.

2. CHILE TRIPLE JUNCTION, 7.1(4-9):, MODERN COLLISION AREA,7.3(3-9):, OLDER COLLISION EFFECTS,6.2(2-9):, PRE-COLLISION SITUATION, 5.4(1-8). WE CONSIDER THIS A VERY ATTRACTIVE OPPORTUNITY TO ASSESS THE EFFECTS OFA SUBDUCTING RIDGE, SUCH AS LOWER SLOPE EROSION, METAMORPHISM, NEAR TRENCH MAGMATISM, UPLIFT AND SUBSIDENCE.

3. BARBADOS SOUTH, 6.8(2-10). FIRST PRIORITY IN THE GROUP OF TARGETS IS LAF-7 WITH 6.9(1-10), TO ASSESS RATES OF DEFORMATION, STRUCTURAL STYLES, AND PHYSICAL PROPERTIES WHERE A THICK TURBIDITE SEQUENCE IS ACCRETED:, NEXT IS LAF-4 AND 5 WITH 6.4(1-10), TO STUDY POSSIBLE OUT-OF-SEQUENCE THRUSTS UPSLOPE. THE REMAINING TARGETS ARE NOT CONSIDERED AS IMPORTANT FROM A THEMATIC STANDPOINT: GRENADA BASIN 6.2(2-10):, INNER DEFORMATION FRONT 5.8(3-9):, OUTER STRUCTURAL HIGH 4.4(1-7):, TOBAGO TROUGH 4.5(1-8).

EQUAL 4. NW AFRICA 6.4(4-10):, MAZAGAN PLATEAU 5.7(2-9):, S-1 MAGNETIC ANOMALY 6.1 (0.10). VENEZUELA BASIN 6.4(2-10). ALTHOUGH THE SCIENTIFIC PROBLEMS IN THESE TWO LOCATIONS WERE APPRECIATED, THERE WAS SOME CONCERN ABOUT THE AMOUNT OF DRILLING TIME THAT WOULD BE REQUIRED AT THIS STAGE OF THE PROGRAM.

6. IONIAN SEA 4.2(1-9):, MEDITERRANEAN RIDGE 4.4(1-10):,

6. IONIAN SEA 4.2(1-9):, MEDITERRANEAN RIDGE 4.4(1-10):, MALTA EXARMPMENT 4.3(2-8). NOT FAVOURED BECAUSE OF UNCERTAINTITIES AS TO WHETHER SHALLOW(HPC CAPACITY) HOLES COULD REALLY ADDRESS THE ORIGIN OF THE MEDITERRANEAN RIDGE , AND BECAUSE DRILLING ON THE MALTA EXARPMENT IS OF UNCERTAIN SIGNIFICANCE WITH REGARD TO THEMATIC PROBLEMS IN GENERAL.

7. COSTA RICA 4.0(2-6):, UPPER SLOPE BASEMENT DRILLING 5.1 (2-7):, TEST DUPLEX MODEL 2.5(0.7). DOWNGRADED BECAUSE OF WIDELY HELD SUSPICION THAT DUPLEX MODEL BASED ON MISCONCEPTIONS ON THIS MARGIN, AND BECAUSE THE MARGIN IS TOO SIMILAR TO GUATEMALA, DRILLED ON LEGS 67 AND 84, TO JUSTIFY A NEW TRANSECT.

8. YUCATAN BASIN 2.8 (0-7), WE DO NOT CONSIDER THAT THE LEG AS PLANNED ADDRESSED GENERAL THEMATIC PROBLEMS.

B. OTHER MATTERS

1. OUR PANEL STRONGLY FEELS THAT DRILLING DECISIONS SHOULD BE BASED PRIMARILY ON PRIORITIES ESTABLISHED BY THEMATIC AND REGIONAL PANELS, AND WE ARE CONCERNED THAT SITE SURVEY DECISIONS MAY BE ARRIVED AT. PRIOR TO SCIENTIFIC DECISIONS FROM THEMATIC PANELS. WE REQUEST CLARIFICATION FROM PCOM ON THE SEQUENCE OF EVENTS IN DECISION-MAKING PROCEDURES.

2. WE RECOMMEND THAT A SUNDA-BANDA ARE WORKING GROUP BE ESTABLISHED BECAUSE THE REGION HAS A VARIETY OF IMPORTANT TECTONIC PROBLEMS AND CUTS ACROSS THE GEOGRAPHIC BOUNDARIES OF REGIONAL PANELS. WE SUGGEST THE FOLLOWING MEMBERS: KATILI (INDONESIAN REPRESENTATIVE), KARIG(USA), WANNESON OR LE PICHON (FRANCE), JONGSMA(NETHERLANDS), BARBER(UK), CURRAY(USA), MEYER(ODP LIAISON).

3. REGARDING TYRRHENEAN SEA DRILLING, ARE AWARD HIGHEST PRIORITY TO SITES IB, 3 OR 4, AND 5. IN OUR VIEW, THE MOST IMPORTANT PROBLEMS TO BE ADDRESSED ARE THE NATURE OF PRE-RIFT AND SYN-RIFT SEDIMENTS, AND THE NATURE AND AGE OF THE BASEMENT.

4. WE DO NOT CONSIDER THAT A DECEMBER MEETING IS URGENT. WE ANTICIPATE CAN FIELD ANY IMMEDIATE PROBLEMS BY MAIL. IF PCOM DISAGREES, WE PREFER THE FOLLOWING OPTIONS:
1) EACH COAST US, PREFERABLY LAMONT SO THAT WE CAN REVIEW LOGGING FACILITIES.

2) WEST COAST US (PREFERABLY SAN FRANCISCO OF SCRIPPS-SO THAT WE HAVE ACCESS TO PROPONENTS AFTER AGU AND/OR DURING THE IORP. SUBSEQUENT MEETING PREFERRED AFTER 15TH MARCH, WHEN K. HINZ RETURNS FROM SEA, IN TEXAS OR AT SCRIPPS.

5. WHEN DO PCOM WISH TO SEE OUR IORP PROPOSAL RATINGS? MOST OF US ONLY RECEIVED THE LARGE BATCH OF US PROPOSALS AT THE MEETINGS, AND SO COULD NOT CONSIDER THEM CAREFULLY, BUT WE CAN IF NECESSARY USE OUR NEW VOTING SYSTEM BY MAIL WITHIN THE NEXT FEW WEEKS.

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IMPERIAL COLLEGE

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APPENDIX H

LITHOSPHERE PANEL MEETING 11-12 June 1984, WASHINGTON, D.C.

Summary of Principle Recommendations

1) Pacific Drilling

a) Panel recommends:
   Leg 111: EPR 10-13°N
   Leg 112: 504B
   Leg 113: 504B or EPR

Decision of Leg 113 should await results of Leg 111. If 111 is not successful then two legs on 504B would give real chance of sampling Layer 3. If 111 is successful then two legs on EPR would give a good start at Active Hydrothermal Natural Laboratory with added bonus of 500m further penetration ito 504B. Either way exciting results are likely.

b) Drilling on EPR 10-13°N should be start of long term 'natural laboratory' to study active hydrothermal processes. Minimum reasonable startup effort is three ~300m deep holes.

c) Huge volume of new data collected on EPR 10-13°N makes considered choice of precise site difficult: recommend formation of working group to solve this.

2) Atlantic Drilling

a) Leg 102: Panel recommends full scale downhole measurements leg carrying out complete suite of downhole experiments at 417 and 395 and deepening 603 to at least 50m into basement. Second choice would be to delete 395 (given it would be picked up on Mark I or Mark II). Third choice would be to delete 395 and possible extra pipe trip on 603 to achieve required basement penetration.

b) Panel recommends French Gorringe Ridge proposal as back up to any eastern Atlantic/Med drilling that may run into clearance problems. Priority is below that of MARK, 504 or EPR however.

A. INTRODUCTION

1. The next meeting of the Panel was tentatively scheduled for November 6 and 7 in either Miami or Lamont.

2. Russ McDuff reported on the last PCOM meeting in Paris:

   i) Latest drilling schedule was presented. The panel needs information on Chile Triple Junction plans: Langmuir will get details from Cande in time for our next meeting.

ii) More effective means of communicating with TAMU engineers to define bare rock drilling specifications is needed. One day meeting with experienced ALVIN divers is required to jointly produce quantitative limits on terrains likely to be encountered and to devise a drilling strategy: (e.g. is real time video from end of drill string simply a necessity?) Suggestion was raised to hold meeting in Hawaii to allow engineers to see volcanic lavas. Purdy will discuss with Honnorez and Garrison and organize something soonest.

iii) Many messages were received by Honnorez in Paris urging the replacement of the postponed bare rock drilling leg by a mantle heterogeneity leg (a follow-up to leg 82). There was strong support for this in letters and cables from O'Nions, Schilling, Melson, Frey, Bougault, White, Allegre, Michael. The panel reviewed its discussion at the previous meeting and came to the same conclusion, i.e. as a problem it is an extremely high priority objective that the Panel supports strongly. However, at this time we have not seen a well-defined strategy that will answer some of the key problems and assure progress in this area. Purdy will contact Schilling and encourage him to submit a specific proposal.

3. Three communications were received from members of the community criticizing Lithosphere Panel policy and objectives: all were under misconceptions. A widely held and incorrect view seems to be we wish to carry out focussed drilling in a small number of key areas to the exclusion of all else. This is not true. The Panel contends that the focussed drilling (Natural Laboratory) approach is the best way to attack the magma generation – crustal accretion objective which is our highest priority. However, we have several other high priority aims that will be best served with different approaches, e.g. oceanic plateaus, mantle heterogeneity and crustal evolution. Just because the Panel was clearly unanimously defined the focussed drilling approach to the crustal accretion problem as its first priority in no way lessens its commitment and interest in addressing other fundamental lithosphere objectives.

B. PACIFIC DRILLING

1. 504B:

Becker, Salisbury and Emmerman presented results and status of 504B. The probable benefits of deepening this hole were discussed. Best estimate was that one full leg would result in 500m more penetration if time was set aside (as panel would recommend) for full suite of downhole geophysical experiments. Need for better sample recovery was reaffirmed and Carlson indicated TAMU was well aware of this. Downhole geophysical measurements are a sufficiently important part of this effort that they should be scheduled to take place from the drill ship, and not depend on the uncertain development of an unproven fly-in re-entry system. Best guess from Stephen OSE results is that additional 1000m penetration would be needed to reach gabbro: this would need at least two more legs. This drill site remains our best chance at sampling layer 2/3 boundary, and at measuring geochemical gradients, physical and magnetic properties and changes in metamorphic grade through a significant portion of the oceanic crust. It remains one of our highest priorities for Pacific Drilling.

2. Drilling on an Active Hydrothermal Vent Area

This Panel places its highest priority on starting a focussed drilling program to study active hydrothermal processes at the earliest opportunity and specifically before the drilling ship goes south to the Weddell Sea.

i. Delaney reviewed the major components of hydrothermal systems stressing both the three dimensionality and time-variable nature of the problem. Models of such systems are wildly unconstrained at this time: there exists a clear need for good basic measurements of permeabilities, flow rates and thermal gradients. An important required parameter that drilling will not provide is magma chamber size and shape.

ii. MacDonald reviewed possible sites suitable for the focussed study of active hydrothermal processes. Criteria for site evaluation were availability of site survey data; magnetic latitude and clarity of anomaly pattern; spreading rate; simplicity of tectonic fabric and crustal generation processes; hydrothermal activity; logistics (proximity to port, clearance). It quickly became clear that the East Pacific Rise at 10-13°N most effectively satisfied these criteria. This region has been the subject of 3 U.S., 3 French and 2 German SEABEAM cruises, one SEAMARC cruise, 3 ALVIN and 3 CYANA cruises, 3 ANGUS, one Deep Tow and 2 RAIE, both French and U.S. hydrothermal studies, ROSE, RISE and multichannel seismic expeditions, gravity and 3-D magnetic studies. However, it needs more multichannel coverage for definition of magma chamber geometry and more off axis geophysical coverage in general.

iii. To make optimum selection of specific site for 'Active Hydrothermal Processes Natural Laboratory' all this data needs to be assimilated quickly. Rather than a formal synthesis (probably take too long), Panel recommends formation of working group consisting primarily of those who have collected the data in this region. Possible names are:

Orcutt or Detrick or Mutter
Langmuir or Bryan or Batiza
Bougault
Francheteau or Baecker
Mottl or Edmond
MacDonald or Fox or Ryan
Delaney or Boulegue

The charge to this group would be to formulate a recommendation to the Lithosphere Panel on the basis of all available data for the optimum site location on the EPR between 10-13°N.

iv. The Panel addressed the question of drilling strategy and attempted to define the minimum useful drilling effort. Our preliminary conclusion was that a useful start would be provided by three holes each nominal 300m depth separated by 'half a hydrothermal wavelength' (nominal 2-5 km), two to be located along axis and one off axis. This drilling will need bare rock spud in capability, ability to penetrate rubble zones, improved sample recovery in unconsolidated sections and ability to withstand high temperatures (limits unspecified). Sidewall coring and remote downhole geochemical analyses were discussed as partial solutions to poor recovery problems, but it was agreed first priority should be with improving conventional sample recovery techniques. The development of remote downhole geochemical analysis methods is an important but complex issue that we request the Downhole Measurements Panel to investigate and to monitor, and report back to our Panel in a timely manner. The first priority in water chemistry studies is collection downhole, both of small volume pressurized samples and multiple sampling of larger unpressurized volumes at several depths. A concerted effort to understand the contamination problem is needed before these water chemistry studies can in any way achieve their potential. Russ McDuff undertook to canvas Elderfield, Mottl, Gieskes, Bender, Sayles and Boulegue to obtain consensus opinion on specifications for a useful downhole water chemistry analysis capability. The measurements made down these holes (as part of the drilling program) are an absolutely essential part of the program: the minimum suite of downhole data required for this drilling to approach its full potential is: Standard Logging; Temperature; Flow; Packer; Large Scale Resistivity; Magnetometer; Downhole Seismic; Geochemical (to be specified). Detailed descriptions of all these measurements await further review and discussion. Much interest was expressed in regional stress estimations from borehole televiewer or four arm caliper measurements of hole deformation. Saunders briefly reviewed a U.K. Lithosphere Panel meeting and particularly mentioned Whitmarsh's experiment measuring the several day long relaxation of anelastic strain in drill cores: this would need oriented cores.

The second group of important downhole measurements are those to be made continuously over a period of years: these include strain, flow and temperature, and earthquake monitoring. Remote chemical analyses and detailed geodetic measurements were also considered important.

v. Drilling Priorities in the Pacific: As the minimum reasonable start at the Active Hydrothermal Natural Laboratory is judged to be 3 ~300m holes then two legs will be required for this. If only three Pacific legs are available then Lithosphere Panel recommends following scenario:

Leg 111: EPR 10-13°N
Leg 112: 504B
Leg 113: 504B or EPR

Decision of Leg 113 should await results of Leg 111. If 111 is not successful then two legs on 504B would give real chance of sampling Layer 3. If 111 is successful then two legs on EPR would give a good start at Active Hydrothermal Natural Laboratory with added bonus of 500m further penetration ito 504B. Either way exciting results are likely.

Panel was painfully aware of its ignorance concerning objectives of proposed Chile Triple Junction leg.

C. ATLANTIC DRILLING

1. Leg 102: Salisbury presented various options and scenarios and these along with their priorities were discussed at length. An important conclusion was that the Lithosphere Panel supports deepening Site 603 (ENA3) providing time is taken (i.e. extra pipe trip if needed) to obtain >50m of basement. This would constitute first substantial sample of Jurassic crust in Atlantic, sampling the seafloor spreading process soon after its beginning, and perhaps providing one more data point for the mantle heterogeneity story.

   Site 395: Because logging on Leg 78B was such a failure it is important to return to this site to carry out full suite of experiments identical to these in 504B to allow the two to be contrasted: The suite presented by Salisbury was:

   Schlumberger logs (obviously),
   Large scale resistivity,
   Magnetometer (Johnson plus BRG 3 component),
   Multichannel sonic log
   HPC
   HPC heatflow à la Dick Von Herzen
   Packer
   Televiewer - four arm caliper
   Deep water sampling
   VSP

   Excluding VSP, time estimate for this on site was 5.5 days. Because of topography problems Purdy doubted OSE at this site was worthwhile but VSP was potentially very useful.

   Concerns with uncertainties with respect to being able to re-enter 418 caused discussions to focus on 417D. Operations recommended by Salisbury at 417D were:

   Schlumberger log
   Large scale resistivity
   Magnetometer
   Multichannel sonic
   Packer
   Televiewers - four arm caliper
   Water sampling
   VSP and OSE.

If two days are allowed for fishing the bottom hole assembly then about 11 days are required for this (including 3-4 days for VSP + OSE).

A combination of this work with that at 395 would provide excellent comparison of identical datasets in young and old Atlantic crust.

First preference of Lithosphere Panel would be an extra long leg (~60 days) to allow a minimum 50m basalt penetration at 603, and full suite of experiments as listed by Salisbury at 417 and 395. This would take optimum advantage of having drill ship staffed by downholers and the otherwise long deadhead transatlantic run to Galicia.

Second preference (other than trimming a few days off downhole experiments) would be to delete 395 work and include it as part of MARK I or MARK II.

Third preference would be to also delete basalt penetration (est. 4-5 days) at 603. This last option, of course, would leave our Panel with only the 417 experiments. These are judged the highest priority for this leg because it seems extremely likely that we shall be able to get to 395 either on MARK I, MARK II or simply on passage from NW Africa to Barbados N. Thus, if we can get 417 now it would provide us with the important combination of full downhole geophysics on young and old Atlantic and young Pacific (i.e. 395, 417 and 504B). It is the comparison of these datasets that could be the most exciting result. Lithosphere Panel recommendations for co-chiefs on Leg 102 are Salisbury, Becker, Von Herzen, Tim Francis, Roy Hyndman.

2. MARK I Site Survey: The JOI funded site survey has been contracted to a team consisting of Detrick and Fox (URI), Mayer (Dalhousie), Karson (WHOI), Kastens and Ryan (LDGO). It was judged timely to provide further guidance to the Site Survey Team with regard to MARK drilling objectives.

   The primary objective of MARK is to sample a clearly defined transform bounded ridge segment. Specifically we would like total SEABEAM coverage over a segment extending from south of the possible small offset transform at approximately latitude 22°42'N to 25 km north of the Kane-median valley intersection. We need full SEABEAM coverage of the intersection area (including OCP proposed sites 1 through 4) as back up to MARK I and II. Full coverage of the ridge to the south should, as a minimum, include the peaks of the crestal mountains (i.e. nominal 35 n.m. wide swath centered on center of median valley). As much coverage as possible of the complete transform section of Kane west to the intersection with the northern ridge segment is needed. We hope to see preliminary shipboard plots at our November meeting at which time we should be able to offer more detailed guidance for the January SEAMARC I leg.

3. Gorringe Ridge: Thierry Juteau reviewed the French proposal to drill Gorringe ridge. The panel was particularly intrigued by this opportunity to achieve substantial penetration into Layer 3 (with the site on the south flank of Ormonde [Mevel's Site 1]) and to drill

through the observed contact between mantle derived serpentinites and gabbros in the saddle between Ormande and Gettysburg (Mevel's Site 2). The primary criticisms are the anomalous nature of Gorringe and lack of knowledge of tectonic setting in which the crust and mantle which would be sampled were formed . Nevertheless, the Panel recommends this drilling as a back-up in the E. Atlantic in case of, for example, clearance problems in the Med or at Galicia. It is a well defined problem with good existing site surveys. Its priority, however, does not exceed that of MARK, EPR or 504B.

D. INDIAN OCEAN DRILLING

1. Recent Indian Ocean Workshop: Langmuir brought seven formal proposals from this workshop which are to be distributed to members of our Panel for detailed investigation and review in time for our November meeting at which prioritization will be attempted. A panel member will act as a proponent of each of the proposals as follows.

P.I.	Panel Proponent
1. Brocher	Purdy
2. Bonatti and Ross	Juteau or Emmerman?
3. Natland	Saunders
4. Duncan	Juteau
5. Duncan	Juteau
6. Dick	Hawkins
7. Langmuir	Langmuir and Sinton

2. Kerguelen: The processes of formation and evolution of oceanic plateaus are a high Lithosphere Panel priority. Purdy will contact Kennett and Curray to get all existing drilling plans in this region and pass this on to Juteau who undertook to formulate by our November meeting a preliminary straw-man drilling plan to most effectively achieve Lithosphere Panel objectives.

E. WESTERN PACIFIC DRILLING

1. Purdy expressed strong desire to choose site of focussed drilling efforts to study back arc spreading processes in the W. Pacific at the earliest opportunity. In this way, the necessary planning and data collection could, for a change, be done in a timely and organized manner. The question was posed 'Given we have time what is the best process by which to involve the wider community in choosing the site of such a focussed effort?!

2. The panel was pleased to hear of Jim Hawkins existing intention of organize a workshop to address drilling in W. Pacific arcs.

3. The idea was discussed of using COSOD II as a forum for several specific workshops of the type needed to address questions like that posed in (1) above.

F. PCOM DECISIONS

In discussing suitable adjectives to use to describe the various levels of certainty of PCOM decisions (as in, for example, 'cast in concrete', or conversely perhaps 'soft as clay') the panel determined the universally most appropriate word given the recent vacillations would be 'thixotropic'!

Attendees

G.M. Purdy
K. Bostrom
J. Delaney
R. Emmermann
J. Hawkins
T. Juteau
C. Langmuir
M. Leinen
K. MacDonald
R. McDuff
A. Saunders
J. Sinton

Visitors:

R. Carlson
M. Salisbury
K. Becker

Absent:

J. Sclater
M. Ozima
P. Robinson

DRILLING TIMES

Drilling Time

SITE 9

Water depth - 3950 m
Sediment thickness - approximately 800 m
Basement penetration - 50 m
HPC (200 m) and coring to basement

No re-entry cone — 13 days

Site 5

Water depth - 3350 m
Sediment thickness - 1425 m
Basement penetration - 50 m

HPC (200 m) and coring to basement

No re-entry cone — 17 days +3

BB3B

Water depth - 2090 m
Sediment thickness - approximate 1420 m
to first continuous reflector

Basement penetration - nil

HPC (200 m) + coring, re-entry and casing — 20 days

TOTAL 50 days

APPENDIX I

Transit times:

Stavanger to LA5	7.5
Between LA5 to BB3	3.5
Between BB3 to LA9	5.0
Between LA9 to St. John's	2.0
	18.0

Total days = 50 + 18.0 = 68.0

Bad weather, etc. = 5% = 3.5 days

Total required days = 68.0 + <u>3.5</u> = 71.5 days

SEDCO Leaving Stavanger - Aug. 9

At present ETA St. John's - Oct. 5

Requested ETA St. John's - Oct. 19

APPENDIX J

INTERNATIONAL PHASE OF OCEAN DRILLING

SITE SURVEY DATA BANK

Lamont-Doherty Geological Observatory

SITE SURVEYS

Palisades, N.Y. 109

Telephone: 914-359-29

Recent discussions at the July meeting of the JOI Site Survey Planning Committee have yielded the following guidelines on the submission of data to the IPOD Data Bank:

Initial data reports are to be submitted immediately following the site survey cruise. The minimum primary data set should include smoothed final navigation (in digital NGDC format) and reproducible copies of shipboard seismic reflection profiles. Also, large film negatives or sepia copies of any profiles that have been processed (CDP or otherwise) at this time should be submitted. The initial data sets will then be made available for the Safety Panel(s) as needed.

Final data reports should be submitted as the computer processed data become available. These should include:

1) A digital magnetic tape of underway geophysical data values (topography, magnetics, gravity) merged with smoothed final navigation.

2) A cruise report describing in detail the results of the survey.

3) Large copies, suitable for xeroxing, of the single channel seismic reflection profiles. The preferred format for 3.5 kHz records is on 35mm film negative.

If applicable, the final data reports should also include:

4) Large sepia copies (suitable for ozalid reproduction) of the processed multi-channel seismic reflection profiles.

5) Large ~~(page-sized)~~ photographic negatives of any side scan sonar data (GLORIA, SeaMARC I or II) collected during the survey.

6) Large sepia copies (suitable for ozalid reproduction) of any SEABEAM data, presented at a contour interval deemed appropriate by the Principle Investigator of the site survey after consultation with the Chairman of the SSPC.

7) Large sepia copies (suitable for ozalid reproduction) of any "specialized" data sets (such as sediment thickness maps, bathymetry/magnetic contour charts, velocity analyses, etc.) that have been developed in the course of the cruise report. The format and nature of the presentation of these data will be variable and will be dependent upon the nature of specific interest at each site.

APPENDIX K

Appendix K

September 21, 1984

TO: PCOM

RE: Needed Site Survey Staff Support

FROM: D. E. Hayes

At the Paris PCOM meeting we agreed there was a clear and urgent need to provide substantial staff support to better deal with a number of persistent problems relating to site survey in support of scientific drilling. Just how to implement the additional support was left unresolved; the matter was deferred to Honnerez, Larson, and Mayer for further discussion and recommended action. The alternatives identified in Paris involved providing the staff support at the new JOIDES office at URI or at the JOIDES/ODP data bank at L-DGO.

Because there may still not be a full appreciation of exactly what work is required or how it would relate to the responsibilities of the JOIDES Site Survey Panel (present or future), I have attempted to summarize my views on this issue:

1. The definition of required vs. desired and pre-drilling vs. post- drilling site survey data in support of scientific drilling is often vague, seldom consistent, and sometimes strategically rather than scientifically motivated. For example, drilling proponents have been known to come full-circle during the decision-making process. They may start with the position that:

   a) the proposed site(s) are adequately surveyed and therefore surveying should <u>not</u> be a factor in PCOM deliberations for allocating drilling time to the proposed programs.

   b) Once the sites are tentatively or firmly assigned to a drilling schedule, proponents often reconsider and decide retrospectively that a variety of additional survey data is <u>essential</u> prior to drilling.

   c) For various reasons, it may become impossible to get the essential data identified in b) and when this happens (threatening the scientific viability of the drilling leg), usually the needed data somehow loses its "essential" status.

2. The appropriateness of the existing data to the scientific drilling problem posed is often not addressed adequately or in a timely fashion, thereby pre-empting opportunities for long-range planning for site surveys and for drilling.

3. Even carefully planned and executed site surveys do not always yield results that identify <u>any</u> site location that is likely to resolve, by drilling, the scientific problem posed. Historically, in those cases we have proceeded with drilling anyway!

4. The total, pertinent MG&G data base that <u>should be</u> available for planning, site locating, and interpretation often is not available to the drilling project. Our PCOM policy (clarified at the Seattle '83 meeting) was designed to minimize this problem, but unfortunately, there has been little follow-through in enforcing that policy.

~~(over)~~

5. At its best, the JOIDES Site Survey Committee cannot be expected to deal with the above matters. They are all unpaid, busy scientists who are pressed to devote a few days/year to ODP matters. Therefore, neither the continued existence nor the possible demise of the JOIDES Site Survey Panel is particularly relevant to the issue.

6. We urgently need to establish day-to-day scientific oversight, advice, communication (between JOIDES advisory panels), and independent assessments of requisite MG&G site survey data in support of drilling. What we need is a well-qualified professional with training and experience in MG&G data acquisition, processing, and interpretation. Such a scientist is needed to deal with the problems cited earlier (and others) on a regular and continuing basis. I feel the amount of effort required is about 75% of one full-time person. It is particularly important to identify a person (or persons), both well qualified and interested in performing the needed service role. The additional financial support that would be required would also involve access to substantial travel funds, modest computer support, and some limited clerical and student assistance. The person(s) would be responsible to JOIDES and support should come from co-mingled funds. The proposed staff support would:

   1) Assist in identifying and compiling available site/specific and regional data pertinent to "official" drilling proposals.
   2) Assist in evaluating existing site survey data.
   3) Assist in defining additional site survey requirements.
   4) Provide communication between all pertinent JOIDES panels regarding site survey matters.
   5) Independently evaluate new site survey data and provide advice regarding its adequacy.
   6) Work closely with both the JOIDES/ODP data bank, the JOIDES office, the JOIDES Site Survey Panel, and national site survey panels to acquire pertinent site survey data from all possible sources.

The function of the proposed site survey management staff would, among other things, supplement the ongoing work of the JOIDES/ODP Data Bank. At the moment, the data bank has the primary responsibility for archiving site survey data that it receives and generating data packages for safety panel review and for each drilling leg. The data bank in the past has also provided data to the JOI and JOIDES site survey panels upon request. However, the data bank has never been in a position to actively solocit site survey data nor has it ever attempted to make independent judgments as to the adequacy of data.

Unfortunately, we (the PCOM) once again find ourselves without adequate site survey lead-time for many of the proposed drilling legs in the first three years of the ODP program. Now is the time to consider the site survey issues pertinent to drilling beyond 1988--it is NOT too early.

I believe the type and level of scientific staff support advocated herein would make a major improvement in our ability to plan an effective long-term drilling program and would free us considerably to deal with other equally important planning issues.

D. E. H.

APPENDIX L

Appendix L

SITE SURVEYS: COORDINATION, MANAGEMENT AND FUNDING

1. Introduction and Background

The difficulties of coordinating and defining site surveys and assigning responsibilities for them has been a matter of concern to JOIDES for some time. PCOM has addressed this issue on a number of occasions, most recently in 1978 and 1981.

In 1978, the SS-SP mandate was primarily to ensure international cooperation in site surveying, to review the adequacy of existing surveys and identify data gaps and recommend action (including international coordination of long-term regional studies and the use of new techniques and technology). It was at this time that the SS-SP was constituted with one member from each JOIDES member nation.

In 1981, in response to a position paper from D. Hayes, PCOM agreed upon a procedure whereby the SS-SP Chairman would advise site proponents who would have the primary responsibility for identifying, collecting and evaluating existing data. The SS-SP would identify any additional site survey requirements, assign responsibilities amongst JOIDES member countries and would evaluate the adequacy of the total survey data. The proponent would then report back to his subject panel. A flow-chart for this procedure was drawn up and is shown at Annex 1.

At its March 1984 meeting, the EXCOM considered the effectiveness of the SS-SP and passed the following resolution:

1. EXCOM recognises that it should be the responsibility of those scientists making specific drilling proposals to obtain adequate site survey information.

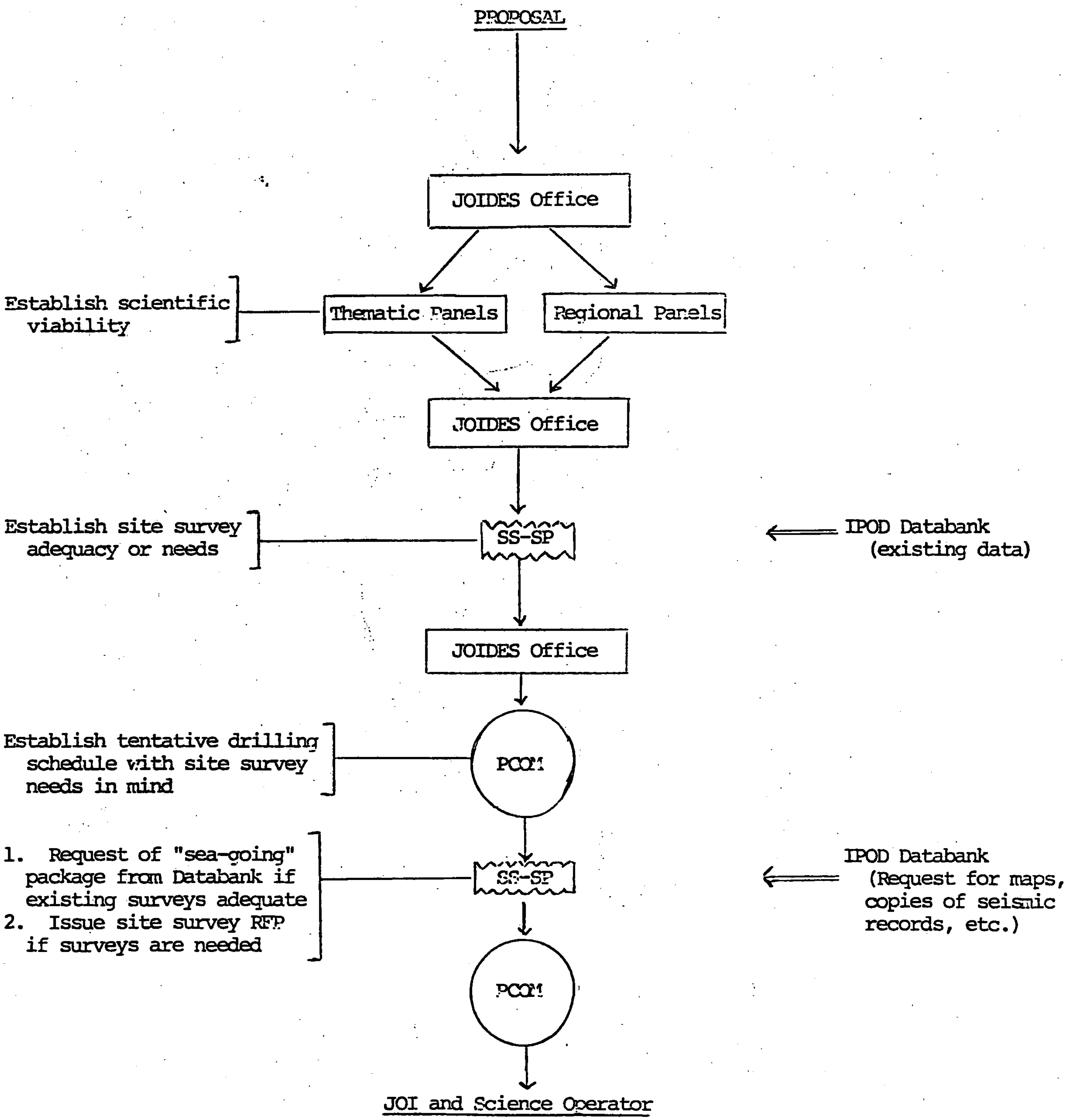
2. EXCOM asks PCOM to examine the role of the SS-SP.

3. EXCOM suggests that PCOM should consider the desirability that JOIDES Office acts as a coordinating office to link scientists having specific drilling proposals needing additional site survey information to a representative of each member who will be in a position to disseminate the need to relevant scientists and institutions in their constituency.

Following PCOM consideration of this motion, a further review of the situation was requested.

2. Role of the Site Survey SP

In order to fulfill its function, as set down in 1978 and 1981, the SS-SP needs to be able to respond to proposals which have been considered by Thematic and Regional Panels and Working Groups. It also needs to provide advice directly to PCOM on the latters' provisional drilling schedule in order to identify new site survey requirements. This is basically a matter of scheduling with appropriate inputs from the IPOD Databank and the JOIDES Office. A suggested flow-chart is shown below which is somewhat different in procedure from that shown in Annex 1 in that SS-SP advice precedes PCOM tentative drilling decisions.


PROPOSAL
JOIDES Office
Establish scientific viability
Thematic Panels
Regional Panels
JOIDES Office
Establish site survey adequacy or needs
SS-SP
IPOD Databank (existing data)
JOIDES Office
Establish tentative drilling schedule with site survey needs in mind
PCOM
1. Request of "sea-going" package from Databank if existing surveys adequate
2. Issue site survey RFP if surveys are needed
SS-SP
IPOD Databank (Request for maps, copies of seismic records, etc.)
PCOM
JOI and Science Operator

This flow-chart envisages that proponents of drill sites will support their proposals with "site survey" data and may wish to consult the IPOD Databank at the initial stage. There may be proposals without much "site survey" data. Nevertheless, all proposals received by the JOIDES Office will be referred to Thematic and Regional Panels for consideration. Once these Panels have made their recommendations, it is necessary for the SS-SP to consider these in detail and to produce a commentary on the site survey position prior to PCOM consideration. It is logical that the PCOM drilling schedule should be constructed on the basis of the most complete information available. The SS-SP will need to call on the support of the IPOD Databank. At this stage, PCOM will be able to identify a tentative drilling schedule and the SS-SP will then be able to make recommendations for any additional site surveys that may be necessary for the schedule to go ahead from both a scientific and a safety viewpoint. This flow-chart depends on scheduling meetings such that the SS-SP meets between Panel meetings and PCOM in order to report to the latter on both new proposals and on the tentative drilling schedule. We consider that this scheduling is the key to a successful site survey operation.

3. Implementation of Site Surveys

So far, no attempt has been made to distinguish between the types of site surveys which are needed. The paper by G. Brass classifies surveys into two types — regional (RGFS) and site surveys *sensu stricto* (SS). Taking this classification, it is expected that the authors of a proposal will tend to provide RGFS data and that the Thematic and Regional Panels will consider the science on this basis. There may be cases of proposals with little or no site survey data, with only RGFS data, with only SS data and, of course, proposals with both RGFS and SS data and the review procedure must be flexible enough to accommodate these variations.

Financial responsibility for site surveys also requires careful consideration and a realistic view needs to be taken in terms of site survey funding. The present state of ODP funding is such that it is unlikely that co-mingled funds can be used for site surveys unless there is a specific high priority requirement from PCOM which overrides other activities. Financial responsibility will continue to fall on national programmes, however desirable the Brass proposals may be, and the role of the SS-SP in coordinating national programmes (and through JOIDES members' representations on the Panel to have an advocacy role in "bending" national programmes to the advantage of ODP and in submitting appropriate national bids) will continue to be of prime importance.

To be effective, the SS-SP will need support from both the JOIDES Office and the IPOD Databank but we cannot envisage any increase in resources at this time. The IWG has recommended a review of the Databank which may identify ways and means of providing the necessary support to the SS-SP with no additional cost. The SS-SP will need to be fully cognisant with the advance programmes of research vessels in member states and must be able to fulfill its mandate in looking ahead to new techniques and technologies and the new requirements that will be needed with advanced drilling techniques (such as riser drilling). The SS-SP is already moving in this direction and the proposed agenda for the next Panel meeting (Annex 2) illustrates this.

4. Conclusions

a. The SS-SP should continue under its present mandate and with membership drawn from JOIDES member countries.

b. The SS-SP will provide advice, through the JOIDES Office, to PCOM on drilling proposals from Thematic and Regional Panels and on specific site survey requirements arising from the PCOM tentative drilling schedule.

c. The SS-SP will continue to coordinate national programmes and its members will have an advocacy role in adapting national programmes to the advantage of ODP.

d. It is expected that the costs of site surveys will continue to be primarily a national responsibility.

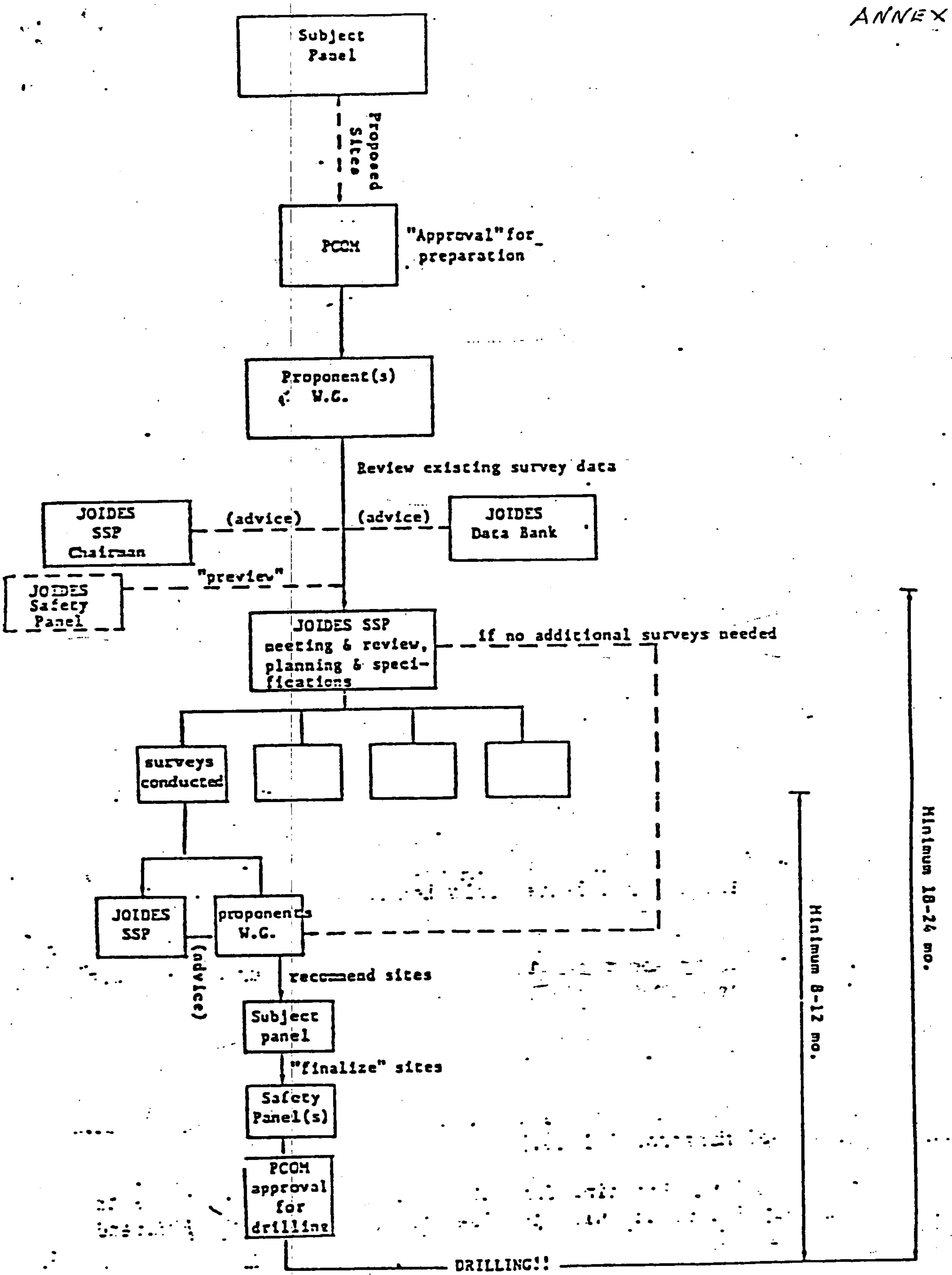
e. The SS-SP will provide advice to PCOM on site survey requirements (particularly in terms of advanced drilling techniques) and on new site survey technologies.

f. The JOIDES Office and the IPOD Site Survey Databank will provide support for the SS-SP. The Databank will be the subject of a further review.

September 1984

Tony Mayer
Roger Larson

ANNEX 1



"Ideal" Scenario (Hayes 1981)

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DRAFT MINUTES

JOIDES Executive Committee Meeting
15-16 October 1984
Narragansett, Rhode Island

Members Present

J. Knauss, Chairman (Graduate School of Oceanography, U. Rhode Island)
A. Berman (Rosenstiel School of Marine & Atmospheric Science, U. Miami)
B. Biju-Duval (Institut Francais de Recherche pour l'Exploitation de la Mer, France)
J. Bowman (Natural Environment Research Council, U.K.)
D. Caldwell (Oregon State University)
H. Durbaum (Bundesanstalt für Geowissenschaften und Rohstoffe, FRG)
D. Hayes for B. Raleigh (Lamont-Doherty Geological Observatory)
C. Helsley (Hawaii Institute of Geophysics, U. Hawaii)
M. Keen for W. Hutchinson (Dept. of Energy, Mines, and Resources, Canada)
B. Lewis (University of Washington)
A. Maxwell (University of Texas at Austin)
W. Menard for W. Nierenberg (Scripps Institution of Oceanography)
W. Merrell for R. Reid (Texas A & M University)
D. Spencer for J. Steele (Woods Hole Oceanographic Institution)
J. Stel (European Science Foundation)

Liaison

R. Anderson (Wireline Logging Services Contractor, Lamont-Doherty Geological Observatory)
J. Baker (Joint Oceanographic Institutions Inc.)
J. Clotworthy (Joint Oceanographic Institutions Inc.)
R. Larson (JOIDES Planning Committee)
P. Rabinowitz (Science Operator, Texas A & M University)
S. Toye (National Science Foundation)

Guest

J. Carvalho (Brazil)

JOIDES Office Liaison

M. Burdett (Office Coordinator)
D. Keith (Science Coordinator)
A. Mayer (Executive Assistant to PCOM Chairman)

303 INTRODUCTION: ADOPTION OF MINUTES

The Executive Committee met 15-16 October 1984 at Narragansett, Rhode Island. J. Knauss (EXCOM Chairman) welcomed meeting participants and introduced new members and guests. The minutes of the 21-23 May 1984 Planning Committee Meeting were amended to state that B. Lewis represented the University of Washington.

304 NATIONAL SCIENCE FOUNDATION REPORT

S. Toye (NSF, Ocean Drilling Program Director) reported.

A Memorandum of Understanding (MOU) with France will be signed in Paris on 23 October 1984. Grant Gross (NSF) will head the U.S. Delegation.

The new director of NSF, Erich Bloch, has been briefed on the Ocean Drilling Program and is very enthusiastic, particularly with regard to the international aspects of the program.

The NSF budget for FY 85 is nearly complete, the appropriation bill has been passed and signed. The FY 86 budget is being formed with the Office of Management and Budget, and thus cannot be announced.

As of the January sail date for the drillship, membership status will change. If 4 long-term members are not aboard or clearly in view, the viability of the Ocean Drilling Program is at issue. NSF will be faced with 2 alternatives: either cancel the program and pay penalties or put together another funding coalition of presently signed member countries and other new members (e.g. other agencies such as U.S. Geological Survey or other countries such as the U.S.S.R.). A clear position on membership intent must occur by January 1985 or restructuring of the program will be necessary.

Tetra-Tech has been contracted by NSF to provide environmental impact statements, as required under U.S. law, in order to conduct drilling operations. Tetra-Tech will meet with the Science Operator (TAMU) at College Station on 23 October 1984 to address this subject.

SEDCO has agreed to a take-over bid by Schlumberger. NSF sees no legal problems with this situation as a long-term contract was signed with SEDCO/BP before the take-over offer and this will be honored by Schlumberger.

305 JOINT OCEANOGRAPHIC INSTITUTIONS INC. REPORT

J. Clotworthy reported.

A definition of the procurement protocol for interactions between LDGO, TAMU and non-U.S. partners was completed and mailed on 20 September 1984. A summary of major JOI budgetary decisions was presented to PCOM and EXCOM and is found in the Interface Working Group (IWG) minutes and the monthly JOI report to NSF. Distribution of the JOI reports is currently behind schedule but the gap will be closed by the end of 1984, after which the report will be distributed 30 days within the closing of each month.

Responding to a request for a definition of responsibility for downhole measurements, the IWG met 28-29 August 1984 at TAMU and recommended that LDGO be responsible for all routine measurements on the logging wireline on each leg while TAMU is responsible for all other downhole instrumentation that is non-routine.

The IPOD Data Bank has been transferred to co-mingled funding as this reflects its international function. The IPOD Data Bank is mandated to catalogue and archive site survey records, to assist the Chairman of the JOIDES Site Survey Planning Committee and to provide data packages to each co-chief scientist for every drilling leg. There is no additional cost to the program as co-mingled funds had presently been used for non-U.S. scientists' travel in the U.S. and, as this is no longer the case, funds have been redirected for support of the Data Bank. It was emphasized that the position needed to be reviewed and, recognizing this, JOI had only placed a 6-month contract with LDGO for the Data Bank.

Motion: It is moved that co-mingled funds be used to support the IPOD Data Bank and further, the name of IPOD Data Bank be changed to the ODP Data Bank.

Proposed by Durbaum, seconded by Maxwell.

Vote: for 12, against 0, abstain 1. (Two members absent.)

The U.S. had agreed to provide site surveys for the Kane Fracture Zone and the Chile Triple Junction. JOI had issued a Request for Proposals (RFP) and had awarded a contract for the Kane Fracture Zone work. Responses for the Chile Triple Junction survey were rejected by JOI. The USSAC Field Programs Panel made suggestions on combining and revising the proposals, but the re-submitted proposal was rejected because costs were greater than those budgeted and there were problems with cruise objectives. Since PCOM has designated the Chile Triple Junction as a cruise leg (Leg 113), there are 2 choices: either resolicit RFPs in early 1985 for surveying in Fall 1985, or ask the JOIDES Office to poll each member country to determine if all or part of the site survey might be done with co-mingled funds.

Discussion:

EXCOM expressed apprehension that there would not be adequate time for site selection if the site survey was conducted in early 1986.

Toye (NSF): NSF is open for proposals to do regional geophysical field studies (RGFS) for site surveys, however, as of this date, no proposals have been received. NSF will consider unsolicited proposals at any time with funding decisions being made some 3-6 months after receipt of the proposal.

Larson (URI): Where would the survey ship equipment come from? The multichannel system initially proposed for the Chile Triple Junction was rejected. However, another USSAC site review approved the same system for the Peru Margin.

Biju-Duval (France): The Jean Charcot will be in the S.W. Pacific in 1985 and may be available in 1986 to do some aspects of the site survey.

Clotworthy: JOI recommends that the data be reviewed by the JOIDES Site Survey Panel before the end of November 1984 and a determination made if the U.S. should resolicit.

Helsley (HIG): The timing of the decision is very important because an NSF-sponsored ship with the necessary equipment is available January-March 1985.

Maxwell (UT): If no satisfactory site survey is done by the end of Winter 1984-85, the PCOM should reconsider the proposal.

Baker (JOI): If the USSAC panel decision is to be appealed then there must be a formal appeal process.

Hayes (LDGO): Since there is no formal committee to deal with proposal rejections, possibly EXCOM could get the USSAC panel to reconsider the proposal.

Clotworthy: The USSAC Field Programs Panel has said that it would not reconsider the rejected proposal.

Lewis (UW): It appears PCOM recommends drill sites before adequate data is available, then needs the data to justify the site. PCOM should only consider those sites with adequate site survey data.

Helsley: The PCOM site selection committee did its job well in that it brought to attention the need of additional site survey data.

Larson (URI): PCOM recommended the Chile Triple Junction site because it provides an opportunity to study the poorly understood process of ridge subduction and thereby provides for an opportunity to do "new" science.

Knauss (URI): This example raises the complicated issue of how to avoid the constraints of the U.S. RFP form of site selection which is done parallel to and is independent of PCOM site selections. Any advice that PCOM can give to EXCOM concerning this matter will be appreciated as the issue will seemingly be raised again.

Consensus: EXCOM will not interfere with panel decisions concerning proposal recommendations. Further, the Chile Triple Junction site survey problems are primarily a U.S. community issue, but the decision to include the Chile Triple Junction in the drilling program is a JOIDES decision.

306 SCIENCE OPERATOR REPORT

P. Rabinowitz reported.

Staffing for the lab officer and marine technician slots has been completed. The science service group, the computer group (both sea and ashore) positions have been filled. All key shipboard positions have been filled. The East and West coast repositories are completely staffed with the Gulf Coast repository slot remaining to be filled. Almost all engineering positions are filled with B. Harding hired to replace A. McLerran. Publications still remain to be staffed.

The staff scientists are:

R. Kidd - Manager of Science Operations (U.K.)
A. Meyer - Assistant Manager (U.S.)
A. Palmer - Micropaleontologist (U.S.)
E. Taylor - Physical Properties (U.S.)
C. Auroux - Tectonics (FRA)
A. Adamson - Alteration Petrology (U.K.)
B. Clement - Paleomagnetism (U.S.)
G. Haase - Downhole Measurements (FRG)
L. Gamboa - Seismic Stratigraphy (U.S.)

The drillship is at M&M Shipyard, Pascagoula, MS presently undergoing construction of a seven-deck science laboratory. The decks are divided as follows:

1 & 2 - refrigerated core storage
3 - electronics and photo lab
main - computers and science lounge
5 - chemistry lab
6 - sediments lab and drilling operations
7 - downhole logging

The ship went into the shipyard at the end of August for removal of non-essential equipment. In mid-September, the derrick was removed for strengthening and construction of the library and geophysics lab was begun, with a ready date of late October/early November. Lab furniture will be installed during early November. During mid-November, the long lead time items (e.g. the heave compensator) will be delivered with the shakedown cruise scheduled for early December. Delays in mid-November could delay the shakedown cruise date. Realistically, the science operator sees a mid-December date for the shakedown cruise with a ten day contingency buffer factored in the schedule. If difficulties occur during shakedown, the ship could leave from Ft. Lauderdale instead of Galveston resulting in a 5 January 1985 start-date for ODP. However, the number of operating days would be the same as the 1 January sail date from Galveston.

Consensus: The 01 January 1985 sail date from Galveston, TX should be revised to 05 January 1985 from Ft. Lauderdale, FL.

Discussion:

R. Larson (URI): Is a two-leg shakedown cruise still planned? What is the contingency if the shakedown cruise is only one leg?

P. Rabinowitz (TAMU): A two-leg shakedown is scheduled, however, a final decision will be made 19 October 1984. In the latter case, the remaining bunks would be filled with members of the second drilling crew.

The State Department has made affirmative verbal commitments to clearances from the government of the Bahamas but as of the Rhode Island EXCOM nothing has been sent in writing. The clearance procedures might be more complicated because of the Liberian registration of the drillship.

The costs of conversion, long-lead time item procurement, shakedown and other items were reviewed:

		BID ($K)	ACTUAL ($K)	CHANGE ($K)
A)	Design	550	750	+200
B)	Procurements	6961	7837*	+876
C)	Conversion (shipyard)	2100	4900	+2800
D)	Conversion day rates, shakedown, testing	1437	1437	0
E)	Other	0	200	+200
		11048	15124	+4076

*includes $375K for lab furnishings

The cost overruns are the product of increased purchases and complexities such as the addition of 50% more lab and storage space than accounted for in the original RFP. This particular item has resulted in $2.8M of the actual $4.9M overrun for shipyard conversion.

Discussion:

Hayes (LDGO): In late May, SEDCO reported that the original estimate for lab design was accurate. Why did they not anticipate the cost overrun and why had EXCOM not been told of the size of the overrun?

Helsley (HIG): The question is not that there were cost increases but why we were not warned earlier of the range of the increase.

Merrell (TAMU): The cost increases had been discussed by the Interface Working Group. The committee did have background information and the RFP evolved with advice from JOI and others.

Rabinowitz (TAMU): The original conversion estimates were with SEDCO, not with the M&M Shipyard.

Subsequent discussion centered on the chronology of events that led to a re-evaluation and increase in the amount of laboratory/storage space. The 20 March PCOM meeting found the originally proposed lab space inadequate. Subsequent changes were approved by EXCOM, based on a budget with 4 non-U.S. member countries. These changes occurred within the guidelines as set by PCOM and EXCOM and within the overall budgetary constraints of the ODP contract. Toye (NSF) indicated that due to time constraints involved, the final decision was to go ahead as planned because the costs of delay necessary to further refine the designs would have been unacceptable. Merrell (TAMU) also added that alternatives were mentioned in the IWG minutes of 28-29 August 1984.

The financial summary (see below) for FY 84 (exclusive of conversion costs) shows that there is a savings of \$1.76M. Applying this savings against the \$4.1M deficit yields a new total of \$2.4M. Applying the anticipated FY 85 savings of \$0.6M to \$2.4M deficit results in total deficit of \$1.8M. Clotworthy (JOI) noted that \$1.5M of the \$1.8M is from NSF to JOI; \$0.3M is from travel and other JOI expenses:

	$M
Total Conversion, Long Lead Time Items, Shakedown and Additional Costs	+4.1
FY 84 Total Savings*	-1.7
*from operational cost centers and start-up equipment	+2.4
TAMU FY 85 Total Savings (anticipated from operational cost centers)	-0.6
	+1.8
NSF Reprogrammed Funds	-1.5
	+0.3
JOI Savings Anticipated FY 85	-0.3
	0

The overall program plan looks like:

FY84	19.1M
FY85	26.9M
	46.0M
	+ 1.8M (JOI reprogrammed funds)
	47.8M

The $47.8M represents an increase in program costs of 4%.

Note: Clarification of above analysis

An inadvertent error has been made in applying the $1.5M "NSF Reprogrammed Funds" as additional funds for FY 84-85. This amount is included in the original NSF ODP funds for FY 84-85. However, NSF has agreed in principle that an upper limit of $1.35M can be contemplated as additional to the FY 85 budget. Therefore, the above bottom line is $150,000 too high and requires an adjustment by JOI in program priorities.

Helsley (HIG) expressed cautious optimism that FY 85 budget costs would remain stable. Rabinowitz replied that possible savings could be found in the following items:

a) Insurance (about 100-200K)
b) Salary excesses (about 100K)
c) Other salary deferments (150K)
d) Equipment deferral
e) Ship operations (fuel/day rate escalations, reimbursables, port stays) (up to 500K)
f) Bare rock drilling
g) Shakedown cruise
h) Other cost savings
i) Fuel
j) Conversion change orders
k) The purchase of excess Challenger drillpipe (about 200K)

Merrell (TAMU) added that savings in fuel and day rates could reach as high as $10K/day, if the drillship was operated under fuel conservative operations.

Consensus: EXCOM suggests that a summary of the science operator's report be distributed to the scientific community via JOI publications as to relieve concerns that the $4.1M overrun might result in a $4.1M reduction in funds available within the U.S. for ocean science.

Discussion on staffing for Leg 101 focused on the selection procedure of non-U.S. scientists. For a detailed listing of scientific and technical staff for Leg 101 see Appendix A.

Rabinowitz: Do we select non-U.S. participants from a list of all potential scientists or do the non-U.S. JOIDES representatives present us with a list from which we then select participants?

Mayer (URI): Staffing in the U.K. has been delegated to the PCOM representative who presents a listing of potential selections.

Berman (RSMAS): Are berths available for countries not in JOIDES but in whose territorial waters we are operating?

Rabinowitz: Berths are available.

Larson (URI): With regard to the technical support staff, does the list include the 4 logging people as scientists or technicians? This issue was extensively debated at the Hawaii PCOM meeting as the PCOM is concerned from which group these slots will come from. There is nothing stated in the MOUs concerning this matter, but PCOM does not want the drillship loaded with excess technical support sailing as members of the scientific party.

Rabinowitz: I was not aware that this was a sensitive issue.

Potential names for SEDCO/BP 471 were submitted to the president and vice-president of SEDCO and to the Board of Directors of BP. The legal renaming of the vessel was rejected by these executives. However, they are amenable to placing a logo in a prominent location on the vessel. Through common usage, this name would eventually become the ship's name. The name submitted was JOIDES Resolution. Subsequent discussion focused on possible communications problems associated because of the two names for the drillship. Many EXCOM members noted that many oil industry drillships have dual names as well as the ships of the U.S. Navy Agor class. It was the consensus of EXCOM that a motion was needed to close the discussion.

MOTION: It is moved that EXCOM accept the name JOIDES Resolution as the non-legal name of the drillship, SEDCO/BP 471.

Moved by Knauss, seconded by Berman.

Vote: For 13, Against 1, Abstain 1.

The JOIDES Safety Panel met at TAMU on 30-31 August 1984. Safety advisors agreed with all the safety panel's recommendations except site BB-3A in Baffin Bay. The panel also informed the State Department that clearances for the Galicia Leg in mid-April are needed by mid-January or alternate drilling plans would have to be considered.

Discussion:

Knauss (URI): It seems that the State Department might respond sooner to ODP requests for clearances if NSF and JOI could meet with the State Department (possibly the Assistant Secretary).

307 WIRELINE LOGGING SERVICES OPERATOR REPORT

R. Anderson, Director of Wireline Logging Operations, reported.

Contracts with Schlumberger have been signed and Schlumberger is also providing insurance for the logging tools of the program for $5K/yr. The package from Schlumberger consists of 3 nuclear tools that determine lithology, porosity, and bulk density. The tools are scheduled to be calibrated at a U.S.G.S. test hole in Denver. The package further consists of a single component seismic sonic tool (a vertical seismic profiler) that produces a synthetic seismosgram for comparison with multi-channel seismic data. Within 3 years a 3 component tool will be available for ODP as would a full waveform sonic logging tool. Contracts for speciality tools have been signed with WBK (FRG) for a digital borehole televiewer in FY 86, and with M. Zoback at Stanford University/U.S. Geological Survey. No new tools are scheduled to be purchased in FY 85. Presently, logging services has an older, analogue, borehole televiewer, calibrated in a test hole in the Palisades Sill, and a 12-channel sonic seismic tool.

C. Brolia has been hired as a log analyst staff scientist to develop computer software for logging operations. Scientists outside of LDGO and Schlumberger with an interest in well log information are urged to contact the logging services operator.

Schlumberger is developing 2 pieces of new hardware for the wireline heave compensator: a servo mechanism for the J frame to compensate for the ship's heave and a accelerometer/altimeter to interface with the servo-mechanism. Schlumberger also has a warranted guarantee that the problem of heave compensation will be solved.

Subsequent discussion agreed that the accelerometer/altimeter would compensate for the heave of the ship but would the heave also be compensated at the bottom of the drillhole and how could it be measured? Anderson stated that about 10% of the ship's heave (up to 2 ft. in a 20-ft. swell) would be seen by the tools in the drillhole.

Helsley (HIG): Using a seismometer, the downhole acceleration could be measured.

Anderson: Attaching a seismometer to the cable would limit the space available for real time data transmission. However, the data could be recorded and read later.

Knauss: How critical is the heave compensator for the downhole tools to work?

Anderson: Without the heave compensator, the tools probably will not be able to operate at optimum digitizing speed and unprocessed information will not be preserved.

The wireline pump tester for porewater chemistry is being developed by AMOCO. The patent has not yet been submitted but once it is, ODP must purchase a limited license from AMOCO. This particular patent arrangement is somewhat in conflict with the general ODP policy of making technology available to all participants. The present diameter of the pumps reaches the optimum diameter of the drill string. A miniaturized version will be available in FY 86 in time for the Barbados Leg.

308 OTHER OPERATION REPORTS

D. Keith, Science Coordinator of JOIDES Office reported.

The JOIDES Office at the University of Rhode Island officially opened its door on 1 October 1984. The office is presently obtaining the hardware and software necessary to establish a computer telecommunications link to JOI and TAMU. The JOIDES Office anticipates in the near future establishing a mailbox in the OMNET system under the name JOIDES.URI. Bids for the publication of the JOIDES Journal are presently being taken with final selections occuring before the end of October.

309 MEMBER COUNTRY REPORTS

Federal Republic of Germany - H. Durbaum reported.

The German company, WBK will supply ODP with the digital downhole televiewer, and the 3-D magnetometer is presently being readied for

Leg 102. The geophysical ship, Polarstern, will conduct site surveys in the Weddell Sea in 1985, 86 in conjunction with the U.K. survey. The Meteor will be placed out of service at the end of 1984. The new Meteor is presently under construction with completion scheduled sometime in 1986-87. Upon completion, the Meteor will begin in the Indian Ocean and the FRG would like to offer to conduct regional site surveys.

Durbaum reported that a recent proposal to drill within the territorial waters of one of the countries bordering the Indian Ocean was apparently rejected by the Indian Ocean Regional Panel because the panel chairman believed it would be very difficult due to political issues to obtain clearance for drilling.

Consensus: Panel decisions on proposed drill sites should be based on their scientific merit and not on political issues, and PCOM should so inform all panels.

France - B. Biju-Duval reported.

On 7 August 1984, a decision was made to sign an MOU with NSF. The Ministry of Technology is very concerned with geosciences and considers the ODP important. Two million francs will be available in support of science with IFREMER funding linked to the development of new technology. France has also decided to play a larger role in data acquisition for site surveys and in 1985 the Jean Charcot will do site surveys in the Mediterranean and the SW Pacific. In late 1985, discussion will be held to determine cruise plans for the Indian Ocean and Pacific Ocean.

United Kingdom - J. Bowman reported.

Presently, the U.K. does not have the funding to participate as a full member. Government policy requires that government monies be used in conjunction with contributions from the private sector to finance the membership. Scenarios with and without industry support are being developed before the matter is considered by Ministers.

U.K. panel participants are pleased with panel development but are maintaining a low profile until the membership issue is resolved.

The RRS Discovery will be carrying out in 1984/85 geophysical work in the Weddell Sea. The RRS Darwin has not yet been delivered due to technical problems but is scheduled to do site survey work in the Indian Ocean in 1985.

Discussion:

Knauss (URI): Would it be useful for JOIDES to express additional concern over the membership issue to the U.K. government?

Bowman: Any concern to the U.K. government should stress the consequences of non-participation rather than the virtues of the program.

Larson (URI): If the U.K. is not a full member the results could be disastrous to the planning structure as 3 panel chairmen and 1 PCOM member are from the U.K.

Canada - M. Keen reported.

The new government has been informed concerning ODP and has expressed a great interest in R & D programs. However, the administration has also expressed a great interest in cutting expenditures. The issue of full membership is presently being discussed with a decision to be made by 1 January 1985. Possible a letter from JOIDES could be beneficial.

The site surveys for the Labrador Sea have been completed. The CSS Hudson is scheduled in January 1985 for site surveys of the Kane Fracture Zone. The vessel will be equipped with an acoustic video system to aid in bare rock drilling. There is also work scheduled along the Canadian west coast on the Explorer Fracture Zone cruise.

European Science Foundation - J. Stel reported.

It is impossible to make decisions concerning full membership before the end of 1984. Presently, the 5 members will be able to provide 40% of full membership, and if additional countries join then that could be raised to a 50% commitment. Spain is enthusiastic to join but has yet to make a firm commitment. Italy and the Netherlands also have not made final commitments. The ESF will meet in Fall 1984 to confirm commitments from consortium members and discuss negotiations for a major partner. A JOIDES letter to the ESF General Assembly might be beneficial.

Japan - The Japanese EXCOM member was not present. S. Toye (NSF) commented on Japanese membership.

The monies for full membership have been placed in the Japanese budget request for FY 86. NSF feels comfortable with the present situation as the Japanese have given a written commitment to the program.

Guest Countries

Brazil - J. Carvalho reported.

There presently is no news concerning membership. There will be further discussion within the next 2 years. Brazil has not yet discussed a joint effort with any other country.

310 PLANNING COMMITTEE REPORT

R. Larson, Chairman of JOIDES Planning Committee reported.

Short-term Planning and Ship Schedule

After reviewing the recommendations of thematic and regional panels with regard to Legs 111-113, each panel-endorsed proposal was ranked and voted on yielding 3 distinct groupings consisting of two proposals per group. The Peru Margin and EPR 13°N were clear winners for Legs 111 and 112. Leg 113 was extensively discussed and the Chile Triple Junction was the PCOM consensus. However, it was understood that the Chile Triple Junction needed additional site survey data. Contingencies for all legs up through 113 were voted on and resulted in:

1st priority - Yucatan
2nd priority - NW African Margin
3rd priority - DSDP Hole 504B

The proposed cruise dates for Leg 114 (Weddell Sea) were discussed, expecially in regard to the formation of pack ice. The weather window which totals approximately 70 days creates an awkward situation of either one long cruise leg or 2 short cruise legs. EXCOM members asked if panel priorities could be changed if a large influx of proposals from different sites should occur.

Discussion:

Hayes (LDGO): PCOM decided long ago to drill in the Weddell Sea and there will be many new proposals as time progresses. Furthermore, there needs to be listings with several areas so that PCOM does not have to create priorities.

Larson: In regard to bare rock drilling, the problems associated with spudding into the bare rock of a slow-spreading center such as the Mid-Atlantic Ridge may be made more complicated by drilling along a fast spreading center such as the East Pacific Rise, due to problems of fracturing and high temperatures.

EXCOM asked if alternative sites are available if the 3 bare rock drilling legs could not be done and would PCOM consider going to DSDP Hole 504B.

Discussion:

R. Anderson (Wireline Logging Ser. Contractor): Two major technical problems make 504B an equally complicated situation. First there is the high temperature environment to consider (about 170°C) and second, there are recovery problems associated with working in this environment.

Co-Chief Scientists Situation:

Co-chiefs have been selected for the first through the fourth legs with additional recommendations for Legs 105 and 106.

Long-term Planning:

Serious discussion of plans for the Indian Ocean and Southern Ocean will be conducted at the January PCOM meeting in Austin. Tentative plans, however, were made at the September PCOM for the ship to spend austral summer '87 in the Weddell Sea, mid '87 to the Indian Ocean, and austral summer '88 to the Kerguelen Plateau. The Indian Ocean Panel would like the ship to remain in the Indian Ocean into 1989 but the tentative feeling of PCOM is to bring the ship into the western Pacific.

Mayer (URI): With regard to the EXCOM request that proposals be published in the JOIDES Journal, the lists of received proposals will be computerized for ease of retrieval. According to procedure, proposals should be sent to the JOIDES Office for apropriate distribution to panels and the Data Bank. The method will allow for tracking the evolution of proposals from immature to mature status. Publication of the listing will begin with the February 85 issue of the Journal.

Site Survey Panel:

Mayer reported that the problem with the JOIDES Site Survey Panel is partly one of the timing of the site survey reviews. In theory, after the site survey panel has examined prospective sites, the PCOM should have enough evidence for its decision making. The Site Survey

Panel could also assist the JOIDES Safety Panel which should also be brought into the decision-making process at an earlier time. In addition, the Site Survey Panel had a role in developing site survey planning on a full international community basis. It had been suggested that co-mingled funds could be used for site survey funding. Durbaum asked about mid-term planning. Mayer responded that the short timescale for planning the early stages of drilling had created difficulties in terms of site surveying. However, as the planning process moved into maturity with a general two-year lead time, then problems with obtaining site surveys should be much reduced. The coordination of the surveys will be handled through the members of the JOIDES Site Survey Panel and by the JOIDES Office. It was noted that the next meeting of the Panel will be at the end of November 1984.

Durbaum: Specific objectives for the Indian Ocean should be identified as there are several surveying plans proposed for the new Meteor. These objectives should be on the agenda for the November Site Survey Panel meeting.

Consensus: EXCOM does not favor the use of co-mingled funds to fund site surveys.

TEDCOM Report (re: Bare rock drilling):

Larson: A meeting of a lithosphere subgroup resulted in basic specifications for bare rock spud-in. These include the ability to spud in on bare rock sea floor with 20° regional slope and ± 1 meter random relief. The ODP-TAMU engineering group responded with a design of a 3-legged platform that holds a 20-foot (diameter) stabilization box filled with 50K lbs. of sand or cement. The center of the platform holds a gimballed re-entry cone to receive the drill string. Drilling of the hole might begin with a series of increasing diameter pilot holes that will eventually reach a diameter of 20 inches. The FRG has suggested using pneumatic hammer drilling and Sandia Labs suggests using shape charges (explosives). The design contract has gone to SEDCO with a 8 January 1984 deadline. ODP is planning to do this type of drilling in October 85, and two units will be made to go to sea (this takes into consideration the 5-6 months needed to develop, construct and test the system). Helsley stated that pilot hole drilling was done at U. of Hawaii in regard to geothermal drilling and was very time consuming (After 3 months a depth of 500 ft. was reached.). Helsley strongly urged this technique not be used and suggested the SEDCO engineers talk to U. of Hawaii.

As an alternative, Keen (Canada) noted that a system already exists that will drill a pilot hole independent of the main drill string. Lewis (UW) noted that Challenger routinely did this for years with no problem in an environment that was sediment covered. It was noted that spudding into bare rock is a very different problem. Berman (RSMAS) suggested that the Navy has had previous experience with shape charges and should be contacted. Larson (URI) indicatd that the field test for the system is Leg 106. EXCOM urged PCOM to have "fall-back" programs if bare rock drilling is not successful for the first couple of years. It was further noted that a fully funded program with a schedule is in place at TAMU to deal with the problem.

Riser Drilling:

TEDCOM reports that now is not too early for riser drilling and that the ship will probably have ÷4500 ft. available for riser drilling. Rabinowitz and Merrell disagreed, siting the amount of logistics and associated problems as being the real upper limit for riser drilling and not space availability.

Emergency PCOM:

The purpose of meeting would be to develop a damage control scenario and it was the recommendation of the EXCOM Chairman to defer this matter pending membership discussion.

Leg Staffing:

There is some feeling of uneasiness within the U.S. community concerning the U.S. percentage of the scientific party and the number of co-chiefs from U.S. institutions which was initiated by the selection of co-chiefs for Leg 104. Under DSDP regulations, this probably would not have happened. However, the MOUs are now worded in a way to guarantee a specific percent participation of non-U.S. scientists and not U.S. scientists. Merrell responded that TAMU tried to make the program as international as possible using the best scientists available.

Larson asked if the U.S. members of EXCOM feel uncomfortable with the guarantees of the MOUs. Toye (NSF) noted that this is not the first time that this issue has been raised and commented on the insistence of some PCOM members to apply DSDP guidelines to this program, which is a fresh start.

Consensus: EXCOM concluded that presently no problem exists and that the MOUs are subject to a wide range of interpretations. However, if a problem rises then, at that time, rules and regulations may have to be established but not for the present.

311 GENERAL DISCUSSION OF MEMBERSHIP

It was the general feeling of the full members of EXCOM that under the terms of the MOUs, those members who have not made a written commitment to participate in the Ocean Drilling Program should not attend the January PCOM. Those members potentially affected by the situation concurred.

Discussion focused on the impact that the decision would have on the structure of the thematic and regional panels. It was the consensus of EXCOM that panel representation on the basis of nationality for those countries that have not made a full commitment would be discontinued.

Discussing the state of Japanese membership it was noted by Toye, that a special relationship exists as of the sailing date because of their stated intention to become full members in October, 1985. Based on letters on file at NSF, the Japanese will have observer status at EXCOM and PCOM meetings.

After extensive discussion of the consensus, EXCOM considered ideas for dismantling and restructuring the thematic and regional panels and working groups. Merrell proposed that a very carefully worded resolution is needed to aid the PCOM Chairman with regard to the PCOM Austin invitations. Toye stated the MOUs provide that JOIDES switches from the planning period to the operations period when drilling begins. At that time the planning phase MOUs expire. It was agreed that the membership of the scientific party for the first 2 cruise legs would be left intact with changes starting before the third leg.

It was further agreed that the January PCOM would only have members or observers present. It was suggested potential member countries accept responsibility for determining their status prior to the January meeting and notify their representatives regarding meeting attendance. It was agreed that PCOM should not be burdened with this latter responsibility.

It was further stressed that PCOM has the prerogative to identify and redesignate key people on the various committees. It was the consensus of EXCOM that PCOM should evaluate panel membership in January and then bring the panels to full strength by April (so as to not jeopardize long-term planning). Further, the meetings that are scheduled during the interim (Jan.-Apr.) should not be delayed.

The resolution was proposed by A. Maxwell and seconded by Durbaum.

<u>Motion:</u> The EXCOM recognizes that the Ocean Drilling Program is scheduled to begin its operational phase on 5 January 1985. At that

time, JOIDES membership will consist of those countries which have a regular member MOU agreement with NSF. Further, those countries who have made a commitment to NSF to join ODP in the future will be given observer status on the EXCOM and PCOM.

Scientists from non-JOIDES countries which were formerly candidate member countries will no longer be members of PCOM and panels after 5 January 1985, but they shall be eligible for reappointment. PCOM should consider at its April meeting the completion of membership of panels, including scientists from all countries.

Vote: for 15, against 0, abstain 0.

312 FUTURE EXCOM MEETINGS

16-20 February 1985	Miami/Ft. Lauderdale, FL
14-16 May 1985	Washington, DC area
16-17 September 1985	Bonn, FRG

Joint Oceanographic Institutions Incorporated
2100 Pennsylvania Ave., N.W., Room 316, Washington, D.C. 20037 Phone-(202)331-9438 Cable Address JOIINC

SUMMARY OF MEETING
INTERFACE WORKING GROUP
OCEAN DRILLING PROGRAM

Meeting #6

November 19, 1984

BRG Headquarters
Lamont-Doherty Geological Observatory
Palisades, New York

IWG

The Interface Working Group (IWG) is an action committee (with cross-organizational representation) responsible for studying/reviewing/identifying critical ODP problems and issues and initiating the action and followup necessary to ensure resolution. The membership consists of the ODP Director at TAMU (Chairman), the Director of Logging Operations at L-DGO, the Chairman of the PCOM, and the JOI ODP Program Manager. The IWG will act as a problem-solving body and will recommend action and solutions to parent organizations.

Present:

TAMU - Philip Rabinowitz, Chairman
JOIDES - Roger Larson
L-DGO - Roger Anderson
JOI - Dan Hunt

Other Participants:

L-DGO - Dan Fornari
NSF - Al Sutherland

Chairman Rabinowitz called the meeting to order at 10:00 a.m. on November 19. The principal purpose of this meeting was to review the overall status of the Ocean Drilling Program, particularly with regard to (a) the status of the conversion and scheduling of the drill ship; (b) the status of other country participation; and (c) a review of any critical items that might affect program priorities.

1. Al Sutherland reported that there has been no significant change in the status of other country participation. He noted that the National Science Foundation (NSF) was awaiting a report from John Bowman, the U.K. Executive Committee member, as to the decision of the U.K. Government on its participation. He stated that as a result of the newly elected Administration in Canada, information had been received that participation by Canada in the Ocean Drilling Program was expected to be placed on the Cabinet agenda early in December, and that a decision was expected to be reached before Christmas. There is no further information on the status of the European Science Foundation's final position.

Program participants were advised to proceed with all program activities with the expectation that there would be at least four countries committed to full partner participation through Memoranda of Understanding with NSF.

2. Phil Rabinowitz discussed the status of the conversion of JOIDES RESOLUTION and the schedule that has been laid out leading to the start of Leg 101. In summary, the schedule is as follows:

November 10	-	Ship out of dry dock
December 22	-	M&M Shipyard completes its conversion work and turns ship over to SEDCO
December 23	-	SEDCO conducts the inclining experiment
December 24-29	-	SEDCO loads ship
December 29-January 1	-	SEDCO checks out all systems
January 1	-	SEDCO turns ship over to TAMU
January 1-20	-	TAMU conducts shakedown trials
January 22	-	Ship leaves on Leg 101

The scientific party scheduled to make the first cruise will be asked to join the ship at Ft. Lauderdale on January 20 in preparation for sailing on January 21 or 22 (precise date not predictable at this time). The shakedown trials will be planned in two phases so that all systems can be tested and so that the maximum number of personnel can be trained. As far as the scientific complement is concerned, there will be space for 50 individuals on each phase. TAMU estimates that 12-14 days will be required for testing of all engineering and scientific systems aboard ship and, if successful, six days will be available in which to retrieve actual cores from test sites and for training of personnel (SEDCO plus ODP) in core handling and equipment procedures. Leg 101 is scheduled to end in Ft. Lauderdale on March 4 or 5. In regard to the schedules for Legs 102 through 106, their lengths are the same as in previous schedules and still retain the weather window for Leg 105 (Baffin Bay and Labrador Sea).

Phil Rabinowitz cautioned that the testing of all systems must be successful to maintain the schedule. He distributed an Events Schedule, which is appended as Attachment 1. The Operations Schedule for the first seven legs is appended as Attachment 2.

One of the key questions to consider is, if there is any significant delay in departure of the ship on Leg 101 beyond January 22, what then happens to the operational schedule for the proposed drilling in Baffin Bay? From the planning and logistic point of view it is expected that confirmation of the departure of the ship on January 22 or 23 will be available by January 8. If there is any deviation in this schedule, the Planning Committee can review the scientific schedule and recommend appropriate changes at its meeting January 9-11 at University of Texas.

3. Phil Rabinowitz noted the potential problems that might arise in the conversion and in the ship's schedule:

   a. The ship's schedule can be affected by problem areas in installation and check-out of major drilling systems. A good example is the dynamic positioning system which requires four weeks of installation and testing prior to sea trials (see Attachment 1).

   b. The drillers' console is another area of potential problem because of the mass of hydraulic lines that must be installed and tested which affect all major drilling systems.

   c. Any slippage in the proposed schedules can affect the start of shakedown trials, and TAMU considers that at least 20 days are required to ensure a properly functioning ship.

   d. Possible cost claims by SEDCO and/or M&M Shipyard are unknown at the present time but are expected and will have to be contractually dealt with.

   The above potential problem areas were noted; however, all personnel feel that none will reach fruition.

4. Roger Anderson and Dan Fornari summarized the status of the wireline heave compensator:

   a. The design has been developed by Schlumberger, but it has not been placed in its final form and no final design plans have been received.

   b. The estimated cost of the heave compensator is approximately $135K. This cost does not include installation. L-DGO has $75K allocated in their FY 84 Program Plan for the heave compensator. The remaining cost will come from the FY 85 and FY 86 budgets.

   c. The target date for installation of the heave compensator is to have it on board and ready to operate for Leg 102.

   d. Prior to final design approval by L-DGO, it is proposed that a design meeting be held in Washington, DC in mid-December with representatives of Schlumberger, L-DGO, JOI, TAMU, NSF, and the Naval Research Laboratory (NRL).

5. Roger Anderson reported on the followup action requested by the last meeting of the Downhole Measurements Panel in regard to the calibration of Schlumberger's logging tools. He summarized the Schlumberger action of calibrating the nuclear and sonic tools in hard rock test pits in Denver, Colorado. He also summarized the activities concerning the calibration of logging tools being undertaken in L-DGO's local test sites.

6. The following action items resulted from this IWG information meeting:

   a. Phil Rabinowitz will keep all concerned advised of any changes in the conversion status and the operations schedule of the drill ship.

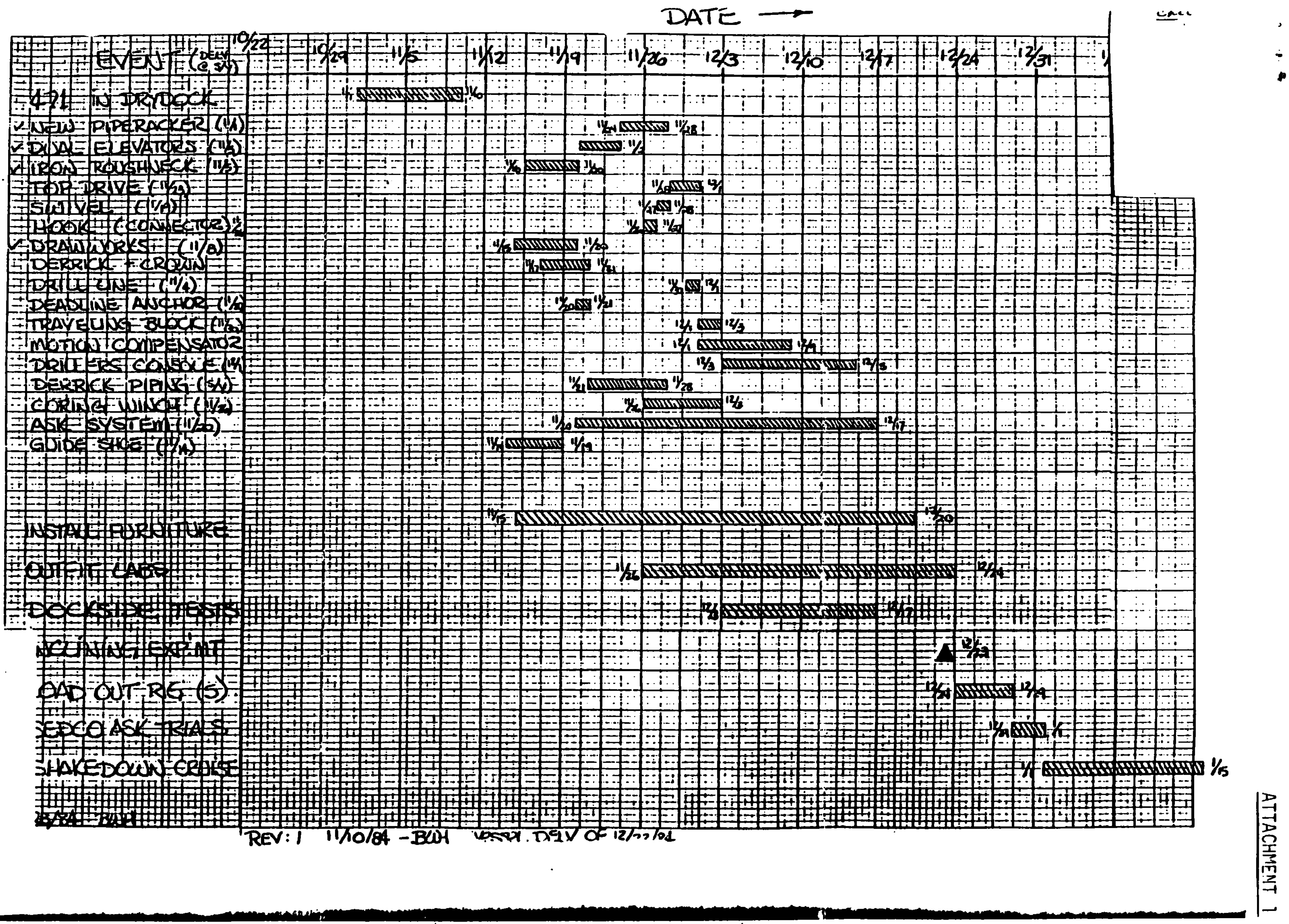
   b. Roger Anderson will take action on and coordinate the meeting in Washington, DC in December in regard to design review of the heave compensator.

   c. The next meeting of the IWG will be at the call of the Chairman and, unless some urgent item comes up in the near future, the next meeting will be in approximately two months.

Daniel Hunt

Daniel Hunt
JOI Headquarters
IWG Secretariat

Copies to: IWG Members and Participants
Executive Committee
Planning Committee
H. Durbaum, EXCOM
L. Garrison, TAMU
S. Herrig, TAMU
S. Toye, NSF
G. Brass, NSF
M. Burdett, JOIDES Office
J. Baker, JOI
J. Clotworthy, JOI
J. Stanford, JOI



ATTACHMENT 1

OCEAN DRILLING PROGRAM
OPERATIONS SCHEDULE
1985

LEG	DEPARTS LOCATION	DATE	OPERATIONS AREA	ARRIVES	DATE	ESTIMATED TIME BREAKDOWN (Days) TRANSIT	OPERATIONAL	TOTAL
101	Ft. Lauderdale Florida	22 Jan	Bahamas	Miami Florida	4 March	1	41	42
102	Ft. Lauderdale Florida	9 Mar	Sites 418A 603	Norfolk Virginia	24 Apr	6	41	47
102A	Norfolk Virginia	30 Apr	Transit	Punta Delgada	8 May	8	01	09
103	Punta Delgada	9 May	Galicia Bank	Bremerhaven Germany	27 June	8	42	50
104	Bremerhaven Germany	3 July	Norwegian Sea	Stavanger Norway	18 Aug	6	41	47
105	Stavanger Norway	24 Aug	Baffin Bay Labrador Sea	St. Johns Newfoundland	20 Oct	15	43	58
106	Newfoundland	11 Oct	MARK I	Malaga Spain	21 Dec	15	42	57

11/19/84

ATTACHMENT 2

ATTACHMENT 2

G. <u>Review of Proposals Received by JOIDES Office</u> (Tony Mayer)

1. Analysis of proposals received by JOIDES Office (as of 11/7/84)-Paper G

   Review: a. Guidelines for submission of proposals
   b. Summary form for site proposals

2. Listing of proposals received - **Handout of regional classification of proposals.

3. PCOM should be asked for its views on the following issues:

   a. What is a mature proposal?

   b. How should we communicate with both successful and unsuccessful proponents?

ANALYSIS OF PROPOSALS RECEIVED BY THE JOIDES OFFICE (AS OF 7 NOV. 1984)

Total number of proposals received	~~119~~	
a. Atlantic Ocean	~~38~~	proposals
comprising: General	24	
Mediterranean Sea	~~7~~	
Caribbean Sea	5	
Norwegian Sea	2	
from: U.S./JOIDES institutions	8	
U.S./non-JOIDES institutions	2	
France	12	
ESF nations	~~5~~	
U.K.	5	
FRG	4	
Canada	2	
b. Indian Ocean	~~38~~	proposals
from: U.S./JOIDES institutions	~~22~~	
U.S./non-JOIDES institutions	~~10~~	
France	3	
ESF nations	2	
U.K.	1	
c. Southern Ocean	11	proposals
from: U.S./JOIDES institutions	9	
U.S./non-JOIDES institutions	1	
France	1	
d. West Pacific Ocean	18	proposals
from: U.S./JOIDES institutions	2	
U.S./non-JOIDES institutions	2	
France	6	
Japan	3	
FRG	2	
U.K.	1	
Non-JOIDES nations (Australia)	2	
e. Central and Eastern Pacific Ocean	10	proposals
from: U.S./JOIDES institutions	6	
U.S./non-JOIDES institutions	2	
France	2	

f. <u>General/Instrumental</u>	4	proposals
from: U.S./JOIDES institutions	3	
U.K.	1	

<u>Total (by country)</u>		~~119~~	proposals
U.S./JOIDES institutions	50	67	
U.S./non-JOIDES instits.	17		
France		24	
U.K.		8	
ESF nations		7	
FRG		6	
Japan		3	
Canada		2	
Non-JOIDES nations (Australia)		2	

(<u>Note</u>: Many proposals have more than one proponent. Normally the first name has been used in designating an affiliation.)

<u>Comments</u>

The preponderance of proposals for the Atlantic and Indian Oceans is a reflection of the long-term planning decisions made by PCOM. It is anticipated that there will be a large increase in West Pacific proposals once Indian Ocean plans are firmed up and the general intention of PCOM is clear for the future ship track.

It is evident that workshops (s.l.) are a particularly effective method of generating proposals and that is seen in the classification of the proposals. Examples of this are the proposals emanating from the French "Blue" Book, the large number of proposals following the U.S. Indian Ocean Workshop (which generated a significant number of proposals from U.S. non-JOIDES institutions) and the proposals generated by the Southern Oceans Panel (acting as an informal workshop). For the future, we can anticipate an influx of proposals following the International N.E. Pacific Activities Consortium (INPAC) in February 1985. The role of workshops in generating proposals was considered at the Hawaii PCOM and was generally favoured.

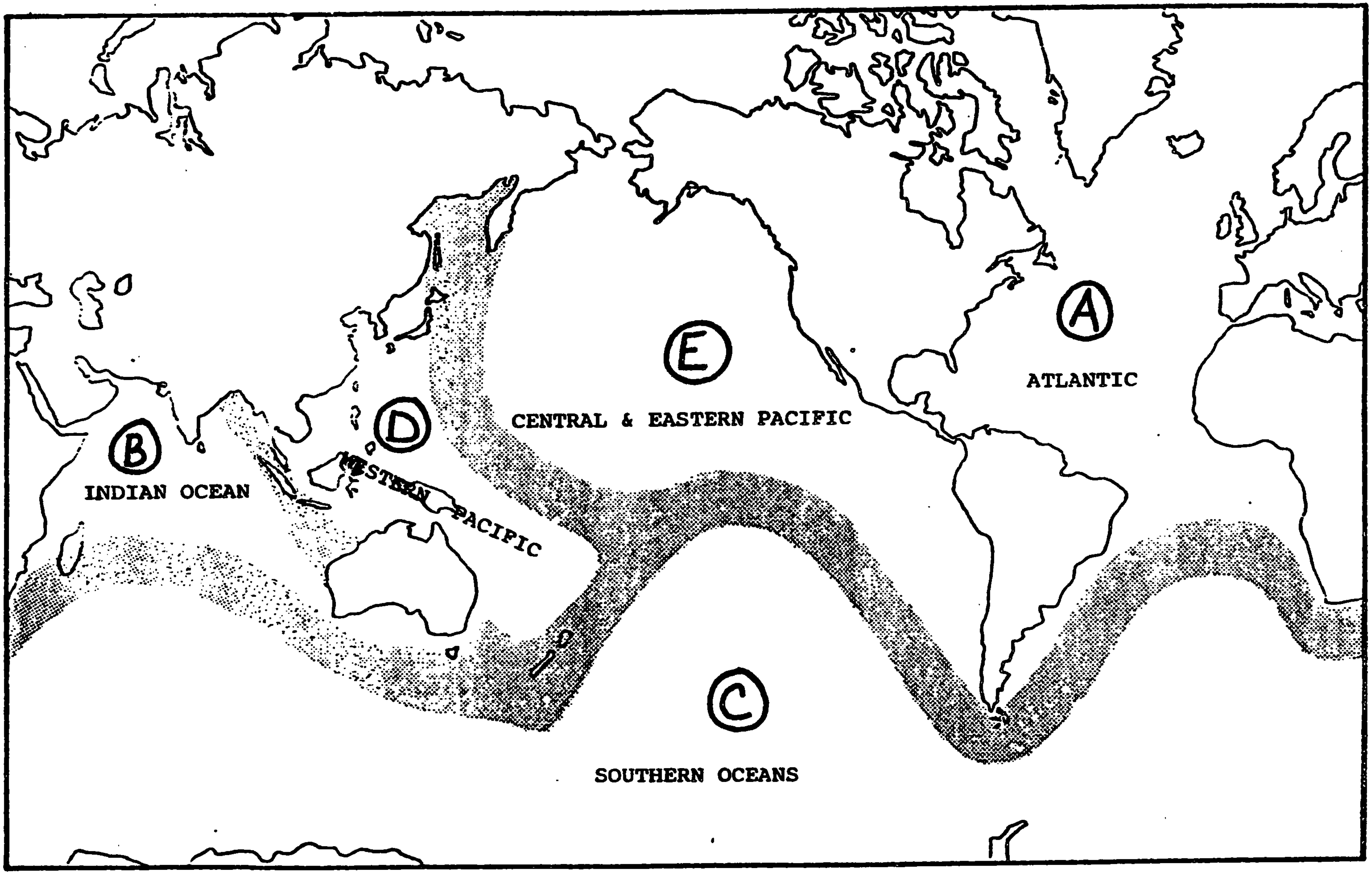
The value of working groups is questioned for the future. Working groups for the Caribbean and Mediterranean Seas were necessary scientifically to assist in the evaluation of complex science. Whether there are scientific issues which demand a working group in the future is an issue for the PCOM. By and large proposals in such areas as the Banda-Sunda Arcs can be effectively dealt with by reference to both Indian and West Pacific Regional Panels. Regional overlap can also be dealt with by arranging concurrent panel meetings with a joint session at the end to resolve issues of common interest.

Very few of the proposals in the classification can be considered fully mature in that proponents have complied with the requirements listed in the attached guidelines. Furthermore, it is important that all data referred to in a mature proposal is lodged with the ODP Data Bank for subsequent assessment by the Site Survey and Pollution Prevention and Safety Panels. Only at that stage can a proposal be regarded as fully mature and eligible for inclusion in PCOM drilling plans.

AESM

General/Instrumental

F



Regional Panels and geographic areas of interest. Boundaries are approximate and intentionally overlap.

OCEAN DRILLING PROGRAM

GUIDELINES FOR THE SUBMISSION OF PROPOSALS/IDEAS

A. General Information

JOIDES accepts input by individuals or groups into the Ocean Drilling Program as:

1. **Preliminary Proposals** (ideas/suggestions) for scientific ocean drilling. Examples are objectives (a specific process), drilling targets, downhole and other experiments, etc. Such input generally lacks either geographic specificity, site survey data, or both.

2. **Mature Drilling proposals** (minimum requirements are detailed in section C.)

Preliminary and mature proposals will be reviewed and prioritized by one or more JOIDES advisory panels. **Only mature proposals are ultimately considered and prioritized by the Planning Committee,** which plans the actual drilling. Thus ideas which become part of the drilling program do so either by evolving into a mature proposal, or by incorporation into an existing proposal with multiple objectives. **Proposals are considered mature when accompanied by a specific set of minimum data listed in section C** and provided by the proponents or JOIDES (certain technical data may not be readily available to proponents). It follows that the time required for an idea or proposal to be processed by the JOIDES science advisory structure and become part of the drilling plan will depend in large part on the completeness of the required data at the time of submission. Proponents are therefore urged to submit as complete a package as possible. Lead time requirements are given in section D. **Preliminary proposals** should be sent in **triplicate** to the JOIDES Office. **Five copies of mature proposals** should be submitted to the JOIDES Office.

B. Review Process

Ideas/suggestions or proposals are submitted to the JOIDES Office which forwards the material to the appropriate advisory panel(s) for review. The JOIDES panels review and prioritize the ideas/proposals and advise the Planning Committee of their recommendations. The panels may request additional information from the proponents and may suggest that the idea/proposal be modified to enhance its scientific merit. Some ideas/proposals of limited scope may be incorporated by the advisory panels into a proposal of broader scope.

Thematic Panels are primarily concerned with the process aspects of the science. Regional Panels and Working Groups review the proposal within the context of a particular geographic region (e.g. additional "sites of opportunity" may be recommended for drilling, to maximize the scientific payoff of drilling in that particular region). As the proposal matures and proceeds through the advisory system, service panels make recommendations regarding technical aspects of the proposed drilling (e.g. site survey review, safety review, engineering and technology review, downhole measurements review, etc.).

The Planning Committee monitors and directs the proposal review process, reviews the recommendations of the advisory panels, decides the fate of proposals, and ultimately integrates the approved proposals into a detailed drilling plan and ship track.

C. Minimum Requirements

1. Minimum Requirements for Mature Proposals (5 copies):

The following items should be discussed in the proposal; submit a Site Proposal Summary Form for each proposed site.

a) Specific scientific objectives with priorities.

b) Proposed site locations and alternative sites.

c) Background information, inluding regional and local geological setting and identification of existing geophysical/geological data base.

d) Drilling requirements for each objective (e.g. estimated drilling time, steaming time, water depth, drill string length, reentry, etc.)

e) Logging, downhole experiments and other supplementary programs (estimated time, specialized tools and requirements, etc.)

f) Known deficiencies in data required for:

1) location of drill sites
2) interpretation and extrapolation of drilling results.

g) Statement of potential safety problems in implementing proposed drilling.

h) Other potential problems (weather window, territorial jurisdiction, etc.).

i) The name of an individual assigned as a proponent for each site who will serve as a contact for JOIDES when additional information is required.

2. Submission of Preliminary Proposals (Ideas/Suggestions) - 3 copies.

Preliminary proposals (ideas and suggestions) for ocean drilling may be submitted to the JOIDES Office in triplicate letter form, preferably with as much background information as possible.

3. Letters of intent to submit may be sent to the JOIDES Office.

D. Lead Time

As a general rule a minimum 18-24 months lead time is required from the time of proposal submission to actual drilling. Less lead time may be acceptable in cases where site surveys are not required.

E. All submissions should be sent (with the appropriate number of copies) to the JOIDES Office.

JOIDES Office
Graduate School of Oceanography
University of Rhode Island
Narragansett
Rhode Island, 02832

ODP SITE PROPOSAL SUMMARY FORM

(Submit 5 copies of mature proposals, 3 copies of preliminary proposals)

Proposed Site:

General Objective:

General Area:
Position:
Alternate Site:

Thematic Panel interest:
Regional Panel interest:

Specific Objectives:

Background Information:

Regional Data:

Seismic profiles:

Other data:

Site Survey Data - Conducted by:

Date:

Main results:

Operational Considerations

Water Depth: (m)   Sed. Thickness: (m)   Total penetration: (m)

HPC _____   Double HPC _____   Rotary Drill _____   Single Bit _____   Reentry _____

Nature of sediments/rock anticipated:

Weather conditions/window:

Territorial jurisdiction:

Other:

Special requirements (Staffing, instrumentation, etc.)

ponent:

Date submitted to JOIDES Office:

Rev. 0684 JOID

PROPOSALS CLASSIFICATION

ERRATA

Proposal 79/B   Reference to Panels should read:

IOP 9/84
LITHP 9/84
SOHP 9/84

Proposal 119/B   Reference to Panels should read:

IOP 12/84
LITHP 12/84
SOHP 12/84
TECP 12/84

Proposal 90/B   Institution should read 'OSU' not 'OUS'

ATLANTIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
1/A	12/16/82	Pre-middle Cretaceous geologic history of the deep S.E. Gulf of Mexico	Phair, R.L. Buffler, R.T.	U.T.Austin	Some		SOHP 2/84 CAR-WG (P) ARP (P) PMP (P)		Reference to DSDP Panels
5/A	7/13/83	Structural & sedimentological development of carbonate platforms (Blake-Bahamas area)	Mullins, H.T. Sheridan, R.E. Schlager, W.	RSMAS	No	Ref'd to JOI SSP 7/25/83	SOHP 2/84 ARP (P)	Approved 3/84	Leg 101
6/A	8/-/83	Ocean crust and high latitude paleoceanography in the Labrador Sea	Gradstein, F.M. et al.	Atlantic Geoscience Centre, Canada	Some	SS needed (11/83)	SOHP 2/84 TECP 1/84 SOHP 10/84 (for added 14 days drilling)	Approved 3/84	Proposal revised 3/84 and 5/84 Leg 105 To incld Baffin Bay drilling (Proposal 58/A)
7/A	8/1/83	Future drilling sites in the Gulf of Mexico & Yucatan	Buffler, R.T. Bryant, W. R.	U.T.Austin	Some	Yes	CAR-WG 1/84	Approved 9/84	Approved as back--up leg
9/A	1/-/84	Pre-Messinian history of the Mediterranean	Hsu, K.J. (on behalf of the Swiss Working Group)	ETH, Zurich Switz. (ESF)	Yes		MED-WG (P) SOHP (P)		
10/A	1/-/84	Cenozoic events in oceanic and atmospheric circulation off N.W. Africa	Sarnthein, M., et al.	Univ. Kiel FRG	Yes		SOHP 5/84 ARP 4/84	Approved 5/84	Revised 3/84 Leg 108
11/A	1/-/84	Drillsites at Porto and Virgo Seamounts, Iberian Continental Margin	Kidd, R.B., et al.	IOS, UK	Some		ARP (P)		Proposal withdrawn 8/28/84
12/A	1/-/84	A transect across the Tyrrhenian Back-arc Basin	Cita, M.B. Malinverno, A.	Milan Univ Italy (ESF)	Some		MED-WG	Approved 9/84	See Tyrrhenian Sea revised Proposal 21/A
15/A	1/10/84	Paleocommunication between the North and South Atlantic seas during the Cretaceous: Formation of the Atlantic Ocean	Herbin, J.P.	IFP, France			TECP ARP		French Blue Book
16/A	1/10/84	Atlantic-Mediterranean relationship (Gulf of Cadiz, Alboran Sea); Paleoceanographic and paleohydrological evolution since the Miocene	Faugeres, J.C.	Univ. of Bordeaux 1, France	Some	Yes	TECP ARP		French Blue Book
17/A	1/10/84	Deep oceanic crust and upper mantle proposal for deep sea drilling in the Gorringe Bank	Mevel, C.	Univ. P & M Curie, Paris, Fr. (CYAC [illegible])	Some	Yes	LITHP 2/84 TECP ARP		French Blue Book

18/A	1/10/84	DSDP Proposal off Galicia Bank	Mauffret,A. Boillot, G. Montadert,L.	Univ. P&M Curie, Paris, Fr IFP	Yes	No	TECP ARP	Approved 5/84	French Blue Book Revised 6/84 Leg 103
19/A	1/10/84	Proposal for drilling on the Eleuthera Fan (Bahamas)	Ravenne, C. Le Quellec,P.	IFP France CFP France	Yes	No	TECP 1/84 ARP SOHP		French Blue Book Leg 101
20/A	1/10/84	Subduction Collision: the outer Hellenic Arc	Mascle, J.	Univ. P&M Curie, Paris, Fr.	Some	Yes	TECP 1/84 ARP		French Blue Book
21/A	1/10/84	Rifting, stretching and oceanic accretion in the Tyrrhenian Marginal Basin	Rehault, J.P. Fabbri, A.	Univ. P&M Curie, Fr. Instituto di Geolog. Marina, CNR,Italy	Some	Yes	TECP 1/84 & 10/84 ARP MED-WG 10/84 SOHP	Approved 9/84	French Blue Book Revised by MED-WG Sept.1984 see Prop. 12/A Leg 107
22/A	1/10/84	The Rhone deep sea fan site: Proposal for deep sea drilling	Bellaiche,G. Droz, L. Got, H. Orsolini, P.	Lab. de Geodynam. sous marin Villefran. France CRSM, Perpignan,Fr. SNEA,Paris	Yes		TECP 1/84 ARP		French Blue Book
23/A	1/10/84	Caribbean Basins	Mascle, A. Biju-Duval,B.	IFP,France CNEXO, France	Yes		CAR-WG 2/84 TECP 1/84 ARP		French Blue Book (Partly related to Props 7/A and 32/A)
24/A	1/10/84	New drilling along Barbados transects	Mascle,A. Biju-Duval,B.	IFP,France CNEXO, France	Some		CAR-WG 2/84 SOHP 2/84 TECP 1/84	Approved 3/84	Incorporates prop. by Biju-Duval,Moore & DSDP Leg 78A science staff on drilling of the Barbados Forearc. Relate to Props. 35/A & 41/A;now inc in Prop.72/A.Inc. Leg 109 & back-up
32/A	1/26/84	Primary drilling sites for AODP (Yucatan Basin)	Rosencrantz,E. Bowland,C.	U.T.Austin	Some	Yes	ARP (P) CAR-WG 2/84	Approved 9/84	Agreed as back-up prop.Relate to Props. 7/A & 23/A
33/A	1/26/84	A Mediterranean drilling site	Hsu, K.J.	ETH Zurich Switz. (ESF)	Yes	No	SOHP (P) MED-WG (P)		DELETE Same as Proposal 9/A
35/A	2/-/84	Additional proposed sites for drilling on the Barbados Ridge accretionary complex	Westbrook,G.K.	Durham Univ.,U.K.			TECP (P) CAR-WG	Approved 3/84	Related to Prop. 24/A & 41/A. Now incorporated in Prop.72/A.Part of back-up

36/A	2/-/84	Drilling in the Norwegian Sea during the IPOD-extension drilling	Hinz, K. and Norwegian Sea Working Group	BGR, FRG	Yes	No	NOR-WG ARP (P) TECP 2/84	Approved 3/84	Revised 4/84 & 5/84 (incorporates NOR-WG views) Leg 104
38/A	2/15/84	Proposal for drilling in N.E. Gulf of Mexico (DeSoto Canyon)	Kennett, J. Moore, T.	URI	Yes	Yes	SOHP 4/84		
39/A	2/27/84	IPOD drilling in Cape Verde	Hill, I.	Leicester Univ., U.K.					Previously submitted in 1982
40/A	2/27/84	Re-entry for logging of Site 534 (Blake-Bahamas Basin)	Sheridan, R. Shipley, T. Stoffa, P.	U.T.Austin	Yes		ARP (P) SOHP (P)	Approved 1/84	Part of Leg 101
41/A	3/-/84	Northern Barbados Forearc: structural and hydrological processes	Moore, C.	UCSC	Some		TECP 4/84 ARP SOHP 8/84	Approved 3/84	Related to Props. 24/A & 35/A; see also Prop. 72/A. Leg 109
45/A	3/5/84	Paleoenvironmental drilling in the Equatorial Atlantic	Ruddiman, W.F.	LDGO	No		SOHP 4/84 ARP 4/84 TECP		
58/A	3/21/84	West Baffin Bay	Grant, A.C. Jansen, et al.	Atlantic Geoscience Centre		Yes	SOHP 10/84 TECP 10/84	Approved 3/84	Incorporated within Proposal 6/A Leg 105
59/A	3/27/84	Continental margin sediment instability investigated by drilling adjacent turbidite sequences	Weaver, P.P.E. Kidd, R.B. et al.	IOS, UK	Yes		SOHP 4/84 ARP 4/84 TECP 3/84		Revised proposal 8/84 resubmitted to Panels
60/A	4/20/84	Newfoundland Basin: Eastern Canadian Margin	Masson, D.G.	IOS, UK	Yes	Yes	SOHP 4/84 ARP (P) TECP 4/84		
63/A	6/21/84	Madeira Abyssal Plain	Duin, E.J.T. Kuijpers, A. Schuttenhelm	Geol. Survey of Netherlnds (ESF)	Yes				
64/A	6/25/84	To drill at Site NJ-6	Poag, C.W.	USGS, WHOI	Yes		ARP 7/84 SOHP 7/84		
68/A	7/6/84	Deep basins of the Mediterranean	Montadert, L.	IFP, France			TECP 1/84		
69/A	7/23/84	Rock stress measurement in the southern part of the Norwegian Sea	Stephansson, O.	Univ. of Lulea Sweden, ESF			TECP 7/84 ARP 7/84 DMP 7/84		

72/A	7/30/84	Proposal for a two-leg transect of the Lesser Antilles forearc	Speed, R.C. Westbrook,G.K. Mascle, A. Moore, J.C.	Northwestern Univ. Durham,UK IFP,France UCSC	Yes		ARP (P) TECP 8/84 SOHP 8/84		CAR W/G proposal; incorp. Leg 109 & back-up props.See Props. 24/A, 35/A & 41/A
74/A	8/2/84	ODP drilling along the continental margin of Morocco, N.W. Africa	Winterer,E.L. Hinz, K.	SIO BGR, FRG	Yes		TECP 8/84 ARP(P) LITHP(P) SOHP(P)	Approved 9/84	Related to Prop. 85/A. Approved for back-up leg.
81/A	9/4/84	Proposal for an Ionian Sea transect	Hieke, W. Makris, J.	Univ. of Hamburg, FRG			ARP 9/84 MED-WG 9/84 SOHP 10/84 TECP 10/84	Approved 9/84	Revised by MED-WG 9/84
85/A	9/20/84	Preliminary proposal for ODP drilling along the continental margin of Morocco,N.W. Africa	Hayes, D.E. Mountain, G. Rabinowitz,P.	LDGO TAMU			ARP (P) SOHP (P) TECP (P) 10/84	Approved 9/84	Related to Prop.74/A Approved as part of back-up proposal.

INDIAN OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
30/B	1/10/84	Deep sea drilling proposals for the Indian Ocean	Clocchiatti, M.	Mus.Natn. d'Hist. Naturelle, Paris, Fr.	Some	Yes	TECP 1/84		French Blue Book
31/B	1/10/84	Paleoenvironmental history of the Red Sea	Guennoc, P.	BRGM, Fr.	Yes	Yes	TECP IOP (P)		French Blue Book
44/B	3/-/84	Tectonic evolution of the Andaman Sea in relation with the relative displacement of Indochina with respect to India	Peltzer, G. Tapponier, P. Jacquart, G.	Univ. P&M Curie, Fr.			WPAC TECP 4/84 IOP (P)		
55/B	3/21/84	The Makran Forearc, Pakistan	Leggett, J.K.	Imperial College, UK	Some	Yes	IOP (P) IOP 4/84 TECP 4/84		
56/B	3/21/84	Drilling to constrain the history of deformation and relationship between fault surfaces and upward flow of water in the region of inter-plate deformation, Central Indian Ocean	Weissel, J.K. Forsyth, D.W. Stein, C.A. Anderson, R.N.	LDGO Brown U. North-western U LDGO	None	Yes	DMP 4/84 TECP 4/84 IOP 4/84 LITHP 10/84 TECP 10/84 SOHP 10/84		Revised following Indian Ocean Workshop 10/84
57/B	3/21/84	Determine the history of the formation of the African-Arabian margin and adjacent oceanic lithosphere	Stein, C.A.	North-western University	Yes		IOP (P) SOHP 10/84 TECP 10/84		Revised 10/84 following US Indian Ocean Workshop 10/84 See Prop.119/B
61/B	6/18/84	Conjugate passive rifted margins of Madagascar, East Africa and the Western Somali Basin	Coffin, M.F. Matthias, P.	LDGO TAMU	Some		IOP 7/84 TECP 7/84 SOHP 10/84 TECP 10/84		Revised following US Indian Ocean Workshop 10/84 See Prop.102/B
62/B	6/18/84	The Davie Fracture Zone: reactivating zone of weakness?	Coffin, M.F. Matthias, P. Bernoulli, D. Scrutton, R.A. Channell, J.T.	LDGO TAMU U.Basel Switz.ESF U.Edin.UK U. Florida	No		IOP (P) SOHP 10/84 TECP 10/84 IOP 12/84		Revised 10/84 following US Indian Ocean Workshop. Further revisions received 12/84 (mature proposal)
65/B	7/5/84	Magnetic quiet zone: Australia's southern margin	Mutter, J.C. Cande, S.C.	LDGO	Some		TECP 10/84 LITHP 10/84 SOHP 10/84 SOP (P) IOP (P)		Revised 10/84 following US Indian Ocean Workshop

77/B	8/20/84	The Seychelles Bank and the Amirante Trough	Mart,Y.	TAMU	Some	Yes	IOP 8/84		
78/B	8/23/84	Indus Fan - a proposal for drilling	Kolla, V.	Superior Oil Co.USA			IOP (P) SOHP 9/84		See Prop.96/B
79/B	8/28/84	Tethyan stratigraphy and ancient oceanic crust	Coffin, M.F. Chanell,J.E.T.	LDGO	Some		LITHP 9/84 SOHP 9/84 IOP 9/84		
86/B	10/1/84	Red Sea drilling	Bonatti, J. Ross, D.A.	LDGO WHOI	Yes	Some needed	LITHP 10/84 SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop
87/B	10/1/84	Basalt drilling objectives in the Arabian Sea - Carlsberg Ridge	Natland, J.	SIO	Yes		SOHP 10/84 TECP 10/84 IOP (P) LITHP 10/84		US Indian Ocean Workshop
88/B	10/1/84	Mascarene Plateau-Chagos--Laccadive volcanic lineament	Duncan, R.A.	OSU	Yes		LITHP 10/84 SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop; Related to Proposal 97/B
89/B	10/1/84	Mantle drilling at the S.W. Indian Ridge	Dick, H.J.B. Natland, J.	WHOI SIO	Some		LITHP 10/84 SOPH 10/84 IOP (P)		US Indian Ocean Workshop Related to Proposal 112/B
90/B	10/1/84	S.E. Indian Ocean Ridge transect(mantle heterogeneity)	Duncan, R.	OSU	Yes		LITHP 10/84 SOHP 10/84 IOP (P)		US Indian Ocean Workshop; Related to Prop. 100/B and 111/C
91/B	10/1/84	Nature of chemical discon--tinuity in oceanic crust as a function of time (S.E.Indian Ocean)	Langmuir, C.	LDGO	Yes		LITHP 10/84 IOP (P)		US Indian Ocean Workshop; related to Prop. 112/B
92/B	10/1/84	Seismic observatory in the Crozet Basin	Brocher, T.M.	WHOI	No	OBS exp planned in 1985	LITHP 10/84 SOHP 10/84 IOP (P)		US Indian Ocean Workshop
93/B	10/1/84	History of anoxic sediments associated with monsoonal upwelling, salinity strat-ification and oxygen minima in the Western Arabian Sea	Prell, W.L.	Brown Univ.	Little	Yes	SOHP 10/84 IOP (P)		US Indian Ocean Workshop
94/B	10/1/84	History of monsoonal upwelling Owen Ridge, Arabian Sea	Prell, W.L.	Brown Univ.	Some	Yes	SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop
95/B	10/1/84	History of the Asian monsoon (Bay of Bengal)	Cullen, J.L. Prell, W.L.	Salem St. Brown Univ.	Yes		SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop

96/B	10/1/84	Surveying and drilling in the Bengal Fan (Distal Indus and Ganges Fans)	Klein, G.deV.	Illinois Univ.	Some	Yes	SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop See Prop.78/B
97/B	10/1/84	High resolution drilling transect in the Equatorial Indian Ocean (90 E/Chagos)	Peterson, L.C.	RSMAS	Yes poor to fair		SOHP 10/84 IOP (P)		US Indian Ocean Workshop; related to Prop. 88/B
98/B	10/1/84	Determination of the geologic history of southern hemi--sphere atmospheric circu--lation and climatic evolution of the Australian Desert (S.E. Indian Ocean)	Rea, D.K.	Univ. of Michigan	Yes		SOHP 10/84 IOP (P)		US Indian Ocean Workshop
99/B	10/1/84	Palaeo-oceanography climate dynamics (Agulhas Basin)	Coulbourn, W.	Univ. of Hawaii	Yes		SOHP 10/84 TECP 10/84 IOP (P)		US Indian Ocean Workshop
100/B	10/1/84	Stratigraphic sections - S.E. Indian Ridge transect	Hays, J.D. Lazarus, D.B.	LDGO WHOI	Some		SOHP 10/84 IOP (P)		US Indian Ocean Workshop; related to Prop. 90/B and 111/C
101/B	10/1/84	Determination of geologic history of ridge crest hydro--thermal activity	Owen, R.M. Rea, D.K.	Univ. of Michigan	Some		SOHP 10/84 LITHP 10/84 IOP (P)		US Indian Ocean Workshop
102/B	10/1/84	Somali Basin	Matthias, P.	TAMU			IOP (P) SOHP 10/84 TECP 10/84		US Indian Ocean Workshop See Prop.61/B
103/B	10/1/84	Nature of Laxmi Ridge (N.W. Indian Ocean)	Heirtzler, J.	WHOI	Little		IOP (P) SOHP 10/84 TECP 10/84 LITHP 10/84		US Indian Ocean Workshop
104/B	10/1/84	Transect of 90°East Ridge	Curray, J. Duncan, R.	SIO OSU	Some	Yes	IOP (P) LITHP 10/84 TECP 10/84 SOHP 10/84		US Indian Ocean Workshop
105/B	10/1/84	Arc-continent collision,Timor	Karig, D.E.	Cornell Univ.	Yes		IOP (P) TECP 10/84 SOHP 10/84		US Indian Ocean Workshop
106/B	10/1/84	Broken Ridge, Indian Ocean	Curray, J. Thierstein,H. Mackenzie, Mahoney	SIO	Poss--ibly		IOP (P) TECP 10/84 SOHP 10/84 LITHP 10/84		US Indian Ocean Workshop

107/B	10/1/84	State of stress in ocean lithosphere plate: S.E. Indian Ridge	Forsyth, D.	Brown Univ	Yes		IOP (P) TECP 10/84 LITHP 10/84 SOHP 10/84		US Indian Ocean Workshop
112/B	10/2/84	Lithosphere Targets	Kennett, J. (on behalf of SOP)	URI	Some		SOP (P) LITHP 10/84 TECP 10/84		SOP Proposal, link to Prop. 89/B and 91/B
113/B	10/2/84	Agulhas Plateau	Kennett, J. (on behalf of SOP)	URI	Yes		SOP (P) SOHP 10/84 TECP 10/84		SOP Proposal
115/B	10/10/84	Agulhas Plateau: paleocean--ography, nature of basement, and tectonics	Herb, R. Oberhansli, H.	Univ. Bern Switz. ESF	Some	Yes	IOP 10/84 SOHP 10/84 TECP 10/84		
116/B	10/10/84	Palaeo-oceanog. of the Indian Ocean (transect of 90°E Ridge)	Oberhansli, H. Herb, R.	Univ. Bern Switz. ESF	Some	Yes	IOP 10/84 SOHP 10/84		
117/B	10/22/84	Proposal for drilling in the northern Red Sea	Cochran, J.B.	LDGO	Yes	Some	SOHP 9/84 TECP 9/84 IOP 9/84		Immature proposal rec'd 9/84;revised 10/84
118/B	11/2/84	Middle-late Cenozoic strati--graphy, chronology, paleo--environmental history off East Africa: correlation with hominoid sites	Kennett, J. Brown, F.H. Howell, C., et al	URI Univ.Utah UCBerkeley	Yes	No	SOHP 10/84 IOP 10/84		Includes views of LDGO Paleoclimates and Evolution Workshop
119/B	12/3/84	History of the early opening of the Gulf of Aden resulting rifting of old oceanic lithosphere	Stein, C.A.	Northwest. Univ.	Some	Yes	IOP 12/84 SOHP 12/84 TECP 12/84 LITHP 12/84		See Proposal 57/B
120/B	12/10/84	Oceanic drilling in Atlantis II Deep, Red Sea	Zierenberg, R.A Shanks, W.C. Von Damm, K.L.	U.S.G.S.	Yes		IOP 12/84 LITHP 12/84 TECP 12/84		
121/B	12/10/84	Ocean drilling in the Exmouth & Wallaby Plateaus & Argo Abyssal Plain, E.Indian Ocean	von Rad, U. Exon, N.F. Symonds, P.A. Willcox, J.B.	BGR, FRG BMR, Australia	Yes	Yes	IOP 12/84 SOHP 12/84 TECP 12/84		Australian COGS-2 proposal

SOUTHERN OCEANS PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
54/C	3/20/84	Southern Ocean Drilling: a. Sub-Antartic sites b. Weddell sites	Kennett, J.P.	URI	Some	Yes	TECP SOP (P)	Approved 3/84	Leg 114
71/C	7/20/84	Drilling on the Shaka Ridge	Sclater, J.G.	UT Austin	Some	Yes			Paperwork not available
73/C	8/2/84	Drilling proposal on the Antartic margin off the Adelie Coast	Wannesson, J.	IFP, France			IOP (P)		only site summary forms received
108/C	10/2/84	East Antarctic continental margin	Kennett, J. (on behalf of SOP)	URI	Some		SOP (P) SOHP 10/84 TECP 10/84		Southern Ocean Panel Proposal
109/C	10/2/84	Kerguelen - Heard Plateau	Kennett, J. (on behalf of SOP)	URI	Some	Yes	SOP (P) SOHP 10/84 TECP 10/84		Southern Ocean Panel Proposal
110/C	10/2/84	Wilkesland- Adelie continental margin	Kennett, J. (on behalf of SOP)	URI	Yes	No	SOP (P) SOHP 10/84 TECP 10/84		Southern Ocean Panel Proposal
111/C	10/2/84	Southeast Indian Ocean Ridge transect (subantarctic)	Kennett, J. (on behalf of SOP)	URI			SOP (P) SOHP 10/84 LITHP 10/84		SOP Proposal, link to Prop. 90/B and 100/B
114/C	10/2/84	Crozet Plateau	Kennett, J. (on behalf of SOP)	URI	Yes		SOP (P) SOHP 10/84		SOP Proposal

WEST PACIFIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
25/D	1/10/84	Deep sea drilling proposal on the New Hebrides arc	ORSTOM team	Centre ORSTOM, New Caledonia, Fr.			TECP 1/84		French Blue Book
26/D	1/10/84	Succinct proposals for deep sea drilling sites on the Tonga-Kermadec Arc	NOUMEA team	ORSTOM Centre de Noumea, New Caledonia, France			TECP 1/84		French Blue Book
27/D	1/10/84	Proposal for drilling in the Sulu Sea Marginal Basin and Sulu-Negros Troughs	Rangin, C.	IFP, France	Some		TECP 1/84		French Blue Book
28/D	1/10/84	Tectonic evolution of the South China Sea: marginal basin drilling proposal	Letouzey, J. Fricaud, L. Rangin, C.	IFP, France CFP, France	Some		TECP 1/84		French Blue Book
29/D	1/10/84	Transect across Ryukyu Island Arc and Okinawa Backarc Basin	Letouzey, J.	IFP, France	Yes	No	TECP 1/84		French Blue Book
42/D	3/-/84	Preliminary deep sea drilling proposal in Sunda Straits area	Huchon, P.	Univ. P&M Curie, Fr.	Yes	Yes	WPAC TECP 4/84 IOP (P)		
43/D	3/-/84	Outline of suggested ocean drilling program in the S.W. Pacific	Falvey, D.A.	BMR, Australia	Yes	Yes	WPAC (P) IOP (P) TECP 3/84		
46/D	3/5/84	An informal proposal for future ODP drilling in the South China Sea Basin	Hayes, D.E. Lewis, S.D. Ladd, J. Leyden, B.	LDGO	No		WPAC (P) TECP (P) 3/84		
47/D	3/5/84	Proposal for scientific ocean drilling along the Manila Trench subduction zone, South China Sea	Lewis, S.D. Hayes, D.E.	LDGO	Some	Yes	WPAC (P) TECP (P) 3/84		
48/D	3/5/84	Drilling proposal for the South China Sea Basin	Schluter, H.U.	BGR, FRG			WPAC (P)		
49/D	3/5/84	Drilling proposal for the Eastern Banda Arc/Arafura Sea	Schluter, H.U. Fritsch, J.	BGR, FRG	Yes		WPAC (P)		
50/D	3/5/84	ODP proposal for scientific drilling in the Nankai Trough	Kagami, H. Taira, A.	ORI Tokyo Japan	Yes		WPAC (P)		

51/D	3/5/84	ODP proposal for scientific drilling in the Sea of Japan	Kagami, H. Tamaki, K. Kobayashi, K.	ORI Tokyo Japan	Yes		WPAC (P)		
52/D	3/12/84	The Solomon Sea - a suggested drilling target	Milson, J.	Univ. College, London, UK			WPAC 4/84		
67/D	7/6/84	ODP drilling on Tonga-Lord Howe Rise transect	Falvey, D.A. Exon, N.F. Willcox, B. Symonds, P.	BMR, Australia	Yes		TECP (P) WPAC (P)		
80/D	8/30/84	Sunda and Banda Arc drilling: a study of convergent margin processes	Karig, D.E. Moore, G.F.	Cornell U. Tulsa U.	Yes		IOP (P) TECP 10/84 SOHP 10/84		Revised 10/84 following US Indian Ocean Workshop
82/D	9/4/84	Drilling in the Sulu Sea, Western Equatorial Pacific	Thunell, R.	Univ. S. Carolina	Some		WPAC (P) SOHP (P) TECP 9/84		
83/D	9/5/84	Izu-Ogasawara (Bonin) Arc transect: preliminary sites proposal	Okada, H. Takayanagi, Y.	Shizuoka Univ. Japan Tohuku U., Japan	Yes		WPAC 9/84 TECP 9/84 LITHP 9/84		

CENTRAL & EAST PACIFIC OCEAN PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
2/E	12/16/82	Regional seismic reflection profiles across the Middle America Trench and convergent margin of Costa Rica	Crowe, J.C. Buffler, R.T.	U.T.Austin	Yes	No	AMP (P) Middle America WG (P)		Reference to DSDP Panels
3/E	6/27/83	Drilling in the vicinity of the Hawaiian Islands	Watts, A.B.	LDGO	Some	Yes	CEPAC 2/84 LITHP 2/84		
4/E	undated	Drilling in the Tuamoto Archipelago(French Polynesia)	Okal, E.A.	Yale Univ.	Some		CEPAC 2/84 LITHP 2/84		
8/E	9/18/83	Ridge crest subducton along the Southern Chile Trench	Cande,S.C.	LDGO	Some	Ref'd to JOI SSP8/84	TECP 7/84	Approved 9/84	Leg 113
14/E	1/10/84	Zero age drilling: East Pacific Rise 13° N.	Bougault, H.	COB,France	Yes		CEPAC 2/84 LITHP 2/84 TECP	Approved 9/84	Related to Prop. 76/E. Leg 111 French Blue Book
34/E	2/-/84	Pacific-Aleutian-Bering Sea (PAC-A-BERS) proposal	Scholl, D. Vallier. T.	USGS,Menlo Park					
37/E	2/25/84	Costa Rica drilling - a test of the duplex model	Shipley, T. Moore, G. Buffler, R. Silver, E. Lundberg, N.	U.T.Austin UCSC Princeton	Some		CEPAC (P) TECP (P) 8/84 SOHP 8/84		Revised 8/84
75/E	8/13/84	Gulf of California drilling	Becker, K. et al	SIO	Some	Yes	LITHP (P) TECP (P) SOHP (P) CEPAC (P)		
76/E	8/17/84	Proposal for drilling oceanic crust at the axis of the East Pacific Rise	Francheteau,J. Hekinian, R.	Univ.Paris IFREMER, Brest			CEPAC (P) CEPAC 11/84 LITHP 11/84	Approved 9/84	Revised 11/84.Rel. to Prop.14/E.Leg 111
84/E	9/10/84	Peru Margin drilling proposal	Kulm, L. Hussong,D	HIG		Needed	TECP 9/84 CEPAC (P) SOHP 9/84	Approved 9/84	Leg 112

TECHNICAL & INSTRUMENTAL PROPOSALS

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
13/F	1/5/84	Setting-up of a water column research laboratory	Wiebe, P.H.	WHOI	N/A	N/A			
53/F	3/19/84	Vertical seismic profiling for AODP	Phillips, J.D. Stoffa, P.L.	U.T.Austin			DMP 4/84	Approved 9/84	Part of Leg 102
66/F	7/5/84	Laboratory studies of basalt rock cores on SEDCO/BP 471-Principal horizontal stresses in the oceanic crust from anelastic strain recovery and other rock studies	Whitmarsh, R.B.	IOS, UK	Some		DMP (P) LITHP (P)		
70/F	7/23/84	Borehole seismic experiment at DSDP sites 417 and 603	Stephen, R. Mayer, L. Shaw, P.	LDGO	Some		DMP (P) LITHP (P)	Approved 9/84	Part of Leg 102

IDEAS, SUGGESTIONS FOR DRILLING (RECEIVED BY JOIDES OFFICE)

ef.#	Title	Proponent	Institution	Date Recd	Refer. to Panel	Comments
1	Objectives/suggestions for Mediterranean Leg	Hsü, K.	ETH Zurich, Switzerland (ESF)	7/13/83	DSDP/PMP and OPP	
2	Study of sedimentation patterns on the Barbados Ridge and in the Tobago and Grenada Basins	Saunders, J.B.	Naturhistorisches Museum, Basel Switzerland (ESF)	7/19/83		Formal proposal requested
3	Future potential sites in the Gulf of Mexico	Bouma, A.H. Coleman, J.	Gulf Research	1/4/84	TECP (P)	Reference to this in letter on other subject. Memo never received by JOIDES Office.
4	Outline of multi-topical program of Ocean drilling: NE Pacific Ocean	INPAC Group (Rea, D.K.)	Univ. of Michigan	1/6/84	TECP (P) CEPAC, LITHP 2/84	Workshop convened for Feb. 1985
5	Proposed objectives for ODP: Gulf of Mexico	King, J.	Univ. of Minnesota	1/6/84		
6	Suggested drill sites in the NE Pacific Ocean	Malpas, J.	Memorial University, Canada	1/11/84	CEPAC, LITHP 2/84	
7	Some geological problems and areas of regional interest (Central and Eastern Pacific)	Okada, H.	Shizuoka University, Japan	2/15/84	CEPAC (P)	

8	Peru-Columbia Trench: provisional proposal	Aubouin, J.	Univ. P. & M. Curie Paris, France	2/-/84		Formal proposal requested
9	New Jersey Site 1A	Miller, K.G. Mountain, G.S.	LDGO	3/-/84		
10	General drill sites off Cuba	Case, J.E.	USGS, Menlo Park	3/19/84		
11	Suggestions for drilling on young seamounts in the Eastern Pacific	Batiza, R.	Washington Univ. Missouri	4/9/84	LITHP (P)	
12	Heterogeneity of the mantle	Schilling, J-G. O'Nions, R.K. White, R.M. Frey, F.A. Albarede, F.	URI Cambridge Univ., UK Max-Planck.Inst.,FRG MIT CNRS Nancy, France	5/21/84	LITHP 6/84	
13	Gulf of Aden drilling 1987	Girdler, R.W.	Newcastle Univ., UK	6/25/84	IOP 7/84	
14	Potential coring objectives and site locations for future deep sea drilling in the Mediterranean Sea	Thunell, R.	Univ. of S. Carolina	7/6/84	TECP (P)	Formal proposal requested.
15	South Atlantic palaeo-circulation	Robert, C.	IPOD Cttee, France	7/6/84	LITH (P)	
16	ODP drilling in the tectonic area of Japan	Klein, G. deV.	Univ. of Illinois (Urbana)	7/6/84	TECP (P)	

17	Ocean margin drilling project around Japan	Ogawa, Y.	Kyushu Univ., Japan	7/6/84	TECP (P)12/83	Formal proposal requested.
18	Some drill sites in the Indian Ocean	Luyendyk, B.P.	Univ. of California, Santa Barbara	8/22/84	IOP (P) TECP 10/84	
19	Suggestions for drilling in the Indian Ocean - Indus Fan	Kidd, R.B.	IOS, UK	9/4/84	IOP 9/84 TECP 9/84	
20	Drilling in the Indus Fan	Haq, B.U.	Exxon	9/8/84	IOP (P)	Formal proposal requested.
21	Drilling in the SW Somali Basin	Sarutton, R.A.	Edinburgh Univ., UK	9/8/84	IOP (P)	Formal proposal requested. Withdrawn No further action.
22	Drilling in the Atlantis-II Deep, Red Sea	Zierenberg, R.A	USGS, Menlo Park	9/8/84	IOP LITHP TECP	Proposal 120/B received 12/10/84.
23	Transect: Northern Exmouth Plateau to Argo Abyssal Plain	Willcox, J.B. Symonds, P.A. (supported by Gradstein, F.)	BMR, Australia (Atlantic Geoscience Centre-Canada)	9/8/84	IOP SOHP 12/84 TECP	Proposal 121/B received 12/10/84.
24	Drilling stratigraphic bore-hole off the coast of East Africa	Burckle, L.H.	LDGO	10/16/84		Formal proposal requested. Advised to liaise with Kennett (see proposal 117/B)
25	Investigation of hydrothermal processes and basalt diagenesis in the Gorda Ridge	Hart, R. Fisk, M.	OSU	10/16/84		Formal proposal requested.

26	Deep sea drilling targets near loci of arc volcanism in Marianna back-arc basin	Fryer, P.	HIG	10/19/84	TECP LITHP } 10/84 WPAC	
27	Philippines Workshop	Wolfe, J.A.	Taysan Copper Inc., Philippines	11/14/84		Copied to Chairman, WPAC
28	Transect of upwelling zone sedimentation and palaeoceanography of cold circulation 15°-30°S	Kelts, K.	ETH-Zurich, Switzerland (ESF)	11/16/84	CEPAC (P)	Formal proposal requested.
29	504B Drilling	Purdy, G.M. (LITHP)	WHOI	12/10/84	LITHP	
30	Drilling non-hotspot seamounts	Batiza, R.	Washington Univ., Missouri	12/19/84		
31	Physical and mechanical properties of core material	Karig, D.E.	Cornell University	12/19/84		

*(P)= Referred directly to the indicated Panel by the proponent.

ADDENDUM TO PROPOSALS AND IDEAS LISTINGS

PROPOSALS RECEIVED BY THE JOIDES OFFICE

Ref. No.	Date Rec'd.	Title	Investigator(s)	Inst.	Site Survey Avail' Data	Site Survey Future Need	Panel Reference	PCOM Reference	Remarks
122/A	12/28/84	Basement drilling at the Kane Fracture Zone	Karson, J.A.	WHOI	Yes	Yes	LITHP 1/85 ARP 1/85	Approved 3/84	Legs 106 & 110
123/E	12/28/84	Regional drilling studies at IPOD Site 501/504	Mottl,M.J.	WHOI	Yes	No	LITHP 1/85 CEPAC 1/85		Related to Prop. 124/E
124/E	01/02/85	Proposal to deepen Hole 504B	Becker,K. (on behalf of LITHP)	S.I.O.	Yes	No	LITHP 1/85 CEPAC 1/85	Approved 9/84	Approved as back-up Leg

IDEAS/SUGGESTIONS FOR DRILLING PROGRAMME

Ref.#	Title	Proponent	Institution	Date Recd	Refer. to Panel	Comments
32	Banda Sea Marginal Basin: trapped ocean crust & displaced continental borderland	Silver, E.A. Jongsma,D. Audley-Charles, M.G. von der Borch, C.C.	Univ. California,S. Barbara Vrije Univ,Amsterdam Netherlands (ESF) Univ.Coll.London (U.K.) Flinders Univ., Adelaide (Australia)	12/28/84	WPAC (P)	Awaiting formal proposal
33	Workshop on Western Pacific drilling (proposal to USSAC)	Hawkins,J.W.	S.I.O.	01/02/85	WPAC(P)	
34	Drilling in the East Pacific Rise (N. & S. of Clipperton)	Fox, P.J. Macdonald,K.C.	U.R.I. Univ. California,S. Barbara	01/02/85	LITHP(P)	

JOIDES TEDCOM Meeting at Houston, Texas, 3-4 October 1984

1. Hard Rock Spud In. Detailed design of a gravity base is in progress at ODP. Fabrication and testing are planned for summer 1985 and two such structures should be ready for Leg 106 in October 1985. Starting the drilling is thought to be a harder problem than locating the structure on the bottom. A 'mud' motor to be purchased in FY85 will probably be used.

2. Hot Rock Drilling and Logging. The possibility of blow-outs in shallow water situations is being explored. If mud is required, its properties could set a limit of 315°C. Setting packers in hot holes is very difficult and could severely restrict the sampling of hot hydrothermal solutions. H_2S in hot hydrothermal waters can be very corrosive.

3. Hard Rock Drilling and Recovery. ODP is planning to try a range of bits and systems as basalt re-entry holes become available. The better heave compensation and stability of Sedco/BP 471 should improve recovery rates over those of Challenger.

4. Riser Drilling. Riser drilling with Sedco/BP 471 is limited to 6000 ft (1800 m) water depth, but if it is to take place should start in depths of less than 4000 ft (1200 m). This shallower range of riser drilling would increase the annual cost of ODP from $30M to $50M in broad terms. Only 3 or 4 riser holes would be drilled in a year compared to 30 or 40 riserless holes. It is now up to PCOM and the scientific panels to decide whether scientific targets for riser drilling exist in depths of less than 6000 ft and whether the importance of drilling such a few targets merits the cost.

5. Core and Tool Orientation. The HPC orientation problem has probably been solved. Other aspects are still being explored.

6. Re-Entry Cones. A new cone has been designed which will be cheaper and less bulky.

7. Drill-In Casing. A new approach is planned for the over-pressured zone to be drilled on Leg 109 (Barbados North).

8. Wireline Heave Compensation for Logging. Will be discussed further at next meeting.

T.J.G. Francis
9th November, 1984

Received 12/19/84 from Western Union.

TO: Roger Larson, PCOM Chairman

I have 8 of 12 postal returns for TECPAN Indian Ocean priorities and can wait no longer if I am to meet your deadline. Please note:

1. Priorities must be regarded as tentative by PCOM, having been achieved without adequate discussion. Most of the Panel are concerned that this list will be taken as our final one. I personally feel that we have been unfair to drilling around Australia, where we have received only preliminary proposals to date.

2. We will provide a final list after our March meeting.

3. Marks are expressed as an average, with range in brackets, as before. Proponents cannot vote for their own proposal.

Order of priorities to date is:

1. Makran Accretionary Prism - Leggett 8.78 (7-10)

2. Red Sea - Ross & Bonatti 8.30 (5-10)

7. Central Indian Ocean Intra-plate Deformation - Weissel et al. (3-10)

3. Red Sea - Cochran & Hobart 8.22 (6-10)

4. Kerguelen Plateau - SOP 8.16 (7-10)

5. Sunda Arc Accretionary Prism - Karig & Moore 7.~~27~~ 50 (6-10)

6. Southern Australian Margin - Cande & Mutter 7.~~25~~ 40 (5-9)

7. Timor Collision - Karig 7.20 (5-10)

Final Item: Membership. Bally has resigned. Bouma, who has only been able to attend one meeting, is likely to have to resign in the new year for professional reasons.

Regards, Dr. Jerry Leggett, Imperial College

EXECUTIVE SUMMARY

Minutes, Indian Ocean Panel Meeting 10-12 Dec 84, La Jolla, CA

After hearing reports from PCOM, LITHP, TECP, SOHP, and SS-SP, the panel reviewed all proposals received to date, whether mature or immature, and reassigned priorities. Top priority projects are listed below in order, with notation of endorsement by thematic panels (T = Tectonics, L = Lithosphere, S = SOHP), and time estimates expressed in drilling legs.

1.	Kerguelen-Gaussberg: rifted hot spot trace model and high latitude paleocean. transect.	T,L,S,	1½-2
2.	Neogene Package: monsoons, mountains, Mikankovich and fossil man.	S	1+
3.	Argo Abyssal Plain: old, possibly Tethys, ocean crust.		< ½
4.	Red Sea: initiation of rifting.	T,L	1
5.	Broken Ridge: rifted hot spot trace model, conjugate to Kerguelen.		< ½
6.	Makran: distribution of deformation across an accretionary prism.	T	1
7.	Chagos-Laccadive-Mascarene Ridges: aseismic ridge, paleocean., carbonate history.	L	½
8.	S.E. Indian Ridge Transect: paleocean. transect and mantle heterogeneity.	L	½
9.	Ninetyeast Ridge: "aseismic ridge" and paleocean. transect.	L	½
10A.	North Somali Basin: old ocean, possible Tethys remnant.	S	1
10B.	Central Indian Basin & Distal Bengal Fan: intraplate deformation and Himalayan uplift record.	T	½
12.	West S. Australia & Antarctic Discordance: initiation of spreading and "cold spot" trace.	T	1
13.	Agulhas Plateau: S. Atlantic - Indian Ocean Gateway.		< ½
14.	Eastern S. Australia: starved block-faulted passive margin, slow spreading.		1
15A.	Exmouth Plateau: starved marginal plateau.	T	½
15B.	Fossil Ridges: Mascarene and Wharton Basins.		¾
17.	Sunda Arc: variation in deformation around an accretionary prism.	T	1
18.	Rodriguez Triple Junction.		1
19.	Davie Ridge: sheared margin.		¾
20.	Wallaby Plateau: epilith, volcanic passive margin.		1
21.	E. Gulf of Aden: rifting old ocean crust.		½

The projects considered and priorities reflect in part the fact that investigation of the Indian Ocean by both surveying and drilling is still in an exploratory stage, not as far advanced as most other major ocean areas. In addition, however, several thematic groups of projects have emerged based on features which are either unique to the Indian Ocean or are better displayed and can be studied better in the Indian Ocean than anywhere else. These include:

- Neogene Package (#2): a study in the NW Indian Ocean of paleoclimatology, monsoonal circulation, relation to uplift of the Himalayas, and correlation with East African hominid sites and the Siwaliks.
- Oceanic Plateaus and Aseismic Ridges (#1,5,7, and 9): Ninetyeast Ridge, Broken Ridge, Naturaliste Plateau, and Kerguelen-Gaussberg Ridge may have been formed by the same hot spot.
- N-S Paleoceanographic Transects (#9,5,8, and 1, or #7)
- Largest High Latitude Shoal Area (#1): Kerguelen-Gaussberg.
- Metallogenesis (#4): Red Sea.
- Old Ocean Crust (#3,10A): N. Somali Basin and Argo Abyssal Plain.
- Accretionary Prism Deformation (#6,17): Makran and Sunda.
- Passive Margin Evolution (#12,14,15A,20)

Action Items

- IOP requests appointment of a petrologist. First choice Duncan, second Frey.
- IOP requests appointment of a Red Sea W.G., with suggested membership: Cochran (Chairman), Coleman, Bäcker, Pautot, Arthur, Whitmarsh, Miller, Ewing, and one member from LITHP.

Summary of
Central & Eastern Pacific Regional Panel Meeting
12-14 September 1984

Report from PCOM

For our panel to function well, we will need to be informed of the thematic panels' objectives and priorities. We were hampered at this meeting because we had little insight into the SOHP objectives and priorities. Because liaisons are so important to the functioning of the regional panels, we request that PCOM formally appoint alternate members from each thematic panel.

Short-Range Program Recommendations

Peru We felt this was a new area with clearly defined problems which could only be answered by drilling. It has a number of overlapping thematic as well as first order regional problems. The regional problem of the truncated margin, first it's timing and second the processes, are important for the whole Peru-Chile coast and may have implications to some continental sutures. Ranked #1.

13°N Jean Francheteau presented the French proposal. There has been much Seabeam and diving in the region (and at all proposed sites). Three different programs are proposed. One, a traverse across the ridge focused on initial stages of seamount formation. The second is a study of an active hydrothermal area, and the third is a study of an overlapping spreading center. The panel felt that while the drilling and downhole measurement will be time consuming, the hydrothermal transect should be completed before continuing. To insure this, we recommend two legs devoted to the 13°N studies. Ranked #1.

504B The panel feels that 504B is not urgent, it is not an ideal hole, and no substantial progress will be achieved without investment of at least two legs. Thus we believe 504B should only be used as a logistical back-up should 13°N rock drilling conditions be impossible.

Chile The panel felt that Chile is an extremely interesting area, but without further regional and site specific surveys it probably cannot be considered in this round. Other rise crest intersections in this and other oceans also need to be considered as alternatives.

Costa Rica The Costa Rica program was not considered a new area because of early MAT drilling and the regional problems not as significant in comparison to Peru.

Other Programs Jackie Mammerickx briefly presented an integrated set of drilling objectives for the Gulf of California. These consist of completion of a traverse across the mouth of the Gulf, finishing a longitudinal transect with a hole in the Delphin Basin and continued investigation of the hydrothermal system in the Guymas Basin. PCOM should consider these, along with 504B and Costa Rica, as potential alternates should late program changes become necessary.

Long-Range Programs

A natural division of the Pacific into four regions was recognized by the panel. These are 1) the NE Pacific natural laboratory, 2) N Pacific plate evolution, accretion and destruction, 3) Mesozoic plate tectonics, paleoceanography and volcanism, and 4) the south Pacific.

The NE Pacific is a program of regional interest because it provides examples of most of the major processes active in oceans. A USSAC workshop is scheduled early next year.

The North Pacific objectives are essentially to determine the evolution, movement and destruction of plates in the Mesozoic and early Tertiary. Dave Scholl has outlined this program based on input from an informal meeting held at Menlo Park to discuss North Pacific problems. The problems outlined are of substantial interest as a whole but do not fit a thematic program. However, individual thematic objectives may be linked in such a way to achieve what is a greater goal.

The Mesozoic Pacific problems consist of the evolution of the Jurassic Pacific, its paleoceanography, paleo-ecology and plate tectonic history, as well as the Cretaceous origin and history. The Cretaceous thermal overprinting and its effect on the evolution of the region are major thematic as well as regional problems.

The South Pacific region is probably the most poorly studied oceanic realm. We need additional expertise to make sure that this region is thoroughly evaluated for ODP problems. This also requires liaison with the Southern Ocean Panel.

The panel felt that these subdivisions of the Pacific are a natural division into which most, though not all, integrated regional objectives would fit. The NE Pacific organization is well underway.

We strongly endorse the formation of three workshops, 1) for the N. Pacific, 2) for the Old Pacific and 3) for the Southern Pacific to integrate regional and thematic objectives for ODP. We urge that these workshops be planned and held soon, since the workshop is only the beginning of the process, to be followed by synthesis, regional and site specific studies and finally detailed drilling plans.

Southern Ocean Panel

Minutes of meeting held September 3-5, 1984

Institut de Geophysik du Globe, Strasbourg, France

1. Introduction

Logging requirements. The new guidelines for drilling mandate logging all holes. The special conditions of Southern Ocean Drilling (weather and ice) potentially make logging of all holes an unreasonable demand, and the following resolution was passed: that potential logging problems make it inappropriate to log all sites and therefore, after logging priorities have been established, the Chief Scientists should be given authority to decide on a site-by-site basis.

2. Site Surveys

West Germany

K. Hinz reported that in 1985-86 BGR will carry out a detailed MCS (24 channel), gravity, magnetic, and Seabeam survey of the Caird margin (W4) as well as sediment sampling and heat flow measurements (56 days). A geochemical survey of surface sediments will be carried out and heat flow measured; present data suggest that any source must be deep but possible migration of fluids and gases is not known. The Chairman (JK) noted that advice must be sought from the Safety Panel.

Norwegian Polar Institute

Y. Kristoffersen reported that the ~~NPI~~ expedition this coming season (84-85) will run MCS (24 channel), sediment sampling and heat flow measurements for two traverses of the Maud Rise (W1,2).

P.F. Barker reported that the UK will carry out MCS, magnetic (5 KH2), gravity and piston coring surveys next season (84-85) in the region of the South Orkneys (W5,6,7,8).

J. Anderson (US) reported that an icebreaker cruise is planned for late December to early January (84-85). Iceberg distribution and movement will be surveyed; piston cores will be collected and single channel seismic lines run on the SW margin of the South Orkneys and the Bransfield Strait.

The need for basement penetration at all appropriate sites was noted and strongly endorsed.

In summary, the panel: (a) notes the good coordination of the site survey plans of NPI and BGR; (b) strongly recommends further site surveys for W1,2,3,4; (c) recommends that other contingency sites be identified as the site surveys are carried out; and (d) believes no further site surveys are needed for W5, 10, and 11.

3. Adelie Coast: new proposal

J. Wanasson (IFP) presented a proposal for drilling off the Adelie Coast. The objectives are (1) the nature, age and cause of the regional unconformities, (2) the timing of Australia-Antarctica break up, and (3) the magmatic processes associated with break up and the development of the oceanic basement high.

4. Subantarctic leg

Discussion centered on (a) the drilling season; site surveys; additional sites and (b) objectives.

(a) The drilling season would likely be March through May.

At present the site surveys are largely inadequate; some surveys might be done on an opportunistic basis. Site surveys are particularly needed for sites SA7,8,9 for which minimal single channel data are available. J. LaBrecque has a proposal ~~in~~to NSF for a cruise that will cover this area; the objectives are to survey the NE Georgia Rise, SE part of the Georgia Basin an the Meteor rise. The panel strongly endorses this proposed cruise because site surveys can be included for all sites except SA4 with a minimum of additional transit time and interference with the original proposal objectives. As a back up to this possible site survey cruise, P. Ciesielski suggested the Oca Balda, an Argentinian research vessel with CTD, single channel and dredge capabilities.

A general point was raised about whether these Antarctic legs were using the full capacity of the new drilling vessel and whether new targets were being investigated rather than pursuing old incompleted *Challenger* objectives. The panel response is: the severe weather conditions of the Southern Ocean require a vessel with ice strengthening and greater capabilities than the *Challenger*; few of the original DSDP objectives for Southern Ocean Drilling have been met because of the lack of drilling.

5. Indian Ocean Leg: objectives

Major objectives include the following:

(a) Paleo-oceanography. The overall objective for drilling on the Kerguelen Plateau is to investigate, at the only site that spans the full width of the Southern Ocean up to the Polar Front, the development, long-term northward migration, and short-term fluctuations of the Polar Front and the history of ice-rafted debris. This has great significance in paleo-oceanography, paleoclimatology and paleobiogeography. Late Cretaceous, Paleogene and Neogene carbonate sediments have been recovered in piston cores. Cores from shallow, intermediate and deep water locations should provide information on the development of intermediate and deep-water masses. Knowledge of basement geology is essential for understanding the tectonic evolution.

(b) The break up and subsequent evolution of the Antarctic continental margin at Prydz Bay. This location may be the site of a former Triple Junction. A two to three km section of dipping beds are present below a veneer of ?glacial debris.

(c) Tectonic history of the Kerguelen Plateau. The subsidence (and/or uplift) history of the plateau will have profoundly affected circum-Antarctic flow.

(d) Paleoclimatology. The recovery of well-preserved non-marine palynomorphs of late Cretaceous to early Paleogene age and marine palynomorphs of Eocene age indicate the presence of a significant late Mesozoic and Cenozoic section on the continental shelf or beneath the ice.

(e) Glacial history. The E Antarctic Ice Sheet may have originated in the now subglacial Gamburtsev Mountains. The early record of glaciation and subsequent fluctuations may be recorded on continental shelf sediments.

(f) Early separation of Antarctica from India and Australia. Break up sequences and the continental margin. Seismic stratigraphy may allow correlation with sequences found on the Adelie Coast and the opposing coasts.

(g) Subantarctic paleoenvironments. The objective is to establish the inception, growth and fluctuations of the water masses now occupying the subantarctic belt, to establish the paleobiogeography, and to acquire an isotopic record to compare with that of the Campbell Plateau.

(h) Mantle heterogeneity. The aim is to examine the basement geochemistry along a mantle flow line that includes both normal mid-ocean ridge basalt and plume-generated basaltic rocks.

(i) Mantle petrology and geochemistry. The slow spreading on the SW Indian Ocean ridge system is associated with major fracture zones of high topographic relief along which abundant, variably altered, mantle peridotite has been dredged. The objective is to sample the mantle, test whether juxtaposition of cold and hot lithosphere leaves a geochemical signature, test the inference from ophiolites that the mantle is stratified, and to examine the influence of a mantle plume.

(j) Mantle heterogeneity. This proposal is concerned with the occurrence of great depth and low relief on a mid-ocean ridge that apparently yields basalts with a mantle plume signature.

(k) Tectonics and basement geology of the Agulhas Plateau. The nature, origin, and evolution are uncertain, although dredge hauls suggest that at least part is continental. The tectonic history is difficult to understand if the crust is continental. The evolution of the plateau is important in understanding early break up of Gondwana, and the paleoenvironments and early patterns of water mass flow into the widening southern Atlantic region. This site would complement the Maud Rise (W1,2) and Falkland Plateau (DSDP sites 327, 511, 512).

6. Indian Ocean Leg: site locations

The Panel considers that Kerguelen Plateau and the east Antarctic margin (Prydz Bay) drilling (a and b) are of the highest priority.

(a) Kerguelen Plateau (objectives a and c). Eltanin 47 and 54 cruises provide the data base for the central and southern part; excellent French MCS data exist for the vicinity of the Kerguelen Islands, particularly to S and E.

Twelve sites have been tentatively selected to cover the length of the Plateau and a range of water depths. The number of sites will probably be reduced after further MCS surveys, etc. Emphasis will be placed on Eocene and younger sections because of their importance in paleoenvironmental studies. Older sediments will be cored for the long-term record and basement will be penetrated at two or more sites.

There is clear need for further site survey (MCS, coring) in the central and southern parts of the Plateau. A proposed Australian survey (MCS, magnetics, gravity) for austral summer 84-85 together with further French surveys in 85-86 should provide a much improved data base for site selection. The Southern Ocean Panel strongly endorses these cruises.

(b) Prydz Bay, Antarctica (objectives b,d,e,f). Refraction seismic lines run by Soviet and Australian Antarctic programs clearly indicate that the Lambert Glacier area - Amery Ice Shelf region, of which Prydz Bay is an extension, is a graben with a much diminished crustal thickness of 20 km. Piston cores from the continental margin suggest late Mesozoic and Cenozoic sediments are present. Twenty-two percent of the E. Antarctic ice sheet drains out through the Amery Ice Shelf and includes one flank of the Gamburtsev Mountains on which ice sheets may have been initiated. A transect of four sites is suggested in order to minimize drilling time. This transect will yield information on Antarctic paleoclimates, the early evolution and development of the continental margin, and the glacial record of the E. Antarctic ice sheet.

MCS data for site selection is excellent and it is anticipated that it will be made available by H. Stagg, Australia. There is need for single channel seismic data and coring; J. Anderson will be proposing an icebreaker cruise to that region for the 85-86 season.

(c) Agulhas Plateau (objective k). Numerous single channel seismic lines cross the Plateau and there is a good coverage of piston cores and dredge hauls. The information is probably sufficient for a single site.

(d) Crozet Plateau (objective g,i). Crozet Plateau, a subantarctic paleoenvironments locality at shallow depths, lacks adequate coverage for site selection; one single channel profile and some data collected by the Marion Dufresne are available. Reconnaissance and detailed surveys are needed.

Three sites are also proposed in a northerly FZ, either the Melville or Atlantic FZs, and one site in a southern site just north of the Crozet Plateau and adjacent to the Crozet plume. There is good bathymetry and dredge sampling. A major requirement is for seismic lines along the length of the FZ troughs to establish sediment thickness. Further detailed magnetic and single channel seismic surveys and dredging of the FZs is necessary to establish that inferences are correct. Objective "i" could clearly be met by drilling on two different legs.

(e) Kerguelen Plateau—St. Paul-Amsterdam Islands—Broken Ridge transect (objectives g and h). This transect is designed to meet the requirements of a subantarctic deep water paleoenvironments transect, the proposal for investigating hydrothermal activity in the sedimentary pile, and the examination of mantle heterogeneity along a mantle flow line. Further surveys are required before site selection can be made.

(f) Central Antarctica-Australia mid-ocean ridge (objective j). This is the locality where a mantle heterogeneity anomaly is found (the "Cold Spot Trace"). The anomaly is based on a number of dredge samples. The proposal requests ten sites; the panel feels a fewer number may achieve the same results and ask whether further dredging could provide more information (thus reducing the need for drill sites).

(g) Adelie Land Coast. This set of three sites should be considered for inclusion in a South Pacific Leg.

7. <u>Joint meeting with the Indian Ocean Panel</u>

J. Kennett, SOP Chairman, presented a summary of SOP objectives for the Indian Ocean sector of the antarctic and subantarctic. J. Curry, IOP Chairman, presented their deliberations on the subantarctic; there is general agreement about objectives but some differences exist on priorities.

There was considerable discussion about whether the objectives of the IOP and the SOP (for the Indian Ocean sector) could be achieved in one season of drilling (one to one and a half for IOP objectives). One problem is transit time: Reunion to Kerguelen - 6-1/2 days; Diego Garcia to Kerguelen - 12 days; Freemantle to Kerguelen - 14 days. There was some discussion of a single four-month Antarctic leg with a crew and science personnel change over in the middle, which would have to be supported by a vessel with berths for 116. There is unanimous agreement that a much more effective drilling program can be developed if there are two austral summer legs to antarctica in the Indian Ocean sector.

JOIDES TECTONICS PANEL

September 10-12 meeting

SUMMARY

Voting on the competing proposals for legs 111-113 revealed our priorities to be, in order of preference, Peru, Chile Triple Junction and Barbados South. Peru drilling is our highest priority because we feel that it offers an overdue opportunity to track the effects of subduction erosion through time, and to investigate the nature of the "transition zone" between a young accretionary prism and continental crust.

We are concerned about the unhealthy precedent set by the decision not to fund S. Chile site-survey work within the US community in advance of advice tendered by the ODP science advisory structure.

We identify the Sunda-Banda arc as an area of important drillable tectonic problems, and recommend creation of a Working Group.

In the Tyrrhenean Sea drilling, we hope to see emphasis on the nature of pre-rift and syn-rift sediments and the nature and age of the basement.

SITE SURVEY PANEL: EXECUTIVE SUMMARY

November 1984

1. The SSP recommends that the science operator investigate the possibility of having GPS on board for the MARK I leg in order to tie in with Seabeam site surveys which have already been navigated using GPS.

2. The Site Survey Panel recognizes the scientific value of the proposed leg for the Chile Triple Junction proposal. However, in view of the inadequate site survey data the SSP recommends that the sites not be drilled unless the following requirements are met:

    1. Each candidate location must be at the intersection of two multichannel seismic cross lines.

    2. Sites along A-A^1 (45°S) and B-B^1 (46°S) must be linked to regional structure by two long multichannel profiles extending from outer shelf to 76°25'W.

    3. Presence of bottom simulating reflector requires each site to be surveyed using high resolution seismic (water gun: 3·5 kHz) and heat flow. Sufficiently high seismic resolution can be achieved if water gun is used for (1) above.

    4. Topographic complications require that regional bathymetry be surveyed with Seabeam and/or Seamarc and/or GLORIA.

    5. During the MCS survey sonobuoys should be deployed to maximize the velocity information available to determine the depth to the observed BSR.

    The proposal is not scientifically viable without these additional data. The sites should be surveyed no later than May 1986.

3. The SSP is awaiting further information in areas proposed to be drilled in the Indian Ocean and, especially, the Western Pacific in order to evaluate site survey needs.

4. Close collaboration needs to be maintained with these panels as expressed in the following recommendation: "The Site Survey Panel should send representatives to the Southern Ocean, Indian Ocean and Western Pacific Regional Panel meetings until the site survey needs are met in those areas. This replaces the working group concept discussed in Zurich."

5. The Site Survey Panel supports drilling at Baffin Bay 3B based on the existing multichannel seismic information for Neogene palaeoenvironmental objectives. However, in view of the probable need for a support ship, we recommend that additional magnetic data should be collected by the support vessel over the structural high immediately to the landward side of the drill site.

6. The Southern Ocean proposals were reviewed. The SSP considers that additional high resolution seismic data is critically necessary to optimize site selections for the Atlantic Sub-Antarctic sites. Every effort should be made to use ships of opportunity to acquire such data.

7. The Panel has received all current information on ship movements during the period 1984-1986 from member countries.

8. The functions of the ODP Data Bank were reviewed. The following recommendations were made:

   1. The Data Bank should remain at Lamont under present financing arrangements.

   2. Quality-control of incoming data should be undertaken at the Data Bank.

   3. The assessment of the adequacy of site survey data should remain with SSP, with designated members assessing each data package (e.g. as was recently done with the Chile Triple Junction).

   4. PCOM must enforce SSP reviews and recommendations for drilling proposals.

   5. That at least 1 member of the SSP and Safety Panels should be members of the <u>ad hoc</u> review team.

   6. Data Bank facilities should be advertised more widely.

9. A further review of the site survey standards were made and these will be published in the JOIDES Journal, together with the safety guidelines.

10. The SSP mandate draft was reviewed and reads as attached.

11. The SSP reviewed the current state of site surveys in the Kane Fracture Zone, noting in particular the implications of the recent loss of Seamarc I. The Site Survey Panel requires that near bottom

sidescan sonar data be acquired for siting bare-rock holes in this region.

12. Proposals for geological measurements while the ship is drilling were reviewed. These include vehical seismic profiling using borehole receivers and suspended hydrophones; refraction and oblique reflection measurements over the drill site; bottom magnetometer observation; and on-site gravity measurements. Some of these would require the use of a launch and DMP will be asked to review the proposals.

13. Although riser drilling is not anticipated this decade the Panel recommends that, in view of the long lead time necessary for the evaluation of sites, that PCOM establish a working group to draw-up plans for riser site surveys. This group should include members of the SSP and Safety Panel.

E. J. W. Jones
Chairman

Site Survey Panel Mandate

1. SSP receives mature proposals from the regional and thematic panels, reviews the site survey data packages and makes its recommendations to PCOM.

2. The SSP provides international cooperation and coordination of site surveys.

3. The SSP must ensure that there is proper coordination with member nations' site survey activities.

4. The SSP maintains communications with and provides advice to JOIDES panels on site survey specifications.

5. SSP identifies data gaps in future drilling areas and recommends appropriate action to ensure that sufficient survey information is available for pinpointing specific drilling targets.

6. The SSP must encourage the fullest use of new technologies for surveying potential drill sites.

7. The SSP ensures that all data used for planning and execution of drilling targets are lodged in a proper format in the ODP Data Bank.

Brief "Executive" Summary of Southern Ocean Drilling Panel's Objectives and Status

A. Status of Site Surveys

1. Weddell Sea Region (southern leg): Future site surveys are well developed. Currently British and Norwegian surveys are being held. A German expedition is scheduled for next austral summer. Also, U.S. icebreaker cruise is planned for next austral summer.

2. Subantarctic Region (northern leg): Site surveys required for most sites. Proposal has been submitted to NSF by J. LaBrecque to conduct these site surveys.

B. Panel's Recommendations for South Atlantic Sector Objectives

1. Weddell Sea area (southern leg): A very high priority, in general, is placed upon the drilling objectives in this region.

2. Subantarctic Sites (northern leg): Very high priority is given to a number of sites, including the north-south paleoceanographic traverse over the Antarctic Convergence. In general the Subantarctic leg is ranked of lower priority than the Antarctic (Weddell Sea) leg. Nevertheless the panel ranks the drilling of the Subantarctic objectives of high priority. Very few useful sites have ever been drilled in the Subantarctic region as a whole (5 in the Southwest Pacific; several on the Falkland Plateau) - yet this is an enormous geographic area of great importance relative to paleotectonic reconstructions of Gondwanaland and global paleoceanographic evolution. The few sites that have been drilled in other regions have played an enormous role in the developments of our concepts of global paleoceanographic evolution.

Panel's Recommendations for Indian Ocean Sector Objectives

1. Kerguelen Plateau-East Antarctic Margin: A very high priority is given, in general, to the drilling objectives in these two areas. A very long leg is requested since there is so much of importance to be cored, and the area is one of the most remote on earth. Two legs conducted during two successive austral summers would be preferable.

2. Subantarctic Objectives: There are several objectives proposed including the Agulhas Plateau, Crozet Plateau-Fracture Zone drilling, Kerguelen to Broken Ridge traverse and the Central Antarctica-Australian mid-ocean ridge. As in the South Atlantic, these rank lower than the true Antarctic drilling objectives. They have yet to be ranked amongst themselves.

3. Site Surveys: Required for the Southern Kerguelen Ridge.

Abbreviated

Draft Minutes of the Sediments and Ocean History Panel (SOHP)

Meeting 12-14 Nov. 1984

Carmel, California

Present:

M. Arthur
R. Embley
W. Hay
L. Mayer
P. Meyers
H. Schrader (PCOM)
W. Ruddiman
R. Sarg
M. Sarnthein
N. Shackleton
E. Suess
Y. Takayanagi
L. Tauxe
A. Palmer

Guests:

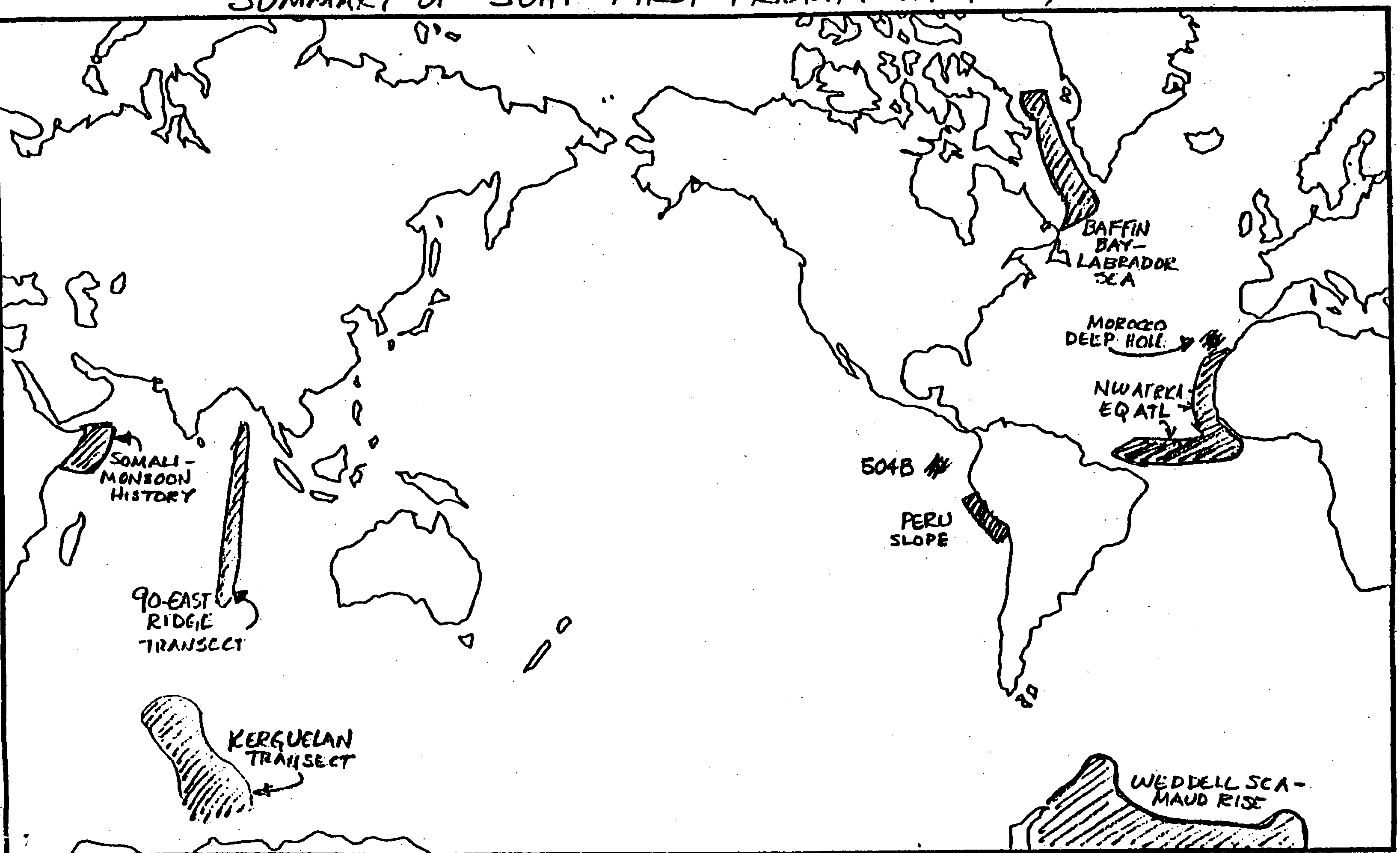
D. Scholl (CEPAC-12Nov.)
J. Curray (IOP-12Nov.)
E. Silver (WPAC-14Nov.)

"Handy Reference Guide"

to SOHP Future Objectives and Priorities for ODP

5/9/84

SUMMARY OF SOHP FIRST PRIORITY TARGETS*, JAN. '85 – JAN '89



* 5/9/84

Assuming Shiptrack N. ATL (;)
S. OCEAN (87)
to INDIAN OCEAN

31. What are the highest priorities for the next 3-4 years? These depend somewhat upon fixed times (high latitude objectives) in the projected drilling schedule. These presently include July-Oct. 1985 (N. Atlantic), Jan.-April 1987 (Weddell Sea), and Jan. 1988 (Kerguelan).

Priorities of SOHP Interests:

1st - Northwest Africa Leg
1st - Labrador/Baffin Bay Leg
1st - Moroccan deep hole (closely following NW Africa) (1.2)
1st - Peru slope/trench transect (1.2)
1st - Weddell Sea-Maud Rise
1st - 504B
1st - Somali Margin-monsoonal history (Hay will draw up prospectus)
1st - Kerguelan
1st - 90° East Ridge
2nd - Mediterranean Sea (without riser capability)
2nd - Norwegian Sea (possibly include Jan Mayen Ridge)
2nd - Bahamas
2nd - Ceara Rise
2nd - Newfoundland Basin
2nd - Barbados
2nd - Madeira Abyssal Plain
2nd - N-S Equatorial Cretaceous connection
2nd - Red Sea (withouth riser capability)
2nd - Agulhas A. P.
2nd - Exmouth Plateau
2nd - Bengal Fan

Pacific sites are deferred to Carmel meeting because drilling will not be done there for 4 or 5 years, but they need to be considered soon to provide time for surveys and planning.

Themes for future SOHP focus:

1. Global oceanic sediment and geochemical budgets - oceanic geochemical cycles through time
2. Upwelling histories - Corg production and burial of nutrients
3. Interocean connections and history of water masses and water-mass exchanges (circulation and chemistry, latitudinal vs meriodional circlation)
4. Controls on physical stratigraphy
5. Evolution of the oceanic biosphere
6. Burial diagenesis (emphasize deep burial)
7. Ocean-continent interactions

<u>What are the major unknowns?</u>

1) Oldest margin sediment?
2) Mass of marine evaporites and rapidity of precipitation?
3) Changes in accumulation rate of pelagic sediments?*
4) Geochemical pulses over long terms* (Mesozoic, Cenozoic)
5) Details of late Neogene-Quaternary budgets of Corg, $CaCO_3$ [1 + 3]
6) Volcanic episodicity?
7) Controls on terrigenous sediment inputs to the oceans [1 + 4] (shelf-basin fractionation, $CaCO_3$)
8) Properties of deep-water masses over time
9) Causes of major biotic extinctions
10) Biotic radiation episodes
11) History of hydrothermal input
12) Magnetobiostratigraphy - high resolution* in mid-Miocene and Jurassic/Cretaceous
13) Earth magnetic-field models testing, N-S hemisphere high resolution for polarity transition
14) Paleoceanographic significance of seismic reflectors

<u>N.B.</u>-Fans will not be overlooked, although better ways to investigate them are needed. Past studies have not used correct approach in not getting stratigraphic reference section to tie into overall fan geometry. Fan studies are needed to estimate volumes and rates of continental erosion and rates of continental rise construction. One or two carefully picked sites to connect seismic lines might work better than the multi-hole, descriptive approach used to date.

15) Need more information about rates of fan buildup-buildout through time in general.
16) Role of fans in sediment budgets, temporal distribution, rates of development? (single-hole approach)
17) Sediment accumulation in abyssal plains? (red clays)
18) Provincialism in marine planktonic groups?
19) Development and intensity of monsoonal circulation?
20) Timing, magnitude, and causes of Cenozoic glaciation?
21) History of response to orbital forcing through time? (usefulness to calibrate time scales and seafloor spreading rates)
22) The "oldest" paleoceans (the elusive Jurassic!).

*Test XCB in cherty pelagic carbonate sequence. Is recovery improved?

Suggested locations to investigate unknowns in #29 (by item number) [riser drilling = *]

Areas in which to attack Major Themes

1) Moroccan deep hole
   Madagascar (possible diapirs) and date Gondwana separation, deep hole > 2.5 km
   Maud Rise - Agulhas
   Exmouth Plateau*

2) Mediterranean Sea* - Messinian evaporites
   Sao Paulo Plateau - Cretaceous S. Atlantic
   Red Sea*
   Moroccan deep hole

3) No single area seems adequate, instead look at: Arctic Ocean Abyssal red clay environments through time (Atlantic and Pacific)
   Equatorial Paleogene sequences
   Cretaceous Paleogene - SW Pacific
   Circum-Antarctic
   Bering Sea - trapped tropical Pacific Cretaceous crust?

4) See 3).

5) PUP area list

6) Pacific seamount province
   Ceara Rise
   General problem (active margins)

7) Sunda Shelf*
   Bahamas
   Upper Continental Rise locations world-wide
   Circum-Antarctic

8) Arctic Sea
   Ceara Rise Transect
   Maud Rise Transect
   90° East Ridge Transect
   Kerguelan Transect
   Ontong-Java Transect
   Mariana Ridge ("gatemouths")
   Norwegian Sea
   Weddell Sea
   Labrador Sea
   Unconformities and drift deposits in general

9) All over locations of opportunity

10) All over locations of opportunity
   High latitude-low latitude transitional sequence
   Low-latitude Paleogene

11) Abyssal red clay sites - long-term averaging/integration (all basins)

12) Northwest Africa (Neogene)
   Mediterranean (e.g. 132) (Neogene/Quaternary)

(over)

13) Cover the earth (sed. rates > cm/1000 y), all ages but focus on Neogene for a start. "Each reversal is different" (L. Tauxe, 1984)
Kerguelan
90° East Ridge
Maud Rise
Ceara Rise
Arctic
Labrador Sea

14) See 8) and others (Moroccan deep hole, NW Africa, N-S Atlantic junction)
Core unconformities (to determine dissolution _vs_ erosion, Exxon _vs_ high resolution)

15) See many above

16) Big fans
Bengal
Indus
Amazon
Mississippi
Laurentian
Astoria
Paleofans (603, Orange River, Limpopo)

17) All over

18) Regional locations and opportunities

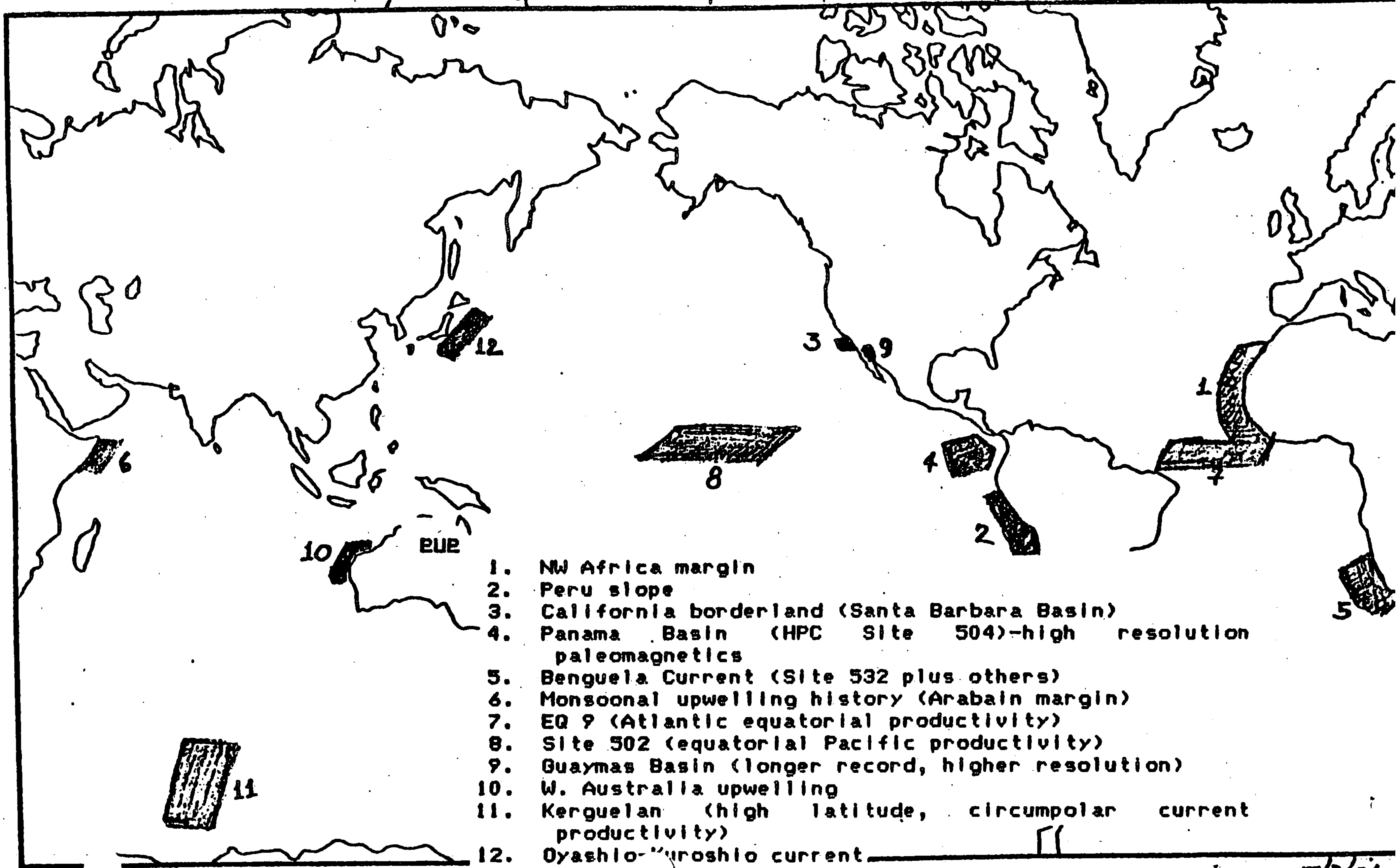
19) Somali Coast
Mozambique

20) Circum-Antarctic
Kerguelan
Labrador
Argentine Basin
Arctic
Maud-Agulhas

21) Equatorial Paleogene - most critical
Equatorial late Cretaceous

22) Bering Sea (?)
Moroccan deep hole
Pacific (?)

NEOGENE - QUATERNARY SEQUENCES (PUP)



SOHP "PALEO-UPWELLING PROGRAM" 5/9/84

PUP

1. NW Africa margin
2. Peru slope
3. California borderland (Santa Barbara Basin)
4. Panama Basin (HPC Site 504)-high resolution paleomagnetics
5. Benguela Current (Site 532 plus others)
6. Monsoonal upwelling history (Arabain margin)
7. EQ 9 (Atlantic equatorial productivity)
8. Site 502 (equatorial Pacific productivity)
9. Guaymas Basin (longer record, higher resolution)
10. W. Australia upwelling
11. Kerguelan (high latitude, circumpolar current productivity)
12. Oyashio-Kuroshio current (check to see if HPC'd already Leg 87)

M. Miocene to Quaternary records should be obtained in each area.

Objectives

1. productivity changes (upwelling intensity, current shifts)
2. O_2 minimum zone fluctuations (intensity and thickness)
3. Corg burial rates (and preservational changes)
4. diagenesis in Corg-rich sediments: phosphorite, dolomite, organic matter
5. downslope redeposition of Corg-rich sediments (Peru)

This is a SOHP first priority program.

Panel Membership: Because of the sometimes poor communication between regional and thematic panels the following SOHP members were appointed as informal liasons to regional panels (to attend meetings if possible):

E. Suess - Southern Ocean Panel

PCOM Note: (atl. Shackleton)

L. Tauxe - Indian Ocean Panel

(alt. W. Hay)

P. Meyers - Atlantic Regional Panel

(alt. R. Sarg)

N. Shackleton - W. Pacific
(alt. Y. Takayanagi)

R. Embley - Central & Eastern Pacific
(alt. E. Suess)

-SOHP views on possible additional membership of SOHP (noting apparent criticism from community of lack of coverage of certain subject areas) were already expressed to PCOM - in minutes of November meeting. However, SOHP does not agree with statements made in letter from G. Jenkins (and others) regarding structure of Panel.

Location and timing of next meeting:

In Cambridge England
Thurs. 21 Feb. 1985
Fr. 22 Feb. 1985

w/option of extending to Sat. 23 Feb.
- hosted by N. Shackleton

SOHP Recomm. to PCOM

SOHP requests that cores collected as part of site surveys be held at ODP repositories and made available to shipboard scientists.

-Lab. Sea/Baffin Bay (Leg 105)

The SOHP is reluctant to consider "trade-offs" in terms of extending the Baffin Sea-Labrador Sea program to at least 53 days of operations and 18 days steaming. The science is new, exciting and well-justified and should be considered in terms of the entire drilling program rather than SOHP interests alone. We strongly support drilling of BB-3B and LA-5 for reasons as shown in the table below.

DRILLING SCHEDULE - LEG 105

PRIORITY	SITE	OBJECTIVES	DETAILS OF SITE	DRILLING AND LOGGING TIME WITH RE-ENTRY (DAYS)	WITHOUT RE-ENTRY (DAYS)
	BB-3B	It will provide a high latitude framework for Eocene and Oligocene stratigraphy and the faunal, floral, stable isotopic, and sedimentary responses to the progressive cooling in the late Eocene-Oligocene. Also, it will provide information on the style of early post-rift tectonics in Baffin Bay. It is essential that drilling is carried out beyond the first major unconformity which lies at a depth of 1350 m.	Water Depth 2090 m Total Penetration 2000 m HPC/XCB to 700 m and coring to 2000 m. (Sed. only).	28	17 (?) (Not desirable because of ice-berg problems as well as for the desired deep pentration)
2.	LA-5	Together with BB-3B it will provide a high latitude framework for Eocene-Oligocene cooling as well as nature and dating of the drift deposits following Eocene hemipelagic sedimentation. Drilling into basement will lead to a first order age calibration of magentic anomalies in the Labrador Sea.	Water Depth 3350 m Total Penetration 1475 m (1425 m in sediments and 50 m in basement) HPC/XCB to 700 m and coring to 1475 m	25	17 (Not desirable to drill without re-entry because of deep penetration)

Discussion of NJ-6:

-SOHP encourages drilling of NJ-6 but we place it as second priority relative to Site 603 work and well behind Baffin/Bay/Lab Sea drilling.

SOHP urges proponents of NJ-6 to stress global ramifications of their work.

-Galicia Bank: no proposal available to SOHP - some paleo objectives - but mostly structural and tectonic objectives not much more to be gained in terms of paleo-sed. objectives than from Site 398 and Bay of Biscay (Leg 80) sites.

-therefore limited interest from SOHP.

Norwegian Sea Program:

-concern over apparent quota system (e.g. letter from Larson to Arthur re. Labrator Sea extension) and if we push for Norwegian Sea extension in order to achieve any serious paleoceanographic objectives we will apparently have to give up other sites.

-Bill Ruddiman discussed a letter from D. Warnke (Cal. State, Northridge)-which concerned apparent lack of SOHP input into Norwegian SEa drilling plans.

In J. Thiede's reply to Warnke he, however, seems satisfied with plans for Norwegian Sea leg as they stand.
K. Miller thought not much new could be learned from further rotary drilling but HPC at a few sites will provide important information but Schrader disagreed. Ruddiman thinks at least small E-W transect is in order and suggests:

Site 2B-which is priority 1 and site 4 or 5 (priority 2) to equal at least 2 site transect.

-Schrader is hesitant to attack SOHP objectives at this time (within contraints of tectonic leg). We should push for working group with greater paleo-sed. interests to look at future drilling there. -Plan for future leg with more SOHP priorities.

-SOHP recommends complete HPC of Neogene section at sites drilled (as possible) - but we emphasize that this will not satisfy most SOHP interests- endorse Thiede's response to Warnke-(comments on alternate sites).

-SOHP was not consulted in planning for Norwegian SEa leg because of a PCOM mandate to concentrate on dipping reflector problem. - we see justification for forming a working group to look at paleoenvironmental objectives in Northern high latitudes and especially Norwegian Sea - with plans for future drilling.

SOHP supports the establishmentof a Northern Ocean Regional panel

-(M. Sarnthein will be SOHP liason if established)

-Suggested members with SOHP interests:

David Clarke (Wisc)
John Andrews (CU)
Joe Morley (LDGO)
J. Thiede (Kiel)
G. Jones
D. Warnke (Col. State)
C. Sancetta (LDGO)
D. Bukry (USGS)
H. Nelson (USGS)
A. Aksu (Halifax)
Sejrup (Norway)
Vorren (Norway)

The proposed Working Group could also consider further objectives in the Labrador Sea - Baffin Bay, following drilling, and in the Bering Sea - Arctic Basin.

N.W. Africa - Equatorial Atlantic Leg:

M. Arthur questioned how well Ruddiman and Sarnthein have meshed their programs into one leg, and requested

1) consideration of the Weaver/Kidd et al. and Dutch proposals for drilling on Madeira Abyssal Plain.

2) Weaver et al. Madeira Abyssal Plain proposal:
-timing of turbidites with respect to sea level changes; can document dissolution cycles through Pleistocene-from piston core-where shifts to red clay at 2.4 myBP;
Hypothesis - turbidites correlated to regressions
- claim can correlate with fairly high resoltuion based on lithology (and nannos w/in turbidites), rather than normal pelagic intervals.

Other objectives:

- geotechnical data for rad. waste disposal
- eastern basin seismic strat.
- dating timing of abyssal plain formation
- 'burn down' of organic carbon - geochemical record of turbidite deposition.

Problems: 1)-biostrat resolution
2)-no aeolian record
3)-is this best place to test hypothesis
-higher sed rate better?

-Other site on lowermost cont. rise - to link turbidites to slumping and slides on upper cont. rise.
-At present no high resolution red clay stratigraphic -tool -can turbidites provide time lines?
-Is preservation good enough for dating - Nanno's in turbidites appear to be close in age to turbidite events.

Sarg -previous research and future drilling in Bahamas region has and will, in part, address this problem.

-M. Arthur: Can long piston cores be used to develop a longer-term record?
-In principal - we support program but compared to other sites that we have dropped on this leg we rate it as 2nd priority. SOHP suggests that Giant PC be used initially to address these objectives. (Madeira A.P.-Weaver et al. proposal)

N.W. African Margin (Leg 108) Feb-Mar.86 (Sarnthein/Ruddiman)

49 days total:

Marseille - Las Palmas - 28 days operation
21 days steaming

-all sites less than 400m - M. Sarnthein asks can logging be dropped? (It was decided that logging is important and should be done on all sites).

-first priority sites take up 25 days; would like to add 2 more sites-another 8 days - 54 day leg (total of 33 days drilling).

-Schrader pointed out that very strong scientific arguments will have to be made for additional sites because of earlier decisions of SOHP as reflected in minutes of LaJolla meeting (May, 1984).

-Sarnthein requests ODP to re-evaluate Marseilles port stop-could it be changed to Azores, thereby adding additional time for operations, not steaming.

Sarnthein & Ruddiman presented rationale for leg with prioritized sites and drilling times.

Integration of NW Africa/Eq Atlantic Programs:

(discussion by Ruddiman and Sarnthein)

Additional 2 days S. Equat. divergence
3 days nonupwelling - 42 days of operation

Justification for additional sites:
1-extending transect to 25° N to link up with Leg 94
2-new results-Con-83 & GEONEOPIX-83 show thermal equator moving through wide range of latitude in Quaternary.

A) S. Eq. divergence:

1-get some of Benguelan current signal
-max. temp. anomalies-glacial/interglacial
2-better signal of S. Hemisphere trades - dust
3-more Si- rich signal (productivity)
4-look at thermal equator changes through time
5-monitor Canary current at shallow 2900 m water depth
6-compare upwelling vs. Canary current interest
7-trade wind-dust record
8-monitor bottom water currents and isotopes
9-formation of hiatuses
-possible to reach basement at this site.

B) Non-upwelling site (redrill of Site 139)

1-Unipolar glaciation
2-comparison of accumulation rates w/upwelling centers.

These 2 sites should be ranked as first priority but below those sites already agreed upon.

PROPOSED ORDER OF SITES AND ESTIMATED OPERATIONS TIMES FOR
NW AFRICA-EQUATORIAL ATLANTIC LEG

	Site	Operations Time
Stat. 1	139R - MAU 6	15 hrs.
"	MAU 5	13 "
"	MAU 4	20 "
"	SLR 1	50 "
"	EQ 3/4/5	33 "
"	EQ 6	15 "
"	EQ 9	30 "
Stat. 8	EQ 7	68 "
		244 hrs. (10.2 days)
	Logging --	2 "
	Estimated Total --	12.2 days + steaming time

Moroccan Deep Hole (unanimous priority one ranking by SOHP)

PCOM ranking for 3 uncommited legs:

1) Peru Margin
2) Chile Triple Junction
3) EPR
4) Yucatan
5) Morrocan Rise deep hole
6) 504B

Moroccan deep hole was ranked just below Yucatan (by 1 vote).

Schrader explained that this was the result of long philosophical discussion. PCOM does not (at this point) want to drill areas that have been drilled before (even if recovery was very poor). Mandate is to do new things.

-Schrader believes that if strong support for deep Moroccan hole can be given and if it fits in with either Hayes or Winterer proposal or both-there is a chance to revitalize it.

-PCOM was not aware that SOHP deep Moroccan site was different from that proposed by Hayes and Winterer.

-Winterer/Hinz proposal is apparently looking for sites with thin sediment cover - not compatible with our objectives-not clear how W/H proposal would test Vail Sea level curves.

MOR -2 of Hayes proposal might serve us well but should justify from global-seistrat/sea level arguments-

R. Sarg, P. Meyers, M. Arthur and W. Hay acted as an <u>ad hoc</u> working group to find appropriate location and objectives.

<u>Morrocan Deep Hole</u>:

-working group concluded that MOR 2 is good site; 4200 m water depth - 3000m section (approx. 42 days drilling)
landward of Mor 2 is a diapir zone - north of Mor 2 is deformed zone both of which should be avoided. want sediment section as old as possible but not on diapirs.

Objectives:

1-recovery of latest Triassic/Jurassic sequence; deep reflections can be traced all over basin - there is much MCS data including Exxon data that has been released.
2-seismic strat.-global
3-dating of basement
4-nature of basement on transitional crust
(will, in part, deal with objectives of Hayes et al. proposal)
5-coupled with other deep holes-
Site 603, Somali Basin, N.W. African margin - global stratigraphy and syntheses.
6-sea level -"Vail-curve" corroboration or refutation.
-P. Meyers will write letter to ARP expressing our strong interest in this site.

Indian Ocean and Southern Ocean (Indian) Priorities

J. Curray (IOP Chmn.) outlined the priorities for Indian Ocean drilling set by his panel, and Erwin Suess (SOHP and SOP member) offered a summary of the Southern Ocean Panel priorities. After discussion and consideration of this input, and having studied proposals submitted to the JOIDES office, the SOHP suggested the following priority program.

SOHP Priorities

1. Kerguelen-Antarctic(Amery) (unam.) 12 votes
2. Oman/Owen Ridge upwelling/anoxic Indus Fan (distal) 8 for
3. Somali Basin
4. S.E. Indian Ridge transect
5. Chagos-Laccadive
   90°E Ridge - 1 hole pickup (K/T boundary)
6. NW Australian Margin and Argo Abyssal Plain
   Agulhas-1 hole pickup

SOHP recomm. to S.O.P.

SOHP priorities are highest for Kerguelen Plateau because of lack of terrigenous input and Amery Basin because of potential for pristine - Cretaceous-Recent section.

1.Kerguelen-no clastic input
-carbonate record
-problem is logistics
Can Amery basin and Kerguelen sites be done on one leg (approx. 72 day)-?
This would make sense logistically-can both be done on one leg -probably not.

SOHP rates Kerguelen slightly higher priority-we will focus discussion on Kerguelen sites.

Major question:

Was there a major Oligocene glaciation in Antarctic?
Can Kerguelen sites answer this? no - not far south enough - stress importance of Amery Basin
(for Antarctic glaciation).

SOHP Action Item

SOHP-will establish small working group to see if Kerguelen and Amery sites can be combined into one long leg: also see if tectonic objectives can be met at Broken Ridge rather than at Kerguelan.

Mike Arthur, Jeff Weissel and Jim Kennett will try to meet and discuss possibilities

Kerguelen Plateau/Hurd Plateau

-N-S transect together with S.E. Ind. Ridge

12 sites originally: when hopes for 2 summers of drilling
a) History of polar front-in pelagic sequences above CCD
b) Cenozoic bottom-water and intermed. water-mass history
c) Subsidence history of Kerguelen Plateau
-50-62°S 4 sites (minimum)-Paleogene-Cretaceous
-1 deep site approx. 57°S to basement

(4) S.E. Indian Ridge:

-(included as extension of Kerguelen Plateau transect)
-develop of AA circumpolar current
-mantle geochem. along flow lines
-ridge- crest hydrothermal activity.
will be reconciled with Indian Ocean Panel's transect.
-+lithospheric targets on slow spreading ridges and fracture zones.

3 sites: 38°S - N of Sub Ant. conv.
-43°S - S of Sub Ant. conv.
-48°S - N of Polar Front Neogene
approx. 1/2 leg -61°S Kerguelen (approx. 72°E)

Amery - 4 sites to study breakup and pre- glacial history.

(2) Oman-Owen Ridge - upwelling-monsoon

Arabian Sea (1 leg)

-evolution of monsoonal upwelling
-anoxic sediments, O_2-min.
-long-term evolution of Indus Fan
monsoonal upwelling-Owen Ridge/Oman - 15 days, 2 HPC sites -500 m

Indus Fan (distal) 15 days, 2 HPC sites 500 m

Indus Fan:

-well studied continental record (Siwalik)
-could use HPC on distal (not proximal) fan to tie seismic record and history of fan development
-good way to study sediment mass balance/sea level and Himalayan Uplift.

(3) Western Somali Basin: 1 deep site approx. 20 days

-tectonic-anomalously thin oceanic crust.
on basement at anomaly M12
-paleo-evolution of Indian Ocean-history of circulation.
-long Mesozoic-Cenozoic record-adjacent to Africa also tectonic history.
-2-3 km hole-companion to Moroccan Rise deep hole monsoonal upwelling (part of Arabian SEa transect if site can be moved north)

-relationship between Neogene-Quat. continental and marine climate and homonid evolution (as proposed by Kennett et al.)

(5) Chagos-Laccadive Ridge/Mascarene Plateau: vertical H_2O gradients/N-S climatic gradients in Neogene-high priority

Chagos-Laccadive Ridge - favored over 90°E Ridge because never been drilled before (1 leg) Hot spot trace-
N-S-tectonic objectives
E-W depth transect-paleoceanographic objectives.

90°E Ridge: 1 site for Paleogene and K-T boundary (to be proposed by Shackleton/Arthur)

(6) N.W. Australia-starved passive cont.

margin-carbonates-lots of industry data-margin subsidence-black shales-not very well understood.

-coupled with Amery basin - N-S transect of Cretaceous.
-much MCS site survey will be (and has been) done there by the Australians.

Argo Abyssal Plain (near old DSDP Site 263 to examine sedimentary record on oldest oceanic crust-Jurassic)

-Agulhas Plateau - perhaps 1 site in transit to Weddell Sea-not highest priority but could use a Paleogene and late Cretaceous calcareous record.

SOHP Recomm. to PCOM and SOP

Southern Ocean (Weddell Sea - Subantarctic)

SOHP strongly supports the Weddell Sea program as highest priority. Subantarctic drilling is of 2nd priority; of the proposed Weddell Sea sites we consider Maud Rise and Astrid Ridge of greatest importance - voted unanimous

Weddell Sea:

1) Maud Rise, Astrid Ridge-recovery of carbonate record
2) Weddell Sea-look at turbidites, magnetic anisotropy to -current direction
3) S.W. part of S. Shetland Plateau-outcropping reflectors objective to get complete stratigraphic section
4) Bransfield St-development of back- arc basin
   -glacial history (recent)
5) Caird Margin-tectonic objectives-opening of Weddell Sea-5 sites

All of these sites are of 1st priority to SOHP except for Bransfield Strait site which is of 2nd priority.

There is some question of the ability to date basement on Caird Margin transect.

Subantarctic leg: South Atl.-Sandwich Island trench-to Agulhas Plateau transect

8 sites planned-history of AABW into S. Atlantic and some tectonic objectives - Sand. Island chain: also conjugate sites on other side of MAR.

-One problem with leg is that it does involve some redrilling of places where drilling has been done before. We should present clear indication to South Ocean Panel of our feelings relative to subantarctic.

Western Pacific:

(E. Silver and J. Ingle of WPAC Panel summarized their discussions of preliminary objectives)

SOHP members discussed objectives of possible interest in the W. Pac.

Major problems-water mass development as isolated basin develops-can these be natural labs for studying global water mass development?

e.g. Sea of Japan-late Olig.-Recent feature-very shallow sill (approx. 200 m) yet oceanic depths in basin - as SL has risen and fallen - very dramatic effects-responses to land masses because of wind stress - mixing throughout - high uranium during low stands-very high prod.
Ingle would like to see utilization of onshore sequences-many islands are uplifted pieces of oceanic sequences, e.g. Okinawa

Sulu Sea - completely surrounded by landmasses very sensitive to sea level fluctuations - look at Neogene sedimentation history - dynamics of water masses and carbonate story. Not enough information to judge at this time (a proposal from R. Thunell has been submitted).

South China Sea - isotopic record
- -vertical gradient into intermediate water depth
- -sediment budget in active margin regime.
- -Himalayan uplift (Yangtze River-Okinawa Trough)
- -paleomag transtions in high sed. rate environs
- -pore H_2O-chemical exchange during deformation/accretion
- -diagnostic faunas on accretionary wedges (Banda Arc)
- -loess record-westerlies
- -correlate Asian land record to Pacific record

Izu-Ogasawara (Bonin) Arc Transect (discussed by Y. Takayanagi)

- -deep water circulation-Eocene differentiation
- -Neogene history of bottom water circulation
- -tectonic-serpentine-diapirism on ridge
- -long continuous sequence of Neogene seds.
- -high resolution record of climatic change
- -develop of Cenozoic intermed. & deep water masses

  benthic forams
  nannos
  tephra
  unconformities

Proposal has been submitted by Japanese colleagues to JOIDES office

-SOHP would be interested in Oyashio/Kiroshio current history (transects to examine fluctuations w/climate change in W. Boundary Current)

Sea of Okhotsk

-high sed. rates, high organic content, high geothermal gradient - safety panel problems(??)

Item P-5

-A. Palmer will try to find old site survey/safety panel data re Sea of Okhotsk and send to Shackleton.

-deep water formation in N. Pacific
-high latitude paleoclimate
-Siberian land climatic extremes- margin melt back-pollen

Sediment budgets on carbonate shelf last 60-70 million years (Arthur, Shackleton, Hay)

(a major problem in constructing mass balances is S.E. Asian shelf carbonates)
-N-Australia margin
-Borneo-Indonesian shelf

SOHP will form informal working group to look at carbonate shelf problem in W. Pac.

M. Arthur
R. Sarg
N. Shackleton
J. Mulliman

Phillipine Sea - may hold key to ribbon chert problem

Seamounts that may remained above CCD

-e.g. site 292 complete Eocene to Recent carbonate history

Central and Eastern Pacific

D. Scholl (CEPAC) summarized the areas of interest discussed so far in CEPAC meetings. SOHP then considered a few topics/regions of interest to them.

SOHP interest (as summarized by panel members in discussion)

1-Paleoclimate
2-Sea level fluctuations
3-Mesozoic sedimentation

-redrill Hess rise (problems w/recovery in chert)
-redrill Shatsky rise (same)

4-High latitude Paleogene sections-seamounts in Bering Sea with pelagic cap buried under turbidites on Early Cretaceous (?) sea floor
5-What was Pacific like in middle Tertiary and before-we need strategy to attack this problem because much of older crust from mid to high latitudes has been subducted.

Bering Sea:

-Pacific-Cretaceous-Paleogene-"low latitude" (N. Hemisphere)

-Arctic-Pacific exchange

Meiji guyot: collected pelagic seds since Cretaceous Line Islands?

Arctic Ocean - site of opportunity -in basin?

ice free every?

-10-15 my record

L. Mayer will provide ice info re Western Arctic

There was much enthusiasm for possibly routing ship into this part of the Arctic-a total unknown.

Pa.) CEPAC: SOHP outlined a few items of interest in CEPAC, but will spend more time on subject in future:

1. Elusive Jurassic
2. Hess Rise/Shatsky-Mesozoic objectives
   -good carbonate record
3. Ontong-Java depth transect
   -(dissolution gradients)
   -(water mass properties)
   -(seismic stratigraphy)
4. Late Cretaceous-South Pacific; again, a poorly known region
5. Adelie Margin (Antarctic continental margin)/Campbell Plateau Paleogene depth transect
6. Atoll drilling (subsidence history)-selected atolls
   -carbonate diagenesis - sea level record
7. Shallow ridge crest in South Pacific - Anomaly 5-6 high latitude glaciation (Miocene)
8. Peru margin-upwelling (high priority)
9. Equatorial upwelling? (extension of Leg 85 drilling)
10. Dewatering - J. de Fuca (active deformation; pore-water properties)
11. Volcanic episodicity through time (multiple sites)
    (anchipelagic aprons)
12. S.E. Pacific margin (Chile-Neogene)

Draft Minutes of the JOIDES Technology and Engineering Development Committee

(TEDCOM)

Houston, Texas, 3-4 October 1984

Present

TEDCOM Members

T.J.G. Francis (IOS, UK) Chairman

G. Chateau (Elf Aquitaine, alternate for M. Delacour, France)

B. Dennis (Los Alamos)

T.N. Gardner (Exxon)

M.M. Kolpak (ARCO, alternate for F.J. Schuh)

A. Maldonado (Spain, representing E.S.F.)

K. Manchester (BIO, Canada)

C. Marx (FRG)

M.M. Newson (Sandia)

W.H. Silcox (Chevron)

Liaison

R. Larson (Chairman PCOM)

A. McLerran (Manager Engineering and Drilling Operations ODP)

M. Salisbury (Chairman DMSP)

A.L. Sutherland (NSF)

M. Newall (SEDCO)

Observers

M. Le Bihan (French Consulate, Houston)

M. Patsoules (Public Petrol. Consort. Greece/ESF)

INTRODUCTION

This was the first meeting of TEDCOM. Those attending represented a wide range of offshore engineering, drilling and logging experience from industry, government and the academic world in North America and Europe. Our meeting began with reviews of the history of ocean drilling, the present status of the Ocean Drilling Project, the JOIDES panel structure and the ODP downhole logging arrangements for the benefit of newcomers to the scene.

Some discussion then followed on the role of TEDCOM. Two principal functions were identified:

1. To stop us "re-inventing the wheel" in the development of new technology. In other words to ensure that the project makes use of any relevant experience obtained elsewhere.

2. To ensure that the engineering and science of ODP are properly co-ordinated. Many of the scientific objectives of ODP will not be met without considerable engineering development. Meeting these objectives requires that the necessary engineering effort and money can be on them in an appropriate time frame, as recommended by the COSOD meeting. It was encouraging to learn from A. McLerran that ODP has got off to a good start in this respect.

No conflict was seen with the ODP Engineering Advisory Panel, which is an ad-hoc group of a few people called in from time to time to help solve specific technical problems.

An agenda for the meeting was then agreed and we proceeded to discuss the following nine topics.

1. HARD ROCK SPUD IN

This was recognised as the most pressing requirement for engineering development and placed at the top of the agenda. Legs 106 (October 1985), 110 (June 1986), 111 (August 1986) require the capability to spud-in on bare rock on the Mid-Atlantic Ridge and East Pacific Rise.

Site Criteria. An ad-hoc committee met in August 1984 to discuss site selection criteria and concluded that it would be necessary to be able to place a structure 7m in diameter on slopes up to 20^{o} with random relief of 1m in amplitude. This was thought a sensible compromise between scientific need and engineering feasibility. The oil industry is now working routinely with gravity bases on slopes up to 10^{o}.

Navigational problems were discussed next. A site survey (submersible, deep-towed sidescan, etc.) may identify suitable drilling sites to a precision of $\pm$10m, but the ability to find these sites on the later drilling leg depends on factors such as the same acoustic transponder net being in position, compatibility of site survey and drill ships' acoustic systems, etc. Ideally the site survey should deploy a command beacon, which can be reactivated by the drill ship, and define the drill site relative to that beacon. The larger the area in which spud-in is acceptable the better, and the easier it will be to find.

Through-pipe imaging of the sea floor. The resolution of the site survey may be insufficient to define the slope and relief at the drill site in the detail required. A. McLerran outlined three methods of surveying the sea floor through the pipe which could assist in finding a suitable spot to spud-in:

(a) Colour imaging sonar. ODP will be testing a Mesotec system in December 1984 with a view to purchase. It can be run through the pipe and defines sea bed features more clearly than black and white presentation.

(b) Slow-scan TV. One image every 8 sec is possible through 30,000 ft of logging cable.

(c) Acoustic video. TV pictures are transmitted acoustically through the water. One image every 2 sec through 20,000 ft of water is claimed. This method would not need the pipe/logging cable, so could be attached to the structure on the end of the pipe.

Of the above methods (a) seems most feasible at present; (b) and (c) are being investigated. Even with a good site survey and information about the sea floor obtained in one of these ways it is possible that the bottom structure will not be suitably located at the first attempt. Two important requirements for the structure are therefore:

(1) Acoustic telemetry of the tilt of both base and cone.

(2) Repeatability. If the structure does not land properly the first time, it must be possible to lift it off and try again. This rules out structures which include one-shot latching mechanisms.

Structures. McLerran outlined the various concepts which have been put forward over the last few years for fixing a re-entry cone onto a hard bottom. ODP has now settled on a gravity base, gimballed cone concept since this is nearest to current oil industry practice. When supported on the pipe the gravity base can rotate relative to the cone. When the weight of the cone comes off the pipe it locks into the gravity base. The cone/conductor axis needs to be within 1^{o} of the vertical if a 500m + hole is to be drilled. The approximate dimensions of the structure will be:

base: 20 ft diameter, 5 ft deep on 3 x 4 ft legs.

cone: 10 ft diameter at mouth, 10 ft above base

overall height: 19 ft.

weight in water with base filled with mud/cement: 50,000 lb

Detailed design of this structure is now in progress and a final design is expected in time for the PCOM meeting in January 1985. Fabrication will follow and testing over a two month period in summer 1985. Two structures need to be built in time for Leg 106, scheduled to start at St. Johns (or Halifax) in October 1985. The guesstimated budget is $900,000 for engineering, hardware and testing (but not including TAMU salaries).

Starting drilling. This is thought to be a more difficult problem than locating the base structure on the bottom. A 16" hole is required since casing may have to be set to contain rubble zones encountered at depth. Starting off with a hole this size is out of the question. Some kind of pilot hole will be necessary which can then be enlarged, probably in two or more stages.

Ways in which the hole can be started were discussed. These include the use of shaped charges, hammering and a mud motor. Hammering could be driven hydraulically by the drilling fluid. Alternatively an HPC-type device could be used as a punch. ODP is already engaged in discussions with Christensen to use a 'mud' motor which will be able to drill a 15 ft hole 3½" in diameter ahead of the bit and obtain a 2½" (standard size) core. This system will be used with the XCB, HPC bit. $75,000 is in the 1985 budget for purchasing the mud motor system.

Conclusion. The necessary money and engineering effort are being applied to the hard rock spud-in problem. The goal is still to have a system which will have a good chance of success on Leg 106.

2. HOT ROCK DRILLING AND LOGGING

B. Dennis outlined the Los Alamos Hot Dry Rock Project. This project has drilled up to 11,000 ft in granite, reaching maximum bottom hole temperatures of 320°C. Drilling has been largely rotary, using special bits made by Smith, achieving penetration rates of 11-13 ft/hr in the granite. A graphite based lubricant is used for the bits. The drilling fluid has been water since holes in the granite stay open without mud. (Drilling muds are limited to temperature below 315°C (COSOD Report); above this temperature the polymers contained in muds break down causing them to lose their rheological properties). The major drilling problems encountered stemmed from deviating holes in the very hard rock rather than from the high temperature.

Logging. This has been achieved in one of two ways: (i) Thermally protecting the electronics. By the use of heat sinks, phase change material, heat pipes and Dewar flasks it has been possible to develop tools which can operate for up to 8 hr. at 300°C; (ii) A few components work up to 275°C.

The general approach has been to minimise electronic processing down the hole, keeping the electronic components at high temperature as simple as possible.

Standard logging cable cannot be used above 180°C. The Los Alamos work has made use of PTFE insulated cables which can be used up to 350°C. The cable is commercially available from Rochester Cables at about \$6/ft compared to \$1¼/ft for standard logging cable. Special care must be taken with cable terminations for use at high temperature.

Among the tools run to 300°C are temperature, water sampler, natural gamma, caliper, acoustic, flowmeter. Most of these could run in the ODP drill pipe. Density and porosity logs have not been run, because no need was seen for them. However, no success has been achieved in getting open hole packers to work at high temperature, even at 250°C.

Implications for drilling and logging high temperature hydrothermal systems on the ocean floor.

1. Temperature itself should not create too many difficulties in the drilling of the hole, provided there is sufficient depth of water to contain a possible blow-out situation (B. Dennis has kindly undertaken to explore the blow-out problem further using Los Alamos computer codes). However, if mud is required to keep an open hole, the maximum achievable temperature could be set by the mud properties.

2. It should be possible to run a range of logging tools. However, long-term instrumentation of a borehole is likely to be severely limited as it would not be possible to prevent the temperature of the instrumentation rising to ambient.

3. Placing packers is likely to be very difficult. This could severely restrict the downhole sampling of very hot hydrothermal solutions.

4. Hydrogen sulphide in solution in hot hydrothermal waters could be very corrosive. Geothermal drillers on land should be consulted on corrosion problems.

3. HARD ROCK DRILLING AND RECOVERY

It was pointed out that 'hard rock' is always with respect to a specific bit type. Most of the holes drilled by the Glomar Challenger were single bit holes and therefore drilled with a bit appropriate for the whole depth. Most were drilled with a medium insert tungsten carbide bit (Smith F94CK). A. McLerran reviewed some of the factors that have led ODP to start more research into appropriate bits for re-entry holes:

(a) At hole 504B on Leg 83, penetration rate fell from 4m/hr to 1m/hr as the hole deepened 400m in basalt. All the bits used were F94CKs.

(b) Work with the XCB indicates that that approach can improve recovery. The mud motor approach essentially extends this concept, with the advantage that the inner bit can be rotated independently of the string.

Stratapax bits will be one of the approaches tried.

K. Manchester pointed out that the Bradley Co. (Canada) had much experience of drilling basalt on land in Iceland, Cyprus, Bermuda. Some of their experience in narrow bore diamond drilling might be relevant.

The heave compensation and greater stability of Sedco/BP471 should improve recovery rates over those of the Challenger.

C. Marx suggested the use of stabilisers, allowing more weight on bit to improve penetration rate. These would increase the risk of getting stuck in the hole, but could be appropriate when conditions allow.

Conclusion. ODP is aware of the problem and will be trying out a number of bits where basalt re-entry holes are available on the early legs of the project in 1985.

4. RISER DRILLING

The discussion benefitted from the experience of the oil industry members of the committee.

Riser dynamics. Although riser drilling has now progressed to 7450 ft water depth (Shell off US East Coast, 1984), riser drilling in depths of 6000 ft or more is far from routine. As the water depth increases, the resonant period of the riser-tensioner system moves into the range where most of the wave energy lies. Furthermore the dynamical problems get worse when the riser is disconnected, which could happen either when the riser is disconnected from the bottom due to failure of the dynamic positioning (more likely in heavy weather) or during its construction or dismantling (operations taking about a day for every 2000 ft). With present designs, and the most suitable ship available, risers longer than about 9000 ft would not survive when disconnected in a storm. Failure would occur due to compression or resonance, depending on the design. All these problems have been fully discussed in various reports to NSF, for example in the Sedco/Lockheed proposal for Glomar Explorer conversion.

It is clear that a very reliable D.P. system, good weather and excellent weather forecasting are pre-requisites for any riser drilling in deep water.

Other problems. Even if the dynamical problems of very long risers were solved, other problems remain. Blow-out prevention becomes more difficult as water depth increases; a bubble passing the BOP on the bottom in 3300 ft of water may be difficult to detect, but will have expanded a hundred fold at the surface. The problem of the mud pressure fracturing formations in deep water remains. In her January 1985 configuration, Sedco/BP471 will be able to store 4500 ft of riser, since additional pipe-racking space will be fitted. Reverting to a riser drilling configuration, the upper limit of riser storage would be 6000 ft, since less pipe would be needed. Beyond her storage capability riser transfer at sea would be required, a major problem adding considerably to the costs.

Costs. Above 6000 ft riser drilling costs rise very rapidly. Shell Oil is reported to have spent $60M in preparatory costs for two wells recently completed off the US East Coast (OTC Houston, 1984). The 60% increase in the annual cost of ODP recently estimated by A. McLerran for riser drilling (PCOM, May 1984) assumes using the 3500 ft existing riser available for Sedco/BP471, and includes supplies, logistics and an increased day rate.

Predictions. The oil industry members of the committee felt unable to predict the rate at which riser drilling would progress into deeper water. In spite of the enormous problems involved the consensus was that oceanic depth risers could be engineered, given enough time and money, but there appears little economic incentive to move in this direction at present. It was pointed out that a large difference exists between the deepest water depths of production wells and of exploration riser drilling. Proven production systems have only progressed to about 1000 ft (although Chevron is planning to produce from a well at 2500 ft depth off Spain). The thrust of oil industry engineering development over the next few years is therefore more likely to be on improving deep water production capabilities than on extending riser drilling to greater and greater depths.

Conclusions

1. If riser drilling is to be carried out with Sedco/BP471, it should start modestly in water depths of not more than 4000 ft (1200m). This length of riser could all be stored on board the ship so no riser transfers at sea would be required. 3500 ft of riser exists already. In broad terms, this scale of riser drilling would increase the cost of the ODP programme from $30M to $50M per year.

2. The limit of riser drilling with Sedco/BP471 is about 6000 ft (1800m), set not only by the equipment of the vessel but her physical size. Riser drilling to this depth would increase costs considerably over those estimated in 1. For a start, 3000 ft of riser would cost $5M.

3. It would make better economic sense to put all the riser drilling together for, say, one year rather than to configure the ship for riser legs when they seem appropriate. During the course of this year 3 or 4 riser holes might be drilled in place of 30 or 40 riserless holes. It would be unrealistic for this year to be before 1990.

4. It is now up to PCOM and the scientific panels to decide whether scientific targets for riser drilling exist in water depths of less than 6000 ft (1800m) and whether the importance of drilling a few such targets merits the cost.

5. <u>CORE AND TOOL ORIENTATION</u>

ODP has a more challenging problem here than the oil industry because of the need to orient cores and tools in both sedimentary and volcanic formations. The basaltic rocks are both highly and variably magnetised, so that there is doubt about the validity of magnetic directions obtained within them. The oil industry is generally satisfied with magnetic devices (its drilling is almost entirely in sedimentary rocks) and is very negative about gyro devices.

A. McLerran said that a multishot magnetic device developed by Eastman would be ready for Leg 101 for HPC orientation. Non-magnetic drill collars would be necessary.

C. Marx believed that very small north-seeking gyros are now available and will forward this information to McLerran.

M. Salisbury said that the old USGS Televiewer was fluxgate oriented. He will report back on whether the new instruments and magnetometers going on Leg 102 have gyro references.

Conclusion. The HPC orientation problem has probably been solved. There was some uncertainty about the gyro-based devices and we will need to pursue this topic at the next meeting.

6. USE OF SMALLER RE-ENTRY CONES

M. Salisbury said that downhole experiments would be facilitated by as many holes as possible being fitted with cones. Reducing the cost of a cone below the $50K-75K of the DSDP cone could help. It was pointed out that cheaper rather than smaller was the real objective. Futhermore, the time involved in setting a cone was more significant than the cost of the cone. Nevertheless, the problem appears to have been tackled. A. McLerran said that they were looking at the problem with SEDCO. A new octagonal cone 12½ ft in diameter had been designed for ODP with panels which could be bolted together on the ship. These will cost about $35K each.

7. DRILL-IN CASING

This is needed on Leg 109 in April/May 1986 (Barbados North). Previous drilling in this area encountered a heaving zone about 350m below the seabed at the subduction plane, which proved impossible to get through. It is not known how thick this over-pressured zone is. The previous attempt involved carrying 52m of 11¾" OD casing with the BHA, but it proved impossible to release it. A. McLerran thought that this was because the casing was driven from the top. At the next attempt the casing would be driven from the bottom, the hole being fitted with a re-entry cone and normally cased above.

C. Marx outlined the Polish practice of running short sleeves to case over-pressured zones in gas wells, but this was not thought appropriate to ODP. Simiarly under-reamers (expandable bits) were discussed and generally thought inappropriate. The general conclusion was that there was nothing to do but follow the approach recommended. Its success will depend on the thickness of the over-pressured zone.

WIRELINE HEAVE COMPENSATION FOR LOGGING

Either heave compensation or a downhole pressure sensor is needed. In oil industry logging, the riser provides a reference for compensation. K. Manchester said that heave compensation is used routinely by physical oceanographers for CTD lowerings. This is done in one of two ways:

(a) Servo controlling the speed of the winch, with an accelerometer mounted on the block to sense heave.

(b) Compensating the block itself with a hydraulically operated arm. M. Salisbury said that DMP would get Roger Anderson (Lamont-Doherty) to contact the man at BIO (Jean G. Desseauch) who knows about the CTD compensation.

T. Francis pointed out that the logging and CTD problems were not identical. Logging is carried out while the tool is pulled up the hole at speeds in the region of 0.1 m/sec. Furthermore, the centralisers or spring-loaded arms used with many logging tools prevent them moving downwards during this process. CTD lowerings on the other hand normally take place at about 1 m/sec. Heave velocities are of the order of 1 m/sec. It appears therefore that the heave compensation of logging tools may be more difficult than for CTDs.

There was some uncertainty about the status of the Lamont-Doherty/ Schlumberger plans for heave compensation, as it appears that the location of the logging winch has already been fixed.

G. Chateau described a sub-sea winch developed by IFP for logging holes from the sea bed. This is connected by umbilical to the parent ship and since the winch sits on the sea bed there is no heave problem. It is unlikely that the particular winch described could work in oceanic depths, but the concept could be important for logging re-entry holes by wireline re-entry.

The problem of heave-compensation of logging tools will need to be raised again at the next meeting.

9. RECOVERY OF SOFT SEDIMENT

A. Maldonado thought that not enough effort was devoted to recovery of soft Quaternary sediments. It was pointed out that the HPC and XCB can now do this very successfully, but the problem seemed to be one of scientific priority rather than technological capability. Dr. Maldonado was advised to pursue this one through the scientific panels, in particular the Sediment and Ocean History Panel.

The meeting concluded with A. McLerran outlining the engineering development projects which ODP will be carrying out in FY85.

T.J.G. Francis

15th October, 1984

Minutes of the Western Pacific Panel of ODP

October 2 to 5, 1984

Lamont-Doherty Geological Observatory, Palisades, New York

List of Persons Present:

Panel Members

Michael Audley-Charles	University College London
Kazuaki Nakamura (TECP)	Earthquake Res. Inst., Tokyo
Jim Natland	DSDP, SIO LaJolla, CA
Jacques Recy	ORSTOM, Noumea
Claude Rangin	CNRS, France
Hans Schlüter	B.G.R. Hannover
Brian Taylor	H.I.G. Hawaii
Margaret Leinen (LITHP)	U. Rhode Island
Marcus Langseth	L-DGO
Derk Jongsma (Rapporteur)	Free Univ. ESF Consortium
Eli Silver (Chairman)	Univ. of Calif., Santa Cruz
Dennis Hayes (PCOM liaison)	L-DGO
Reinhard Hesse (2,3,4)	McGill Univ., Montreal

Invited Participant

Andy Stevenson	U.S.G.S.

Observers

Stephen Lewis	L-DGO
Kensaku Tamaki (1,2,3)	U. Rhode Island

ODP Representative

Elliott Taylor	TAMU

Absent

James Ingle	Stanford U.

Tuesday, 2nd October, 1984

Morning Session

At the 2nd meeting of the panel several additional members were present to provide input from the thematic panels (Nakamura-TECP, Leinen-LITHP, Hayes-PCOM) and to fill the previous gap in expertise on the SW Pacific (Recy-ORSTOM, Stevenson - USGS).

Status of ODP Preparations

Elliott Taylor (ODP) reviewed progress in converting the drilling vessel. It is proceeding on schedule, shakedown cruise will be in December, 1984. ODP staff is now at about 100 and is projected to be 150 to make up the full complement. Labs, equipment and facilities and their location on the ship were explained. Plans for the ODP building are out for bids.

PCOM liaison Hayes briefly set out the capabilities of the vessel and discussed the positon of the ODP memberships. Germany and France have signed, Japan will join in 1986 (may cause difficulty in funding travel in 1984/ 1985 to join meetings), Canada, ESF are positive. England's participation not yet sure. Due to much higher costs of refitting the ship than those estimated, a deficit of $4 million looms. It is crucial that at least one more ODP member signs up besides Canada. A partnership between ESF consortium and Australia could prevent cancellation of important aspects of the proposed program.

Plans for Initial Reports in two parts.

PART A will consist of site chapters, planned to be ready for printing ~12 months after completion of drilling leg. PART B. Scientific results and syntheses goes to printer ~ 30 months after execution of drilling. Brian Taylor urges routine inclusion of magnetic stratigraphy in Part A. The first 15 legs are planned, except that 111, 112, 113 are still tentative. Expected entry into West Pacific region is mid to late 1988. Global-circuit in 5-6 years. Time is now for WP-RP to prepare for site surveys. The JOIDES office has moved to Rhode Island with Roger Larson in charge. Proposals are to be sent there from now on. WP-RP should establish the status of its proposals at this meeting and fill in the submission forms where possible. Holes based on proprietary data should not be considered. Proposals ought to be supported by pertinent geophysical data, of which copies must go to the JOIDES/ODP bank in Lamont. Amount, quality and ready-access to the data by the community will play a large role in the decision to drill. Minimum requirement of PPS-SP is crossed seismic lines over the proposed site. WP-RP should phase into a meeting schedule that proceeds PCOM meetings by at least 3 or more weeks.

Relation/Interaction between Thematic and Regional Panels

As has happened in the other panels a discussion concerning the hierarchy and interaction between the different panels ensued. A recommendation to PCOM by the TECP to set up a Sunda-Banda Arc Working Group was passed on for discussion by the panel. The principle of equal status for both types of panels is causing some confusion at this early stage. There is a need for better liaison between them, not only thematic to regional but also vice versa. In the WP-RP, liaison with SOHP is the most acute problem. The suggestion was made to have this panel's expert, Ingle (although concern at his non-attendance at this meeting was expressed), participate in the SOHP panel since SOHP presently lacks expertise in the WP region. There was some feeling that the overlapping responsibilities could cause duplication of effort and that this would be avoided if the proposals came from the regional panels. Conclusion was that a site would have maximum viability with PCOM if it carried the support of many panels. The lack of interaction between the LITHP and SOHP at present was realized to be due to their involvement in planning the immediate legs for ODP drilling. WG's need to work closely with their Parent Regional Panels.

AFTERNOON SESSION

LITHP Liaison

The various members briefly stated what they would like to present and discuss at the meeting. Leinen started with explaining the rationale behind the LITHP's objectives, namely - generation, evolution and alteration of oceanic crust. Of these the first is the most difficult one to address. Their approach is to establish sites to recover newly formed crust and to provide a natural laboratory for monitoring the processes. Innovations in logging technique and downhole instrumentation will greatly enhance future returns. They have had to move fast in choosing sites for the Atlantic & Pacific because the legs were planned, and have selected sites on a slow spreading ridge (MARK I area) and a fast spreading ridge (EPR 10-13° N). Both targets are on zero age crust to get at the generation processes and have been studied in depth. LITHP is looking toward WP-RP for a suitable site to investigate ocean crust generation in a Back Arc basin. Leinen solicited identification of individual areas, (in which problems WP-RP wants to address can be solved) bearing in mind zero age constraint, and suggestions for ways to get community input. A proposal for a W. Pacific Arc workshop has been submitted and an ad-hoc working group of LITHP members and engineers are looking at optimum ways to drill the holes. Basic idea is to have 2 holes along strike of the ridge, half a hydrothermal wavelength apart and a third perpendicular. A number of different types of experiments was outlined. Currently the Mariana Trough and Lau Basin have the largest data bases but major surveys are planned in (these and) other areas. Data bases are such that proper site surveys can be planned to address these sophisticated questions.

TECP Liaison

Because Nakamura was unable to attend the last TECP meeting, he arranged for Jeff Weissel (L-DGO) to inform the meeting of progress. TECP will not formulate proposals and is addressing their balancing role. Their concern is oceans and their margins divided into passive margins, active margins and mid plate problems. They vote on priorities of individual topics in these categories. Their choice of Peru, and Chile (active margins) to fill in two legs of 111, 112 or 113 balances Norwegian Sea and Galicia Bank (Passive margin problems). TECP is concerned with lack of formal proposals so far from WP-RP and favour those which culminate a completed study. Their recommendation to establish a Sunda-Banda Arc Working Group is to ensure that this area, in Plate convergence does not fall in the crack between the IORP and the WP-RP. WP-RP considers this area as part of their responsibility.

Drilling Objectives

Since representation for the S.W. Pacific at the 1st meeting of the Panel was incomplete, this 2nd meeting concentrated on input by experts from this region.

Recy outlined the New Hebrides Arc and showed increased data base. There is nascent spreading in the back arc area in two places called Coriolis trough north and south of the region where the D'Entrecasteaux Ridge collides with the Arc. Southern and northern Coriolis Basins are identified as drilling targets in addition to the sites addressing collision of the D'Entrecasteaux Ridge with the New Hebrides) which were proposed during the previous meeting.

Nakamura pointed out the striking similarity with the junction Bonin/Marianan Arc where collision between the Ogasawara Plateau limits opening of the Mariana Trough.

Stevenson showed USGS data base over Tonga Arc and Lau Basin near 22°S. An active back-arc spreading centre (the Valu-fa (84) Ridge) is marked by very clear reflections from a proposed magma chamber (depth of 4 km below sea-floor). Again there is collision of an aseismic ridge/seamount chain (the Louisville Ridge) with the arc in the vicinity. A drilling transect across the back arc (Lau basin to Tonga Forearc, multisite) was proposed, together with a hole in the inner trench slope to address the nature of the process by which the Louisville Ridge disappears under the arc.

Wednesday, 3rd October 1984

MORNING SESSION

New Hebrides and Solomon Arcs - Polarity Reversals

Stevenson (USGS) showed data base over S.W. Pacific arcs. In the New Hebrides several sites are proposed to address (i) Seaward dipping reflectors in the inner trench slope (ii) Nature of D'Entrecasteaux Ridge, (iii) Inter-arc basin - formation history, and polarity reversal. Subduction polarity reversals can be studied in New Hebrides and Solomons (Taylor). How quickly these polarity reversals happen ought to be investigated, and the WP region is ideally suited for this. The volcanic history of an arc (Hayes limits to the size of volcanoes Audley-Charles), and the reason for pulses of increased activity (Hayes) are factors which need to be researched. Recy and Schlüter briefly reviewed marine research planned in New Hebrides, North Fiji Basin, and Tonga areas with the Jean Charcot and Sonne (see Table 1). Stevenson then showed U.S.G.S. data in the Solomon Arc. Chief objective is timing of collision with Ontong Java Plateau and its relationship to arc polarity reversal. Onlap patterns in sequences on Multichannel profiles provide means to attack this question in conjunction with onshore data. The problem of drilling in volcaniclastics was pointed out by Natland. The panel discussed how to come to grips with arc polarity reversals. Sites where most complete sections are present for geohistory analyses should be selected as targets Jongsma. It was considered desirable to promote informal working groups of people familiar with the New Hebrides and Solomon Arcs at this stage. Discussion by the panel members led to the conclusion that interarc spreading and arc reversals are processes which can only be elucidated by drilling in this region.

Japan-Bonin region - NW Pacific

This region has as targets:

(i) The Japan Sea back-arc spreading - ages, processes in the basin, and nascent subduction along the western margin of Japan.

(ii) The Zenisu Ridge - Incipient overthrusting.

(iii) The Nankai Trough: several sites to study deformation process along the inner slope.

(iv) Okinawa Trough - Young back arc basin formation, subsidence, and stretching.

(v) Bonin Arc - serpentinite diapirs. Forearc and nature of basement together with stratigraphic history in the Forearc basin and back-arc rifting.

(vi) Mariana Back - Arc Basin Seamounts; influence of cross chain volcanism on back arc basin crust.

Planned Marine Geological/Geophysical Work in the Western Pacific

The panel members then summarized the upcoming research planned in the region (see Table 1).

A substantial regional MG&G data base exists for the Western Pacific. However, the WP-RP recognizes the need for extending this data base in order to develop the best rationale for defining the important geological problems that will require ODP drilling in the region.

To that end, we have identified a number of MG&G field programs in the Western Pacific that are scheduled or proposed for next 2-3 years (See table 1). The panel is enthusiastic about the prospects of this extensive field work and recognizes that such work will provide a very valuable contribution to short and long term ODP planning efforts.

Afternoon Session

The meeting broke up into smaller groups to consolidate the drilling proposals.

Indonesia - Silver, Audley-Charles, Schlüter, Jongsma, Hesse.

Japan - N.W. Pacific - Nakamura, Langseth, Taylor, Leinen, Tamaki

South China Sea - Schlüter, Rangin, Lewis, Hayes, Taylor

SW Pacific - Recy, Stevenson, Leinen, Natland, Hayes

Thursday, 4th October 1984

During the moring the work in smaller groups continued.

Afternoon Session

Members of the smaller groups presented overviews of the themes and problems which drilling should address.

South China Sea/Sulu Sea Region.

The complex pattern of rifting, passive margin formation, subsidence and sedimentation of microcontinental blocks, arc-continent collision and ongoing subduction, deformation and volcanism needs a series of transects to furth constrain the geometry. These transects should cross:

(i) The Northern South China Sea passive continental margin

(ii) The Southern South China Sea conjugate passive margin

(iii) The Palawan Trough Sulu Sea collision zone

(iv) The Dangerous grounds - Southwest China Basin margin

(v) The active Manila Trench convergent plate boundary. Including

a) North Luzon Ridge. b) Scarborough Seamounts.

c) Mindanao/North Palawan continent-continent suture zone

The history of this region is important for the whole S.E. Asia region and our understanding of the effects of India as an indentor.

Japan-Bonin region - NW Pacific

This region has as targets:

(i) The Japan Sea back-arc spreading - ages, processes in the basin, and nascent subduction along the western margin of Japan.

(ii) The Zenisu Ridge - Incipient overthrusting.

(iii) The Nankai Trough: several sites to study deformation process along the inner slope.

(iv) Okinawa Trough - Young back arc basin formation, subsidence, and stretching.

(v) Bonin Arc - serpentinite diapirs. Forearc and nature of basement together with stratigraphic history in the Forearc basin and back-arc rifting.

(vi) Mariana Back - Arc Basin Seamounts; influence of cross chain volcanism on back arc basin crust.

Friday, 5th October 1984

Morning Session

S.W. Pacific

Natland summarised a proposed transect across active and inactive arcs from the Lord Howe Rise to the Tonga Trench. (Exon & Symonds). In the Coral Sea subsidence of the Queensland Plateau and rifting of the Coral Sea was proposed. This area provides another possibility to study passive margin evolution at around 60 Ma, and paleoenvironment of an area which has travelled through many latitudes. He then went on to the younger arcs where a set of interfingering proposals address:

(i) influence of collision with plateaus and seamount chains e.g. Ontong Java Plateau - Louisville Ridge.

(ii) Subduction Polarity reversals: e.g. Solomon and New Hebrides Arcs

(iii) Back Arc Basin generation - Solomons, Coriolis Trough and Lau Basin.

Through these targets the magmatic history can be addressed in relation to the results obtained from the above. In short the Southwest Pacific area can address the older fragmentation of Australia and the evolution of the younger Plate Boundary from the Solomons to the Tonga Arc. The S.W. Pacific is also suitable for studying the formation of mineralization as related to th evolution of the marginal basins.

Indonesian Region

Here there are a series of sites which focus on the main aspects of a oceanic subduction zone which passes into a continent-arc collision zone. Th approach here is to study the progression from oblique convergence of oceani plate in the west off Sumatra and of normal convergence off Java, to norma continent-arc collision convergence in the Timor Trough and oblique continent arc collision at the eastern end in the Tanimbar and Aru Troughs. In order t constrain the evolution of the continental collision in the Banda Arc th Banda Sea requires drilling in the basins to the back of the volcanic arc an in the forearc. Both age constraints on the crust in the Banda Sea and withi the stratigraphy of the sedimentary cover will provide viable keys to unrave the collision zone. Especially interrelations between the vertical an horizontal motions will be addressed here.

Next Meeting

Discussion of the possible schedule showed that a meeting before March is necessary since after that a number of members would be at sea conducting surveys.

7:30 a.m. on Friday, 18th January end by 1 p.m. on Sunday, 20th January.

Place: Hawaii Inst. of Geophysics

2525 Correa Road

Honolulu, Hawaii 96822

Telephone: (808) 948-6649 - Brian Taylor

Telex: 723-8285 HIGCM

Workshop on and in Western Pacific region

The panel feels the need to have a workshop in the region which would also allow the interaction with scientists from the countries there. Avenues available such as CCOP and SOPAC to generate this will be pursued.

TABLE 1. PLANNED CRUISES WEST PACIFIC - 1984-1987

	Japan - Phil. Sea	South China Sea	Indonesian Region	W.S. Pacific
U.S.A.	Mariana-Bonin Alvin H.I.G. (Jan.-April, 1986) Mariana Dredging? USGS: N. Mar. (EE286)	L-DGO mid-late '85 MCS, ESP, SEABEAM, HF		Manus Basin - Mid '85 N. Fiji Basin - Late '85 SEAMARC II - HIG.
W. Germany		B.G.R. MCS end 1984		Manihiki Pl., Lau B. Nth Fiji Basin 84/85 MCS, HF, Lord Howe R., S. Austral Early '85 MCS & Sampling
Japan	Japan Sea Okinawa Tr. Submers.'84 G.S.J. 84/85 Bonin/Und. Geophysics G.S.J. S. Japan Sea Geol./Geophys. MCS		E. Sunda Trench 86 MCS/OBS	Solomon Sea 1984. MCS Tonga Tr. MCS/OBS '85
France	Japan Margin 1984 (J. Charcot) + Submersible Surv.'85 Okinawa T. Ryuku Tr. (J. Charcot Sept-Oct '84)	Manila-Negros Tr.Oct-Nov (J. Charcot) '84 South China Sea J. Charcot: mid-1985	"Coriolis" Nov. 1984 Sunda St. Makassar St. H.F. SEABEAM Jean Charcot Arutr. 85	
Great Britain			IOS-Gloria/und. Geophys. E. Sunda Tr. Savu Sea S. Banda Sea, 1985-7 ?	IOS Gloria 1986-1987
E.S.F. Consort. (Holland)			Snellius II E. Indonesia Banda Arc. Geol. Geophys. 1984/85 ? MCS - 1986-87	

Minutes

Indian Ocean Panel (IOP)

10-12 Dec 1984

La Jolla, California

Members Present

Schlich
Gradstein
Falvey
Prell
Cochran
Leggett - TECP
Tauxe - SOHP
Sclater - LITHP
Curray (Chairman)

Guests and Alternatives

Honnorez (PCOM)
Brenner (SS-SP)
Clement (TAMU)
Thierstein (for Herb)
Whitmarsh (for White)

Not Represented

von Rad

Reports

PCOM - Honnorez

Honnorez reported on the last Planning Committee meeting held in Hawaii in September. Guidelines PCOM will follow in their planning include: 1) to follow panel recommendations whenever possible; 2) to seek innovative science rather than more of the same; 3) to make most efficient use of the ship, to optimize science and minimize dead-head transit runs. The presently planned schedule of legs is attached in Table 1 and shown in Fig.1.

IOP recommendations from our September meeting were presented to PCOM: our declared need for ten legs or two years, request for a Red Sea working group, request for a petrologist member, our overlap in interest with the Southern Oceans Panel (SO-RP), and our "straw man" suggested schedule. Our recommendations were considered, but none were accepted. New working groups will be appointed carefully as older working groups, e.g. the three Atlantic working groups, are disbanded. We should repeat our request for appointing a Red Sea working group. In view of a recent Langmuir memo suggesting the urgent need for petrologic expertise on IOP, we should repeat our request for appointment of a petrologist.

Sclater moved and Prell seconded that PCOM be asked to appoint first, Robert Duncan, or second, Fred Frey as a full member of IOP. The motion was carried unanimously.

The chairman was directed to coordinate closely with Kennett, chairman of SO-RP, for the next PCOM meeting to which panel chairmen will be invited, to avoid any contradiction and to reinforce requests for our mutual interests. SO-RP reportedly will request another south Atlantic leg after Weddell Sea. Another alternate plan discussed at PCOM was circumnavigation of Australia between two successive Kerguelen legs. We must, therefore, document and strengthen our proposals with the best possible scientific arguments.

There was considerable discussion about how to put priorities on our projects. One PCOM member had urged our panel to put our projects in priority order for presentation to PCOM.

The subject of foreign memberships was discussed. Honnorez suggested that after the drill ship sails on 22 January, the composition of all panels may change to eliminate automatic country membership in each panel. Scientists will instead be selected individually.

LITHP - Sclater

That panel began its discussion by reviewing what the Indian Ocean had to offer in terms of lithosphere objectives. The following objectives were considered to be important: aseismic ridges and oceanic plateaus, hot spot traces, residual depth anomalies and ultramafic variability, triple junctions, Australian-Antarctic discordance, rifting young ocean. The following were discounted because they believed that "comparable or better examples existed in more accessible places": major change in spreading direction, intermediate spreading rate ridge, and fossil spreading ridge.

The panel applied two grading schemes to Indian Ocean proposals which they considered: A,B, etc for non-lithosphere primary sites and 1,2,3, etc. for primary lithosphere sites. Highest in their primarily lithosphere objectives were Red Sea, SE Indian Ridge, Crozet Seismic Observatory, with lower ratings for SW Indian Ridge, Carlsburg Ridge Chagos-Mascarene, and SE Indian Ridge. Highest in the not primarily lithosphere objectives were Ninetyeast Ridge and Kerguelen, with SE Indian Ridge closely trailing.

TECP - Leggett

That panel's method of voting on scientific content of proposals was discussed and there was tentative agreement to attempt this within our panel. This system will be described later in these minutes. Projects in other oceans were rated at their September meeting, but because of timing they did not have our complete listing except as reported verbally by Meyer who attended both meetings. Their voting on Indian Ocean projects was, therefore, being conducted by post. Leggett had results of only six returns so far, so lithosphere panel priorities as reported in our Table 3 are preliminary. To date, their priorities are in order: 1) Makran, 2) Red Sea, 3) Intra-plate deformation, 4) Sunda Forearc, 5) South Australia (Western-South Australia in our terminology). During their meeting they had specifically discussed the following proposals: Somali Basin, Sunda and Banda arcs, Andaman Sea and Australian margins.

SOHP - Tauxe

Curray had attended one day of their recent meeting to brief their panel on Indian Ocean objectives and recommendations. All of our projects were, therefore, discussed and considered. After considerable discussion, their Indian Ocean priorities were, in order: 1) Kerguelen-Antarctic (Amery); 2) Oman-Owen Ridge Upwelling-Anoxic, Indus Fan; 3) Somali Basin; 4) SE Indian Ridge Transect; 5) Chagos-Laccadive Ridge, with one-hole Ninetyeast Ridge pick-up; 6) NW Australia, and an additional one-hole pick-up on Agulhas.

Their panel appointed individuals from within their panel to recommend a good location for deep North Somali Basin drilling, and to prepare a proposal for a K-T boundary site on Ninetyeast Ridge.

SS-SP - Brenner

The Site Survey Panel wants mature proposals and requests that proponents start complying with prescribed procedures as soon as possible to submit those proposals and accompanying survey data to the Data Bank at L-DGO. The Data Bank and SS-SP will act as a "trip-wire" for the PCOM to recommend where surveys, both regional and site specific, are needed and to suggest a priority order for funding or requesting such surveys. All panel members are requested to examine the specs for site surveys attached as Table 2.

General Discussion

Our continuing dilemma over consideration and discussion of immature vs. mature and illegitimate vs. legitimate proposals continued. We have been most strongly urged by PCOM chairmen to abandon our consideration of immature and illegitimate proposals and review only those which are submitted through formal JOIDES channels and are judged to be mature. The chairman reported that proponents are generally following our requests made as early as March 1984 to submit their proposals through formal JOIDES channels and that no more illegitimate proposals will be logged in. The consensus was, however, that in view of the very considerable interest, the flood of proposals we have and are continuing to receive, the short time-lag since the formation of our panel and announcement of plans to drill in the Indian Ocean, and the time-lead we still have for final site selection, we should continue to consider at this meeting all good science input whether or not it is reporesented by "mature" proposals. Following this meeting, however, the chairman is directed to send a form letter to all proponents who have submitted proposals informaing them that while we may have considered their proposals in immature form at this meeting, we will not continue to do so at our next meeting. All proposals must be submitted through formal JOIDES channels in a mature form or we will not continue to discuss them at our next meeting, to be held in the spring of 1985.

General discussion of our strategy in considering proposals was considered. We have been urged by the PCOM chairman to follow reasonable rules to avoid conflict of interest. Proponents, when members of the panel, may be requested to leave the room during parts of discussions or during parts of voting on priorities, if not conducted by secret ballot. We recognize however, that the mere process of selection of members of regional or thematic panels virtually assures that some conflict of interest problems will arise, and that qualified panel members will have not only interest but also expertise, experience and vested interests in the areas involved.

Consideration of Projects

All proposals which have been recieved to date, reported in Table 3, and all "super proposals" which we had considered in our September meeting (reported in Table 2 of that meeting) were further reviewed, discussed and reevaluated. The discussion especially considered any new input and rating or priorities assigned by the thematic panels. A panel proponent was appointed for discussion of each of these projects to review all of this new input overnight. We must stress here that new proposals were received even until the last day of our three day meeting, and that panel members did not have sufficient time to review all of this material before the discussion and subsequent voting.

Following the discussion of these proposals, "super proposals", and projects, a list of 21 highest priority "projects" was agreed upon for voting. This voting occurred as first item on the agenda for the third day of our meeting, 12 December 1984. The procedure to which we agreed was that each panel member filled out a secret ballot, evaluating his or her opinion of the scientific merit of each of the projects, on a scale of 0 to 10, 10 being the highest. We each attempted to make our individual means as close to 5 as possible. We then agreed to rank the projects in priority order by mean scores and also report the range of values.

Results of this voting, with score and order of priority, the project title, the individual proposals from Table 3 considered, the relative ratings put on these projects by the thematic panels, our IOP panel "watch dog", our evaluation of survey status, and time estimate are summarized in Table 4. Footnotes accompanying the table should be self explanatory. This listing includes only the projects which the panel agreed by consensus to rank as our top priority projects. Other projects, covering essentially all proposal input listed in Table 1, were also discussed during the second day of our meeting, but were eliminated as not being in our top priority list.

We do not assume much precision in our scores and ranking in this list, but we do assume that it represents a fair estimate of our relative priorities at the present time. The scores furthermore suggest that the "projects" we have considered at the present time fall into about six groups. Our lowest priority group includes the projects we discussed, but did not put into this ranking of 21 projects for voting.

The top group, number I, includes the Kerguelen project and our "Neogene Package". The former includes both tectonic aspects (basement type and age) and paleoceanography. The Neogene Package includes a suite of stratigraphic and paleoclimatologic objectives, including the history of monsoonal circulation, relation to uplift of the Himalayas, correlation with the tephrochronology of east African hominid sites, and correlation with the stratigraphy and vertebrate evolution record in the Siwaliks.

The second group includes Projects 3 through 10B, with scores of 7.00 to 6.00. The third group has scores ranging from 5.27 to 4.82, the fourth includes two projects scored at 3.82 and 3.36; and the fifth has scores of 2.09 and lower. We consider all of these to be valid and worthwhile projects, and still rank them above the many good projects we did not include in the voting.

The priority rankings may change as we receive additional input, especially from the thematic panels.

The 21 projects in Table 4 are described briefly in the Appendix. Approximate locations are shown in Fig.2.

Although the projects in Table 4 were discussed individually and generally in a regional context, they constitute several distinct, thematic objectives. In some cases the objectives could be accomplished by drilling only one of the areas in the suite, but in other cases an entire suite of problems should be drilled to accomplish the overall objective. A principle example of the latter is the relationship between the "aseismic" ridges and plateaus in the eastern Indian Ocean. By one published model (Morgan 1981) a single hot spot formed the conjugate and then attached Naturaliste-Broken Ridge and Kerguelen-Gaussberg Ridge, then the Ninetyeast Ridge from north to south, and subsequently re-emerged beneath Kerguelen and Heard Islands. This hypothesis may be testable by petrology and geochemistry of basement rocks. A secondary very important objective of this entire suite of aseismic ridges and plateaus is an essentially continuous, N-S transect from 10° N to the Antarctic continent by addition of the Project 8 transect of the SE Indian Ridge between Kerguelen and Broken Ridges. Thus Projects 1, 5,8, and 9 constitute a high priority package.

Other Business

The chairman was given advice by various panel members on how to present the IOP report and recommendations to PCOM in January 1985 and what should be included in the requested one-page summary of our minutes and recommendations.

A motion was made, seconded and passed unanimously: to endorse a proposal being submitted by Sclater and Schlich for NSF funding to compile all magnetics in the Indian Ocean. Work will be done at Texas, L-DGO, and in France.

Further endorsement by consensus was given to the panel request to PCOM to appoint Duncan as a member of our panel because of our high priorities on the problem of hot spot traces and "aseismic" ridges and plateaus in the Indian Ocean.

IOP again requests that PCOM appoint a Red Sea working group, with suggested membership as follows:

Cochran, Chairman	Arthur, SOHP
Coleman, USGS	Whitmarsh, Britain
Bäcker, Preussag	Miller, Exxon
Pautot, France	Ewing, TECP

one member from LITHP

The next panel meeting is scheduled to be 26-28 June in Bremerhaven at the time the drill ship will be in port. As an alternative, however, in case the chairman and PCOM liaison believe that there is urgency for a meeting to be held sooner, a schedule is tentatively set up for a meeting at Lamont on 17-19 April. If our next meeting will be held in Lamont, then we would plan to hold our subsequent meeting in August in Stavenger, Norway, to see the drill ship at that time.

APPENDIX

1. Kerguelen-Heard Plateau

Kerguelen Plateau extends in a NW-SE direction from about 46° S and 60° E to 63° S and 90° E. Although it is the world's largest mid-ocean plateau, little is known of its structure or origin.

The plateau can be divided structurally into two distinct areas: the southern and northern domains. A volcanic origin has been suggested for the northern part and possibly a continental origin for the southern part.

Alternative models of origin include a rifted hot spot trace and a rifted mid-ocean volcanic excrescence. Seismic multichannel reflection data obtained in the northern part of the plateau have shown thick sedimentary sequences reaching 3,000m. The oldest sediments cored are of Albian age.

Drilling on the Kerguelen Plateau (5 sites in the northern domain and 6 to 8 sites in the southern domain) will provide definite data to answer the question of nature and age of the basement underlying the plateau and will help to unravel the tectonic history of the plateau: subsidence, age of earliest rifting, relationship to Antarctic-Australian separation, etc. Drilling on this feature will also provide a unique record of the development, long-term northward migration and short-term fluctuations, of the Polar Front and the history of ice rafted debris.

2. Monsoons, Mountains, Milankovich, and Early Man

The development of the Indian Ocean monsson, driven by the uplift of the Himalayas, is an important component of the global trend toward climatic deterioration during the Neogene. Mammalism evolution, including the evolution of hominids, has been strongly affected by this climatic change. We propose to investigate four related aspects of this problem: 1) the evolution of monsoonal upwelling from two continuously cored HPC sites (300m) on the Owen Ridge, 2) the history of anoxic sediments from a transect of HPC holes across the O_2 minimum on the Oman margin, 3) the long-term evolution of the distal Indus fan in response to climatic change and the uplift of the Himalayas (two HPC sites), and 4) the deep-sea record complimentary to the East-African rift sequenses in order to provide a framework of tephrochronology, palynology and climatic change for studies on hominid evolution (one site in the Gulf of Aden and one in the Somali Basin).

3. Argo Abyssal Plain

This is a remnant of the Tethys superocean adjacent to one of the world's oldest starved passive continental margins. The site will provide Mesozoic/ Cenozoic paleoceanography and paleobiogeography, date anomaly M-25, and provide a distal record of margin sedimentation and evolution.

4. Red Sea

The Red Sea represents a unique opportunity to study the very early stages of margin evolution and the initiation of seafloor spreading. The wide range, compl ity and inter-relationship of the problems that can be addressed in the Red Sea have led the panel to recommend the formation of a working group.

The Red Sea can be divided into three sections which appear to illustrate different stages in the development of a new ocean basin and continental margin. The southern Red Sea between 15° N and 21° N is characterized by a well-developed "axial trough" less than 50 km wide consisting of young oceanic crust. The nature of the crust underlying the shallower "main trough" is less clear because of the extremely thick sediment sequence. The axial trough becomes discontinuous about 21° N and the central part of the Red Sea is occupied by a sequence of deeps, quite often containing hot brine pools, alternating with shallower inter trough zones. The deeps are very similar to the axial trough in appearance, with steep sides, a rough basaltic bottom and large magnetic anomalies. In contrast, the inter trough zones are shallower, with gently sloping sides, no magnetic anomalies and the Miocene evaporites appear continuous across those regions.

An axial trough is not present north of 24° N, the northern limit of the large well-developed deeps, and there is no morphologically or geophysically identified feature that can be interpreted as a localized mid-ocean ridge spreading center. There is a series of deeps, which extend to the northern end, but they are shallower and less well-developed than those to the south.

The panel has received five separate proposals for drilling in the Red Sea and expects a revised proposal from the French group within a few months. A feature common to all of the proposals is an interest in the northern Red Sea and specifically in the deeps. The various problems proposed to be addressed include:

a) nature of earliest (pre-seafloor spreading and earliest oceanic) basalts and possible changes in composition as the axis develops. This is to be approached by a series of holes in a set of deeps which appear to become younger, smaller and less developed to north;

b) hydrothermal circulation and plumbing of hydrothermal cells: heat flow measurements in Conrad Deep show clear evidence of hydrothermal circulation in the sediments on its bottom;

c) metallogenesis. The deeps are characterized by hot brines and exotic metal deposits. All of the proposals address this question and one is completely devoted to it.

5. Broken Ridge

Broken Ridge and its eastward continuation, Naturaliste Ridge and Plateau, which extend to the southwest corner of Australia, are presumably conjugate to Kerguelen Plateau and Gaussberg Ridge, similarly extending to the Continental Margin of Antartica. Prior to formation of the southeast Indian Ocean Ridge they constituted a single ridge extending westward from the join between Antartica and Australia across pre-existing oceanic crust. Models of origin of these features have suggested a range of possibilities, including that they are underlain by continental crust, that they represent a volcanic pile overlying oceanic crust which formed as an intraoceanic rift system, or that together they constitute the trace of a hot spot. Morgan (1981) suggests that this hot spot subsequently formed the Ninetyeast Ridge and now underlies Kerguelen and Heard Islands.

DSDP 255 previously drilled on the Ridge penetrated only about 100 meters to Santonian-age limestone, with a considerable thickness of unsampled sediments remaining below the bottom of the hole and above basement. Recovery of a complete section will help establish age relationships, subsidence and uplift history of the Ridge, and paleo-oceanography of this part of the Indian Ocean. Drilling Broken Ridge to basement would establish the nature of the crust and with a 2-site transect could establish whether there is a younging to the west as predicted by the hot spot model.

Broken Ridge would constitute one part of a four part package, including Kerguelen, Ninetyeast Ridge, and the Southeast Indian Ridge transect. If Ninetyeast Ridge drilling is also done, the westernmost hole on Broken Ridge would be the southernmost hole on Ninetyeast Ridge.

6. Makran

A transect of seven holes, drilling the abyssal plain, basal thrust, basal slope basin thrusts, and a slope basin further upslope, would give a first opportunity to assess distribution of deformation across an accretionary prism. Previous drilling has been concentrated at the toe. The Makran prism is the place to do this because the structures are simple and well-expressed topographically. Furthermore, drilling conditions will be good - piston cores show lack of sands, and high velocities and lack of debris flows in 3.5 kH_2 records indicate well-consolidated strata in hangingwall anticlines. Targets such as sub-thrust strata and slope basin/hangingwall fold relationships can be reached above the gas hydrate layer. Finally, the drilled Plio-Quaternary record of the prism can be married with an excellently-exposed Plio-Quarternary record on the onland part of the prism: a unique opportunity.

7. Chagos-Laccadive Ridge and Mascarene Plateau

An equatorial bathymetric transect of HPC drill sites will provide a history of Neogene surface productivity and vertical dissolution gradients. High resolution bio- and magnetochronology can be used for timeseries analyses of the late Neogene variability in these climatically driven parameters. The addition of drill sites to the N and S. and the recovery of basement rocks on this aseismic ridge would determine its origin (hot spot or "leaky" transform fault?). Geochemical characteristics and radiometric dating of basement rocks would allow us to differentiate between the two modes of formation and document the transition from flood basalts in the Deccan to the discrete oceanic volcanoes at Reunion and Mauritius. Combined with paleomagnetic measurements of basalts and overlying sediments details of the true polar wander path throughout Tertiary time could be examined. New radiometric calibration points for the Cenozoic bio- and magnetostratigraphic time scales can be expected.

8. Southeast Indian Ridge Transect

We propose drilling a transect of multi-objective sites on the flanks of the Southeast Indian Ridge located so that the sites cross the subtropical convergence and Antarctic Polar Front. These fronts are best sampled in the southern Indian Ocean. The sites will record Neogene evolution of these oceanographic boundaries and faunas will provide detailed information on climatic fluctuations in these latitudes.

In addition to the paleoceanographic objectives, this transect of sites will provide appropriate sediments for the determination of historical hydrothermal activity along a moderate-rate spreading ridge, which is critical for long-term geochemical budget-balance studies. These results would be compared with those from DSDP Leg 92 across the southern East Pacific Rise to investigate the role spreading rate plays with hydrothermal flux. And finally, sampling of the basement will allow assessment of time variations of upper mantle geochemical homogeneities recorded in oceanic crust along plate motion flow lines away from two hot spots: Kerguelen and Amsterdam.

The Southeast Indian Ridge Transect should consist of at least three holes in addition to the northern Kerguelen Plateau. Each of these sites should be double-cored with an HPC/XCB. Penetration would be about 600 m of sediment and at least 50-100 m of basement. One hole at each of these two sites should be logged. Regional site surveys available in the area are sufficient; a site-specific survey will be necessary before actual drilling targets can be identified.

9. Ninetyeast Ridge

Ninetyeast Ridge is the longest "aseismic" ridge in the world, extending from at least 17° N, beneath the Bengal Fan, to over 30° S at the intersection with Broken Ridge. Previous drilling during DSDP established a probable trend in age from old at the north to young at the south and a hot spot model origin. Most models now suggest that it was formed by the hot spot which now underlies Kerguelen and Heard Islands. Some models suggest that this hot spot also formed the Rajmahal traps of the Bengal Basin of India, while another model suggests that that hot spot formed the formally adjacent conjugate ridges of Broken Ridge and Kerguelen Plateau.

This proposal is part of a four proposal package to understand the complex hot spot traces in the eastern Indian Ocean and also to establish a continuous N-S paleoceanographic transect from 10° N to the Antarctic margin.

Although several sites were drilled on Ninetyeast Ridge in 1972, none of them were adequately cored and basement recovery was minimal. Rather than diluting our efforts by proposing partial solution to another probable hot spot trace in the Indian Ocean, namely the Chagos-Laccadive-Mascarene Ridge, we propose giving high priority to completing the job only half done, of understanding the Ninetyeast Ridge and utilizing its high relief for paleoceanographic purposes.

We propose drilling a transect of perhaps as many as six single bit sites on the Ninetyeast Ridge with complete coring of the sediment section and maximum possible recovery of basement, and a short east-west transect from deep water to the crest of the Ridge to evaluate depth relations in the carbonate sediments.

10A. Northern Somali Basin

The Northern Somali Basin appears as a distinctive sub-basin in the Western Indian Ocean both on bathymetry and Seasat-derived free air gravity maps. There are unusually sharp offsets of approximately 0.5 seconds (located between 8.0 and 9.0 s two-way travel time) which appear on several seismic profiles in the area, which may indicate a "basin within a basin" structure. Additionally, the basin displays an unusually low free air gravity field and is surrounded by steep gravity gradients representing tectonic boundaries.

The age of the basement is uncertain, but the recent discovery of Mesozoic magnetic anomalies to the south of the basin and the presence of Triassic-Early Jurassic marine shales and sanstones sampled by drilling in the Ambilobe Basin of northeastern Madagascar support at least a Mesozoic age for the N. Somali Basin. Kent (1982) noted that marine transgression commenced in northern Madagascar in Permian time, and by the Middle Jurassic marine conditions persisted along the entire east coast of Africa, and the north and west coasts of Madagascar. This indicates that the transgression proceeded southward from the Northern Somali Basin. If so, the basin was a southern arm of Tethys, perhaps as old as Permian and in all liklihood no younger than Middle Jurassic.

The basin may contain the oldest in situ ocean crust, and drilling will address the possible relationship among the anomalously low gravity field, the age of the basin and the composition of the igneous crust. Additionally, the stratigraphy of southern Tethys should be preserved the the deep basin. World-wide phenomena such as the Mesozoic anoxic events and the terminal Cretaceous event should also be recorded in the sediments. Finally, Mesozoic magnetic stratigraphy should be preserved in the deeper portions of the basin where resedimentation is not a factor.

A single deep (1500-2000 m) hole with basement objectives will be located in the deep side of the basement offset in order to obtain as complete a Tethyan stratigraphy and magnetostratigraphy as possible. A site-specific survey will be necessary to provide a better regional context and to aid in avoiding unconformaties in the area.

10B. Central Indian Ocean Basin and Lower Bengal Fan

A remarkable example of intraplate deformation is found in the central Indian Ocean Basin south of India in the lower part of the Bengal Deep-Sea Fan. Oceanic crust and overlying sediments are deformed into long wave length (about 200 km) undulations and are disrupted by closely-spaced (about 5-10 km) faults showing reverse sense of motion. Gravity anomalies suggest that the surface of oceanic MOHO is deformed into undulations similar to those observed in the surface of the crust. This is also the site of intraplate earthquakes, whose foci lie beneath the oceanic crust, and of abnormally high heat flow suggestive of upward flow of water. The style deformation and focal mechanisms suggest that the Indo-Australian plate is deforming under N-S compression, probably dating from late Miocene time, as determined from a regional unconformity probably of that age correlated from earlier DSDP drilling farther to the north in the Bengal Fan.

Several important aspects of the nature and history of these phenomena can be resolved only by means of drilling. Specific objectives include determination of age of onset of the deformation and subsequent history of movement of individual fault blocks, and an understanding of the relationship of the fault zones to the upward water flow. Drilling in this part of the lower Bengal Fan can also help to resolve some questions about the tectonic history of uplift of the Himalayas and deposition of the fan.

The chronology of seismic stratigraphy throughout the Bengal Fan has been based largely on correlation of two regional unconformities throughout the entire Fan. The upper, preliminarily judged to be of late Miocene age from DSDP 218, occurs in these lower fan deformational hills, but can also be found farther to the north in the central part of the fan over the 85° E Ridge and along the flanks of the Ninetyeast Ridge. The lower unconformity, judged in a very tenuous way from DSDP 217 to be Paleocene-Eocene in age, occurs primarily along the flanks of the Ninetyeast Ridge and would also appear to represent some kind of intraplate deformation. Both unconformities appear to bear a possible relationship to tectonic events in the Himalayas related to the collision and uplift history.

About five to six sites are proposed, largely around the abyssal hills representing the upper Miocene unconformity and intraplate deformation. Age of the unconformity can be precisely delineated from drilling on the "back sides" of rotated fault blocks, while the problem of fluid flow may be resovable from drilling through the faults on the front sides of the hills. Careful selection of sites, plus a possible additional supplementary site along the flank of the Ninetyeast, may also help to resolve some problems of the tectonics of the Himalayas, and possibly also depositional processes of deep-sea fans.

12. Western South Australia and the Australian-Antactic Discordance

Formation of the Passive Continental Margin south of Australia and its conjugate on the Antarctic Margin occured as a final stage of fragmentation of the Gondwana Supercontinent. This margin is especially characterized geophysically by a broad magnetic quiet zone which extends along the margin of Australia for more than 2,000 km. Talwani et al. (1979) measured crustal columns, and suggested that the magnetic quiet zone was the floor of a deeply subsided Mesozoic intra-continental rift basin that developed prior to the commencement of sea floor spreading between Australia and the Antarctic. Some crustal columns suggest oceanic basement while other suggest thinned continental crust.

Breakup of this margin is now believed to have been at approximately anomaly 34, but sea floor spreading was extremely slow until about anomaly 19.

Two sites are proposed off the Australian Margin, one in the oldest part of the magnetic anomaly sequence to provide a minimum age for the inception of sea floor spreading, the second hole would be located on the seaward edge of the magnetic quiet zone where sedimentary cover is relatively thin and the character of the basement could be determined.

We propose that this two-hole transect be combined with examination of the Australian-Antarctic discordance, a prominent bathymetric low in the ocean ridge system. The AAD contains a high density of fracture zones and is bounded by two transform faults of large offset. Morphology of the ridge axis is symetrical about the AAD with a depth anomaly of up to 1,000 meters. Thus, the AAD appears to be a "cold spot".

Dredge samples suggest three important observations. First, basalts from the AAD are geochemically distinct from basalts from the ridge segments to the west and east. Second, basalts from the AAD have geochemical signatures similar to basalts from bathymetric highs over hot spots. And third, samples from the dredge closest to the propogating rift tip in the ridge segment to the east of the AAD show a different type of chemical anomaly than that observed near the propogating rift tips in the eastern Pacific.

Several questions of fundamental importance to the composition of the ocean crust, mantle heterogeneity and mantle dynamics can be addressed by drilling single bit holes in old crust formed in the southeast Indian Ridge. These sites could be important lithosphere sites to study a feature which is absolutely unique to this ocean.

13. Agulhas Plateau

Located strategically between the South Atlantic and the Indian Ocean, the Agulhas Plateau is draped by carbonate sediments of Mesozoic to Recent age at a relatively high southern latitude. Recovery of these sediments will allow reconstruction of the development of water exchange between the Cretaceous Indian Ocean and the nascent South Atlantic. The recovery of a Cenozoic HPC record from the plateau will provide a paleoclimatic cooling history of high mid-latitudes at the intersection of the tropical Agulhas Current and the cool Westwind Drift in a unique and latitudinally stationary setting. The area will provide the southernmost carbonate record obtainable for the Atlantic paleoclimatic transect.

Drilling the proposed hole into basement will establish the nature and the age of the underlying crust which is inferred to be of mixed oceanic and continental origin. The unknown tectonic subsidence history of the Agulhas Plateau will be reconstructed from the overlying sediment record.

14. Eastern South Australian Passive Margin

The southern Australian continental margin is one of the world's classic rifted passive margins. It also has very special characteristics which make it of unique importance in the study of general passive margin evolution. The structure and seismic stratigraphy of the margin from shelf to continent/ocean boundary is fairly well known. Industry data is available from the nearshore and onshore regions. Initial spreading rates from 90 mybp to 45 mybp were apparently very slow with subsidence dominated by a planer faulting. New research cruises are funded and scheduled by BMR-Australia and BGR-Germany during 1985. The four proposed sites would sample both pre and postbreakup sediments, look at sedimentation and subsidence through rifting and breakup and provide key data on sea level calibration. This margin is also on a rift-transform intersection where kinematics are fairly clear.

15A. Exmouth Plateau

The passive continental margin of the Eastern Indian Ocean is both very old (Jurassic) and sediment starved. It is also dominated by a unique and well established continental crustal feature - the Exmouth Plateau - which has subsided from shallow to bathyal water depths since breakup. The inner plateau and adjacent shelf of N.W. Australia have high quality industry well and seismic data available to augment ODP drilling on the outer plateau. Completion of an Exmouth Plateau/N.W. shelf transect will provide unique data on margin sedimentation and sealevel, subsidence and structural evolution, as well as thermal history for a long time after breakup. Both pre-rift and post-rift sediments are accessible to ODP drilling. The area is subject to a funded, joint and scheduled Lamont-Doherty/BMR-Australia research effort which will provide site data.

15B. Fossil Ridges

Several fossil ridges have been identified in the Indian Ocean. The western Somali Basin fossil ridge corresponds to an early Cretaceous (anamoly M-0) extinct spreading center. The Mascarene Basin fossil ridge corresponds to a Paleocene (anomaly 27) extinct spreading center. The Wharton Basin fossil ridge corresponds to an Eocene (anomaly 19) extinct spreading center. The spreading half rate of these fossil ridges are respectively 2 cm/yr for the smaller basin, 9 cm/yr for the Mascarene Basin and 5 cm/yr for the Wharton Basin. The extinct spreading centers correspond to clear topographic features which can be observed in several places along the fossil ridge crest which are covered by a thin sedimentary sequence.

Drilling at two different fossil spreading centers (Mascarene and Wharton Basins) will provide new and original data about processes of magma generation of dying spreading centers and will allow investigation of the characteristics of magma chambers in terms of age and spreading rates.

Two sites are proposed on each of these two fossil ridges, one on the axis and the second on either flank of the ridge. Penetration should be of the order of 100 m into the underlying basalt.

17. Sunda Arc

The Sunda Arc is one of the classic arc-trench systems in which all the tectonic elements are well expressed. A well-developed trench is backed by a series of accretionary ridges forming the outer-arc ridge, on which is exposed in a series of islands. The large forearc basin has been very extensively surveyed and drilled during the search of hydrocarbons. The region has been studied thoroughly during SEATAR transect studies off Sumatra and Java.

This arc is especially interesting for the variations around its length. Subduction is normal to the trench axis off Java at a rate of about 7 cm/yr. It is oblique off Sumatra and highly oblique farther to the west, off the Andaman and Nicobar Islands, with only a component of subduction normal to the trench axis of about 1 cm/yr. Similarly, sediment thickness on the subducting plate varies from several kilometers of sediment in the west to a few hundred meters off Java. Intensity of deformation varies from extremely intense off Java with no continuity of reflectors showing internal structure of the accretionary prism,to some continuity and folding off Sumatra,to gentle folds off the Andaman Islands similar to those exposed so well off the Makran.

A drilling program is proposed for understanding of subduction-accretion processes on the lower trench slope off Sumatra and Java. A principal objective would be to investigate the interaction of structural fabric and sedimentation on the trench slope and to quantify gradients in structural, physical and mechanical properties across the trench slope and downward from slope sediments into accreted trench sediments.

Another intriguing aspect of the Sunda Trench is the probable extension of the accretionary prism where the Sumatran Fault System passes out to sea at the Sunda Strait. It has been suggested that the Strait is a consequence of the north-westward motion of the southwestern Sumatra block (Andaman Plate). By this hypothesis the accretionary prism in front of the Strait would be submitted to north-south compression due to subduction and east-west extension. Scheduled French surveying will further evaluate this feature for the possibility of later proposal for drilling.

18. Rodriguez Triple Junction

The Rodriguez Triple Junction (25°30' S, 70° E) corresponds to the junction of three active ridges with different spreading rates. Drilling at this RRR junction offers the possibility of investigating processes of magma generation, mantle heterogeneities and crustal structure.

The Southeast Indian Ridge (SEIR) close to the triple junction, is a typical medium rate spreading ridge (2.95 cm/yr half rate). The rift valley is well delineated by the 3250 m isobath and is about 14 km wide. The Central Indian Ridge (CIR) aligns with the SEIR rift valley with a slight change of orientation. It is characterized by a greater depth (4000 m) and a smaller width (5 km). The spreading half rate is 2.73 cm/yr. In contast, the Southwest Indian Ridge (SWIR) is expressed by a deep canyon (5000 m) which abuts the southwestern flank of the SEIR and CIR. Interpretation indicates a slight instability of the geometrical configuration of the junction and a 5 km jump of the SEIR toward the northwest 0.5 m.y. ago. Close to the triple junction the SWIR may correspond to a stretched area within the southwest flanks of the SEIR and CIR.

Drilling at the three ridge axes will establish the origin and evolution of the erupted basalt, constrain the nature of the underlying mantle and the characteristics of the corresponding magma chamber and allow testing various geological and petrological models for three related spreading centers.

Three deep sites (300 to 500 m) are grouped close to the triple junction. The reference site is on the medium rate spreading SEIR. The second site is on the CIR which shows, compared to the SEIR, significant morphological differences. The third site is located in the SWIR canyon where the nature of the junction remains uncertain. The geographic location of these sites presents optimal conditions with respect to weather and distance to port.

19. The Davie Fracture Zone

An east-west transect of sites across the Davie Fracture Zone is proposed to examine the evolution of a sheared passive margin and also allows the nature of a rejuvenated Mesozoic fracture zone to be addressed. The Davie Fracture Zone formed during the separation of Madagascar from Africa between 165 and 130 Ma and is the site of current seismic activity. This drilling program proposes to test the concept of reactivation of "zones of weakness" in oceanic crust as well as addressing the tectonic and stratigraphic problems in the development of a sheared passive margin.

Two sites are proposed on the crest of the Davie Fracture Zone and on the Davie Fracture Zone secondary ridge to obtain stratigraphic records of ridge subsidence and rejuvenation as well as determining the nature of the crust. Downhole seismometers will be emplaced in holes to monitor seismic activity. One site will be drilled in the Comoros Bsin to provide control for the stratigraphic sections recovered in the other two holes. In addition, this hole is likely to recover a Mesozoic Tethyan section and will provide much needed constraints on the age of the crust in the basin.

20. Wallaby Plateau

The Wallaby Plateau and Saddle form a geographically compact area in which to address many of the basic questions concerning passive margin development characterized by exessive volcanism. It has been suggested that the plateau itself is a volcanic build-up (an epilith) similar to Iceland; the adjacent saddle, which separates the plateau from the west Australian continental shelf, is underlain by wedges of seaward dipping reflectors similar to those described beneath several of the world's continental margins. It has been recently suggested that they represent layered volcanics formed in a subareal evironment during rifting or the early stage of formation of oceanic crust. Drilling of three sites could attack and potentially solve some of these important problems.

21. Eastern Gulf of Aden

Drilling of one site is proposed through approximately 500 meters of sediment just outside of the Gulf of Aden, west of the Owen fracture zone in the "magnetic quiet zone" to the south of the ocean basin and north of 10myBP lithosphere of the Sheba Ridge. The purpose is to examine the early stages of the opening of the Gulf of Aden. During initiation of sea floor spreading at the Sheba Ridge old oceanic lithosphere was rifted. The similarities of features in the easternmost Gulf of Aden with those at rifted continental margins leads to the suggestion that the old oceanic lithosphere has been thinned during the opening of the Gulf by processes similar to those occuring during continental rifting rather than those during ridge crest jumps. We propose to test this hypothesis by drilling in the "quiet zone".

Table 1

OCEAN DRILLING PROGRAM
OPERATIONS SCHEDULE
1985-1986

	LEG	DEPARTS LOCATION	DATE	TRANSIT DAYS	OPERATIONAL DAYS	ARRIVES AT DESTINATION	DATE	IN PORT
BAHAMAS	101	Ft. Lauderdale, Florida	22 Jan	0.5	41	Ft. Lauderdale Florida	4 Mar	Feb 16-20
ENA3-418	102	Ft. Lauderdale, Florida	11 Mar	6	41	Norfolk, Virginia	25 Apr	Apr 9-13
GALICIA M.	103	Norfolk, Virginia	1 May	15	42	Bremerhaven, Germany	26 June	June 10-16
LABRADOR-BAFFIN BAY	104	Bremerhaven, Germany	3 July	6	41	Stavanger, Norway	19 Aug	Aug 4-8
NORWEGIAN S	105	Stavanger, Norway	25 Aug	16	42	St. Johns, Newfoundland	21 Oct	Oct 6-10
MARK I	106	St. Johns, Newfoundland	27 Oct	15	42	Malaga, Spain	23 Dec	Dec 8-12
MEDITERRANEAN	107	Malaga, Spain	29 Dec	4	42	Marseilles, France	11 Feb	Jan 27-Feb 1
N. AFRICA M.	108	Marseilles, France	18 Feb	6	43	Las Palmas, Canary Islands	07 Apr	March 23-27
MARK 2	109	Las Palmas, Canary Islands	13 Apr	11	42	Barbados, West INdies	4 June	May 20-24
BARBADOS N.	110	Barbados, West Indies	10 June	8	42	Panama	29 July	July 14-18
EPR 10-13°N	111	Panama	4 Aug	16	42	Callao, Peru	30 Sept	Sept 15-19
PERU-CHILE T	112	Callao, Peru	6 Oct	5	42	Valparaiso, Chile	22 Nov	Nov 7-12
CHILE 3 JCT	113	Valparaiso, Chile	29 Nov	11	43	Punta Arenas, Chile	20 Jan 1987	Jan
WEDDELL S.	114	Punta Arenas	26 Jan	5	--	------------	------	----

Table 2

ODP SITE SURVEY STANDARDS

ENVIRONMENTS

X = vital

(X) = desirable

(X)* = desirable, but may be required in some cases (e.g. bottom simulating reflectors)

TECHNIQUES	A PELAGIC (shallow penetration)	B SMALL BASIN/OPEN OCEAN (shallow penetration) subject to debris flow	C PASSIVE MARGIN single bit	D reentry	E FORE-ARC WEDGE	F SPREADING RIDGE zero or thin sediment cover	G OCEAN CRUST thick sediment cover	HIGH TEMPERATURE ENVIRONMENT
1. Air Gun SCS	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2. Water Gun SCS (or other high resolution system)	X	X	X	(X)	X		X or 5	X or
3. 3.5 KHz.	X	X	X	(X)	(X)		(X)	
4. Chirp Sonar	(X)					(X)		
5. MCS		(X)	X	X	X		X or 2	X
6. Seismic Velocity Determinations			X	X	X	X	X	
7. Side Scan Sonar	(X)	X	(X)or (8)	(X)or (8)	(X)or(8)			
8. Seabeam Bathymetry	(X)		(X)or (7)	(X)or (7)	(X)or(7)	X		
9. Piston Cores	X	X	(X)*	(X)	(X)	(X)	(X)	X
10. Heat Flow			(X)*	(X)*	(X)*	(X)*	(X)	X
11. Magnetics/Gravity			(X)	(X)		X	X	X
12. Dredging and/or Bare Rock Drilling						X		
13. Photography (e.g. ANGUS)						X		(X)
14. Submersible						(X)		(X)
15. Current Meter (for bottom shear)			(X)*	(X)*	(X)			

TABLE 3: Proposals on Letters of Intent Received by ODP Indian Ocean Regional Panel

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, Recommendations, Action, Comments, etc.
~~1~~	19 Mar 84	J. Cochran	Memo	Priorities, guidelines, cont. margins, Makran, Red Sea, Cent. Ind. Basin, etc.	Superseded & removed. #52 #44 etc.
~~2~~	"	Curray, Thierstein, Mackenzie, Mahoney	Broken Ridge	Basement, stratigraphy, geological history, paleoceanography	Superseded & removed. (#49)
~~3~~	"	C. Stein	African-Arabian Continental Margin	Cont. margin and adjacent oceanic lithosphere	Superseded by #42 + removed
~~4~~	"	M. Coffin	Potential ODP sites in western Ind. Oc.	Long list: cont. margins, ridges, basins, etc.	Superseded and removed.
~~5~~	"	H. Oberhänsli	Suggestions	Paleoceanography + biogeography latest Mesozoic + Cenozoic	Superseded & removed #53
~~6~~	"	von Rad & Hinz	Tentative ideas	S. China Sea, Banda/Arafura, N.W. Australia, S. Austr., W. Ind. margin, etc.	Wish list, and replaced by # 63
7	"	P. Guennoc	Red Sea	Red Sea	Also in Dec 83 IPOD France Scientific Committee Program p. 291
8	19 Mar 84 + 22 Aug 84	J. Leggett [+ R. White]	The Makran Fore-Arc, Pakistan	Tectonics of accretion	
~~9~~	19 Mar 84	J. Weissel	Intraplate Deformation, Central Ind. Oc.	Intraplate deformation	Superseded by # 44
10	"	G. Peltzer, P. Tapponier, G. Jacquart	Andaman Sea	Andaman Sea tectonics	

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, Recommendations, Action, Comments, etc.
11	19 Mar 84	P. Huchon	Sunda Strait	tectonics	
12	" 15 May 84	D. Falvey, Willcox + Symonds	Suggested ocean drilling; Detailed supplement.	Exmouth Pl., Wallaby Pl., S. Austr. margin, W. Tasmania	Supplemented by #63 but not replaced
13	17 Apr. 84 3 Sept 84	R. Scrutton "	Letter proposal - supplement	Somali Basin, crust ages, paleoposition of Madagascar	
~~14~~	17 Apr. 84	G. deVries Klein	Letter proposal	Bengal + Indus Fans, relation to uplift of Himalayas	Superseded by # 33
15	23 May 84	R. Girdler	Gulf of Aden	Tectonics, geol. history	
16	31 Aug 84	Zierenberg	Atlantis II Deep, Red Sea	Mainly hydrothermal	Replace by 76
17	21 Aug 84	Luyendyk	Letter proposal	Madagascar, Somali B., N.W. Austr., Ninetyeast R. Jr	
18	20 Aug 84	Haq	Letter proposal	Indus Fan	
19	16 Aug 84	Y. Mart	Seychelles Bank + Amirante Trough	Tectonics, sed. hist.	
20	20 Aug 84	Kolla	Indus Fan	Seds, fan processes, uplift of Himalayas, etc.	

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
21	24 Aug 84	Coffin + Channell	Tethyan stratigraphy and ancient crust, Ind. Ocean	N. Somali Basin	
22	7 Aug 84	Wannesson	Site Forms	Antarctic Margin off Adelie Coast, S.E. Ind. Oc.	
23	13 Aug 84	Bonatti, Ross	L-1, in NSF-ODP Workshop	Crustal evolution of the Red Sea	
24	"	Natland	L-2 "	Petrologic changes due to changes in spreading rate and ridge-crest circ'n.	
25	"	Duncan	L-3 "	Geochemical heterogeneity of an aseismic ridge	
26	"	Dick, Natland	L-4 "	Mantle geochemistry and fracture zone tectonics	
27	"	Duncan	L-5 "	Mantle heterogeneity at the SE Indian Ridge	
28	"	Langmuir	L-6 "	Evolution of chemical discontinuities in the ocean crust	
29	"	Brocher	L-7 "	Crozet seismic observatory	
30	"	Prell	S-1 "	Evolution of Indian Ocean monsoon	
31	"	Prell	S-2 "	Neogene anoxic and upwelling sediments	

Page 4

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
32	13 Aug 84	Cullen, Prell	S-3, in NSF-ODP Workshop	History of monsoon run off and salinity	
33	"	Curray, Klein	S-4 "	Evolution of deep-sea fans and Himalayan uplift	
34	"	Peterson	S-5 "	Variation of Neogene carbonate compensation	
35	"	Rea	S-6 "	Variation of Cenozoic atmospheric circulation	
36	"	Coulbourn	S-7 "	History of gyral circulation	
37	"	Hays, Lazarus	S-8 "	Neogene evolution of mid-high latitude oceanic fronts	
38	"	Owen, Rea	S-9 "	Hydrothermal sediments	
~~39~~	"	Coffin, Matthias	T-1 "	Transform passive margins of Mozambique and Madagascar	Replaced by #69
40	"	Coffin	T-2 "	Rifted passive margins of Madagascar and East Africa	
41	"	Matthias	T-3 "	Somali Basin	
~~42~~	"	Stein	T-4 "	Early opening of the Gulf of Aden	Replaces # 3 Replaced by # 70

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
43	13Aug84	Heirtzler	T-5, in NSF-ODP workshop	Northwest Indian Ocean	
44	"	Weissel, Stein, Forsyth, Anderson	T-6 "	Intraplate deformation in the central Indian Ocean	Replaces #9
45	"	Curray, Duncan	T-7 "	Ninetyeast Ridge	
~~46~~	"	Karig, Moore	T-8 "	Deformation of the Sunda Trench Forearc	Superseded by #66
~~47~~	"	Karig	T-9 "	Arc-continent collision	Superseded by #66
48	"	Cande, Mutter	T-10 "	Southern Australian margin	
49	"	Curray, Thierstein, Mackenzie, Mahoney	T-11 "	Broken Ridge	Replaces #2
50	"	Forsyth	T-12 "	Stress in oceanic lithosphere: SE Indian Ridge	
51	5Sept84	R. Kidd	Suggestions for Ocean Drilling in the Indian Ocean	Indus Fan	
52	" 10Oct84 →	Cochran + Hobart	A proposal for ocean drilling in the northern Red Sea	Red Sea Tectonics, seds, ~~basement~~ Site Forms nec'd.	Replaces #1, in part
53	"	Herb + Oberhänsli	Prelim. proposal for Deep Sea Drilling on the....	Agulhas Plateau + adjacent basins	Replaces #5 in part.

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
54	5Sept84	Oberhänsli + Herb	Prelim. Ocean Drilling Prop. N-S + E-W transects	Ninetyeast Ridge, paleoceanogr.	Replaces #5, in part.
55	"	Inst. de Physique du Globe de Strasbourg	ODP Site Proposal Forms	Rodriguez Triple Junction SE Indian Ridge Axis SW Indian Ridge Axis	
56	"	Pautot	ODP Site Forms and data	Red Sea	
57	"	Inst. Phys du Globe Strasbourg	Oceanic Plateaus	Kerguelen-Heard Plateau	
58	"	Lab. de Geol. du Mus. Nat. d'Hist. Nat-LeClerc	Kerguelen-Gaussberg	Kerguelen-Gaussberg Plateau	
59	"	"	Crozet - Enderby Basins		
60	"	"	Wharton Basin		
61	"	"	Central Indian Basin		
62	"	"	Davie Ridge		
~~63~~	7Sept84	von Rad + Falvey	Exmouth Pl., Argo A.P. Wallaby Pl.	[Oct 84 Supplement by Gradstein]	Replaces #6, in part; supplements #12, Replaced #71

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
64	Dec 83	M. Clocchiatti in IPOD France Scient. Comm. Report.	Deep Sea Drilling Proposals for the Indian Ocean	Davy Ridge, Kerguelen-Heard Pl.	
~~65~~	April 81	Consortium for Ocean Geosciences	The Future of Scientific Ocean Drilling in the Australasian Region	Report of workshop; booklet, with description of several objectives in Indian Ocean	
66	30 Aug 84	Karig + Moore	Sunda and Banda Arc Drilling: A Study of Convergent Margin Processes	Fore arc, accretionary prism and arc-continent collision	Replaces #46 and #47 A revision
67	4 Sept 84	Jaquet	Ideas/Suggestions	1. Cementation + diagenesis of carb. sands 2. Iron-Manganese Micro-concretions 3. Mixed distal terrig-carbonate clastic deposits 4. Protoglobogerina-like fauna in Jura-L.Cret.	
68	20 Nov 84	Kennett, Brown + Howell	Middle-late Cenozoic stratigraphy, chronology and paleoenvironmental history of East Africa: Correlation with hominid evolution sites	HPC + XCB sites close to East Africa	

Proposal No.	Date Rec'd	Proponent	Title	Area, Objectives, etc.	Status, etc.
69	5 Dec 84	Coffin, with Bowen, Channell & Scrutton	The Davie Fracture Zone: Reactivating Zone of weakness	Davie Ridge	Replaces #39
70	5 Dec 84	Stein	Drilling to determine the history of the early opening of the Gulf of Aden resulting from rifting of old oceanic lithosphere	Easternmost Gulf of Aden	Replaces #42
71	6 Dec 84	von Rad, Exon, & Willcox	A proposal for ocean drilling on the Exmouth and Wallaby Plateaus and Argo Abyssal Plain, Eastern Indian Ocean	I	Replaces #63
* 72	6 Dec 84	Colwell	Kerguelen Plateau		Supplemented by previous report for a survey.... Supersede #65
* 73	6 Dec 84	Veevers + Branson	Australian-Antarctic Discordance and Depression		Supersede #65
* 74	6 Dec 84	Branson	Deep Sea Drilling Site Proposals: Northeast Tasmanian Margin		Supersede #65

Proposal No.	Date Rec'd.	Proponent	Title	Area, Objectives, etc.	Status, etc.
75	10 Dec 84	Schlich	Rodriguez Triple Junction and associated spreading ridges		
76	10 Dec 84	Zierenberg	Proposal for oceanic drilling in the Atlantis II Deep, Red Sea		Replaces #16
77	11 Dec 84	Herb & Oberhänsli	Proposal for Deep Sea Drilling on the Agulhas Plateau and Adjacent Basins, off South Africa		Replaces #53
78	11 Dec 84	Oberhänsli & Herb	Comparative data on... Ninetyeast Ridge... Chagos Laccadive Ridges for paleo-oceanographic purposes....		Supplement to #54

Table 4: IOP PROJECT PRIORITIES 12 December 1984

Group	Rank	Score[1]	Project	Proposals[2]	Thematic Panels[3]			Panel watchdog(s)	Survey Status		Time[4]
					T	L	S		Regional	Site	
Group I	1	8.91(7-10)	Kerguelen-Gaussberg: Rifted hotspot trace model and high latitude paleoceanographic Transects	57, 68, 72	high	A	1	Schlich Falvey	ok	scheduled	1½ - legs
	2	8.36(2-10)	Neogene Package: Monsoons, mountains, Milankovitch, and fossil man	30, 31, 32, 33, 43, 68	—	—	2 *	Prell Tauxe	ok	To be proposed	1 le[illegible]
Group II	3	7.00(4-10)	Argo Abyssal Plain: old, possibly Tethys, ocean crust.	12, 71	—	—	— *	von Rad Falvey	ok	scheduled	15 da
	4	6.91(2-10)	Red Sea: Initiation of rifting.	7, 23, 52, 56, 76	2	1	low	Cochran	ok	scheduled + to be proposed	1 le.
	5	6.73(4-10)	Broken Ridge: Rifted hotspot Trace model, conjugate to Kerguelen	49	low	C	4 *	Curray	poor	to be proposed	< ½ le
	6	6.65(2-9)	Makran: Distribution of deformation across an accretionary prism	8	1	—	— *	Leggett White	ok	scheduled	1 le.
	7	6.55(2-9)	Chagos-Laccadive-Mascarene Ridges: Aseismic ridge, paleoceanography, carbonate history	25, 34	—	2	5	Herb	poor	needed	½ leg
	8	6.36(2-10)	S.E. Indian Ridge Transect: paleoceanogr. Transect and mantle heterogeneity	27, 37, 38	—	1, 2	4	Prell Schlich	ok	needed	½ leg
	9	6.18(2-9)	Ninetyeast Ridge: "Aseismic ridge" and paleoceanographic transect	25, 39, 35, 46, 78	moderate	A	— *	Curray Herb	ok	To be proposed	½ le.
	10 A	6.00(2-9)	North Somali Basin: Old ocean, possible Tethys remnant	21, 70	—	—	3	Brenner	ok	needed	1 le.
	10 B	6.00(1-8)	Central Indian Basin + Distal Bengal Fan: Intraplate deformation and Himalayan uplift record	33, 44	3	—	— *	Curray	ok	To be proposed	½ leg
Group III	12	5.27(3-8)	West S. Australia - Antarctic Discordance: Initiation of spreading, cold spot trace	28, 48, 73	5	C	—	Falvey	ok	needed	1 [illegible]
	13	5.18(0-8)	Agulhas Plateau: S. Atlantic - Indian Ocean Gateway	6, 36, 77	—	—	low	Herb	ok	needed	6 days Time
	14	5.09(0-10)	Eastern S. Australia: Starved block-faulted passive margin, slow spreading	74	—	C	—	Falvey	ok	scheduled	1 leg
	15A	4.82(0-8)	Exmouth Plateau: Starved marginal plateau	71	moderate	—	6	von Rad Falvey	ok	scheduled	½ leg
	15B	4.82(2-10)	Fossil Ridges: Mascarene and Wharton Basins	—	—	*	—	Schlich	ok	To be proposed	¾ leg
Group IV	17	3.82(0-9)	Sunda Arc: Variation in deformation around an accretionary prism	11, 66	4	—	—	Curray	ok	scheduled & needed	1 leg
	18	3.36(0-10)	Rodriguez Triple Junction	55, 75	—	—	—	Schlich	ok	More needed	1 leg
Group V	19	2.09(0-8	Davie Ridge: Sheared margin	62, 69	—	—	—	Cochran	ok	ok?	¾ le.
	20	1.45(0-4)	Wallaby Plateau: Epilith, volcanic passive margin	71	—	—	—	von Rad	ok	needed	1 leg
	21	1.18(0-4)	E. Gulf of Aden: Rifting old ocean crust	70	—	—	—	Cochran	ok	needed	10 day

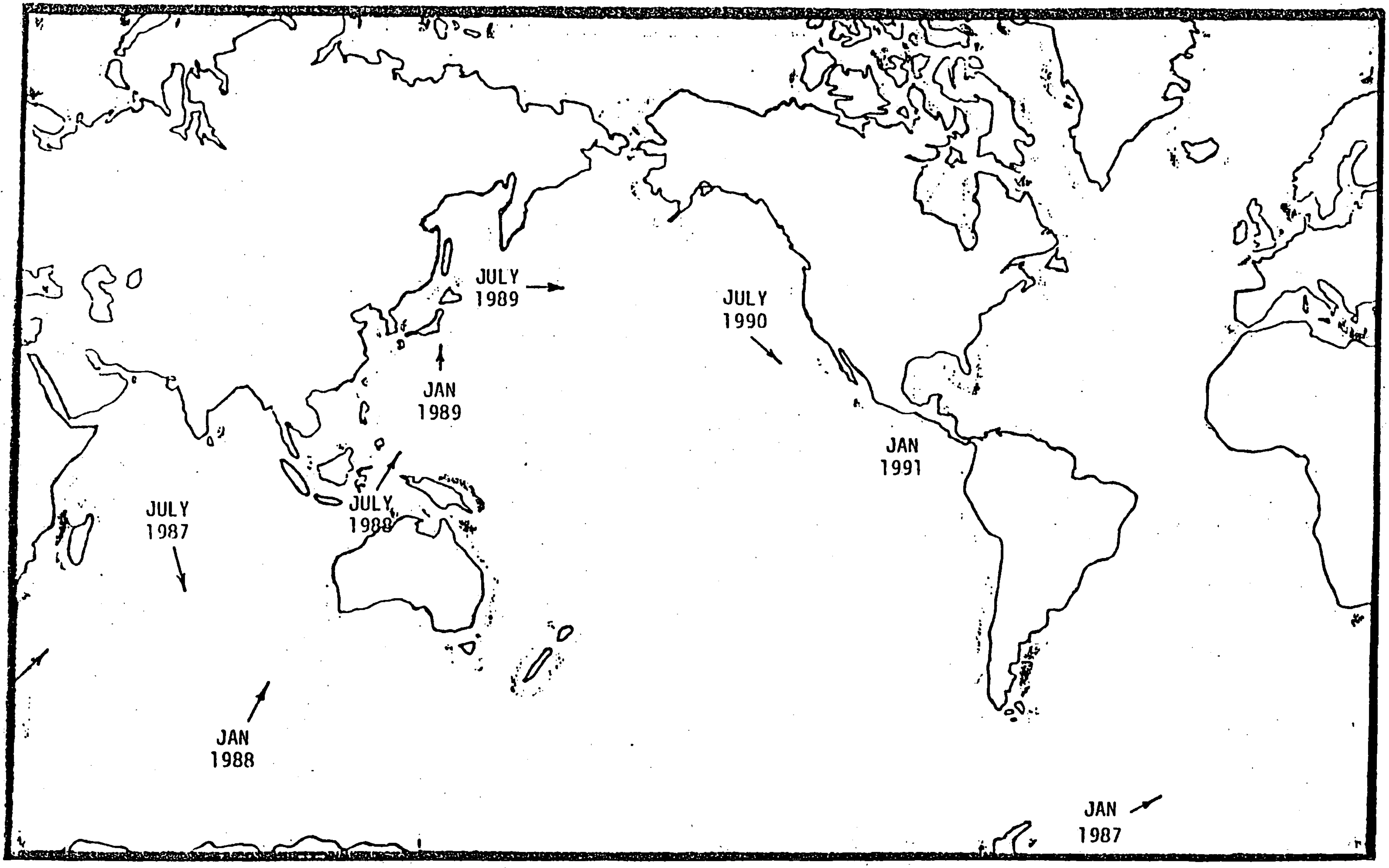
1/ Mean and range of scores of votes by panel members, scale of 0-10, by "scientific value".
2/ See Log of proposals received by IOP, Table 3.
3/ Ratings, if considered by thematic panels: T = TECP, preliminary rating by voting 1-5[illegible] by consensus for other proposals; L = LITHP, on scale 1, 2, etc for primarily litho[illegible] sites, and A, B, etc for not primarily lithosphere sites; S = SOHP, first 6 priorit.
* = IOP requests review by SOHP or LITHP.
4/ Times in days are site time only, without Transit. Leg estimates include Transit.

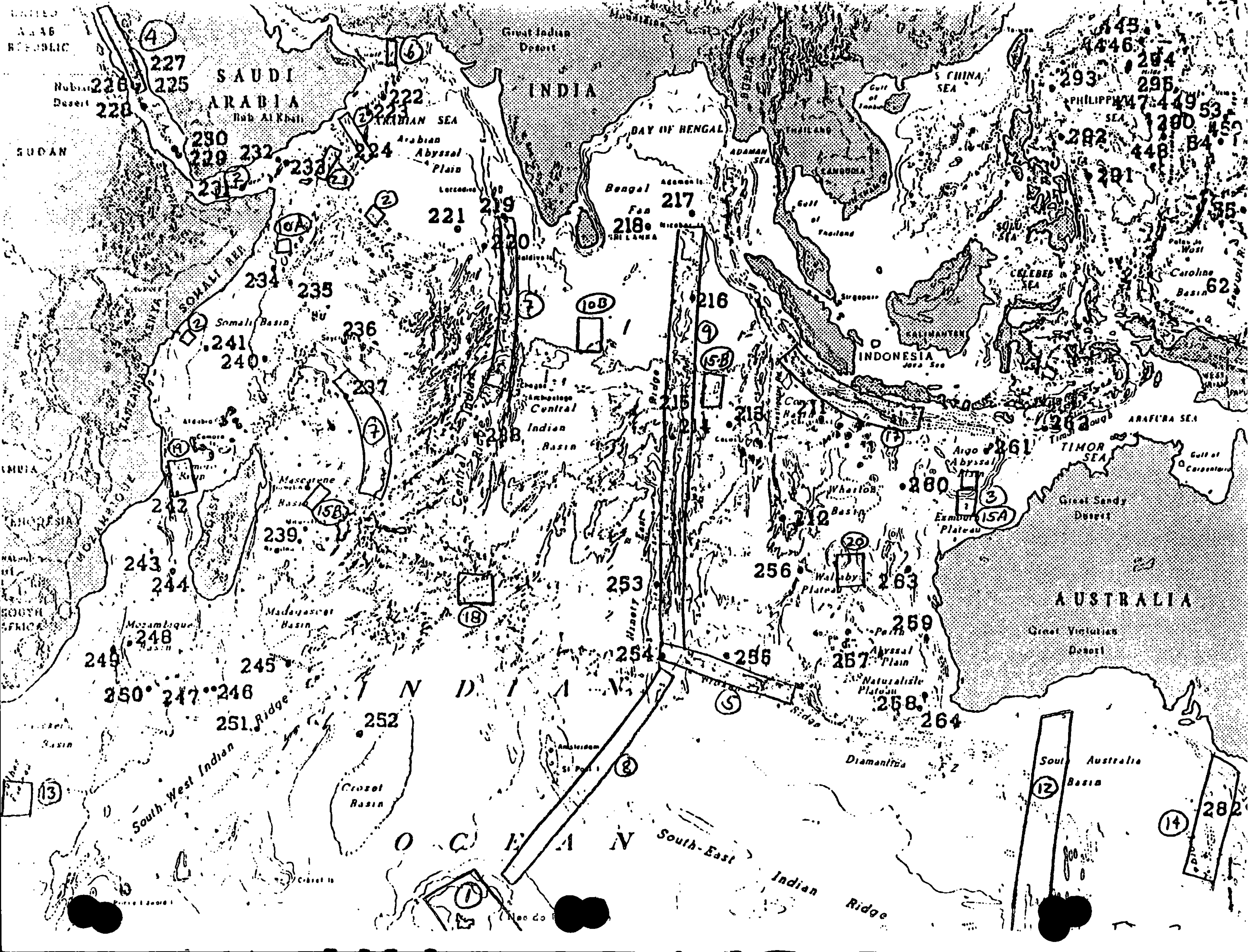
Fig. 1

OCEAN DRILLING PROGRAM

Regions of Interest - 1987-1991

(Dates are tentative; shiptrack and drilling sites are not indicated.)





SAUDI ARABIA
Rub Al Khali
SUDAN
Nubian Desert
INDIA
Great Indian Desert
ARABIAN SEA
Arabian Abyssal Plain
Bengal Fan
SRI LANKA
S CHINA SEA
PHILIPPINE SEA
CELEBES SEA
Caroline Basin
INDONESIA
Java Sea
ARAFURA SEA
TIMOR SEA
Argo Abyssal Plain
Exmouth Plateau
Wharton Basin
Wallaby Plateau
Perth Abyssal Plain
Naturaliste Plateau
AUSTRALIA
Great Sandy Desert
Great Victoria Desert
South Australia Basin
Somali Basin
Mascarene Basin
Madagascar Basin
Mozambique Basin
Central Indian Basin
Central Indian Ridge
Crozet Basin
South-West Indian Ridge
South-East Indian Ridge
INDIAN OCEAN

Draft Minutes of the Sediments and Ocean History Panel (SOHP)

Meeting 12-14 Nov. 1984

Carmel, California

Present:

M. Arthur

R. Embley

W. Hay

L. Mayer

P. Meyers

H. Schrader (PCOM)

W. Ruddiman

R. Sarg

M. Sarnthein

N. Shackleton

E. Suess

Y. Takayanagi

L. Tauxe

A. Palmer

Guests:

D. Scholl (CEPAC-12Nov.)

J. Curray (IOP-12Nov.)

E. Silver (WPAC-14Nov.)

A) Michael welcomed us to beautiful Carmel

-Agenda distributed by M. Arthur was approved

-minutes of May, 1984, SOHP meeting approved

Meeting began with some general discussions: -PCOM will meet 1st week in January and SOHP has been asked to make recommendations on several issues including Indian and Southern Ocean drilling.

Results of SOHP ranking by mail poll on uncommitted legs as requested for PCOM September meeting:

1) Deep Morrocan Hole

2) Peru margin

3) distant third-Ionian Sea

B) PCOM report (H. Shrader):

There have been 2 PCOM meetings since our last meeting.

Paris meeting: was summed up in material distributed in June to panel members by Mike Arthur.

Hawaii meeting:

-Foreign membership: PCOM is forging ahead with assumption that all uncommitted foreign members will join - if not - emergency meeting of PCOM will be called. No contingency plans at moment.

-Panel memberships were not discussed. This is an issue with many concerns about non-representation. This issue will be discussed at next PCOM meeting.

-Frozen OG samples will be collected and maintained as in past.

-Publications of DSDP Legs will not be delayed.

-Lists of ODP drilling proposals received will be published in JOIDES Journal. There was concern expressed (at PCOM) over favoritism and procedures of submission. Panels must be careful to avoid this and not <u>necessarily</u> have proponents make presentations (even at their own expense).

-Labrador Sea: needs to be discussed by SOHP.

-PCOM is adament that vessel will not spend 3rd austral summer in Southern Ocean.

-PCOM ranking for 3 uncommited legs:

1) Peru Margin
2) Chile Triple Junction
3) EPR
4) Yucatan
5) Morrocan Rise deep hole
6) 504B

Morrocan deep hole was ranked just below Yucatan (by 1 vote).

Schrader explained that this was the result of long philosophical discussion. PCOM does not (at this point) want to drill areas that have been drilled before (even if recovery was very poor). Mandate is to do new things. Chile Triple Junction was looked at as new and exciting.

-SOHP in discussion members expressed concern that a Chile Triple Junction proposal has never been presented to this panel and therefore we had no knowledge of objectives and no input into the decision.

Schrader also commented that the two proposals for Morrocan Deep Hole (Winterer & Hinz/Hayes et al.) should be evaluated to see if they can be combined. Hope should not be lost - it is possible that 2 legs may open up (if bare rock drilling is not possible). SOHP should re-evaluate Morroc Rise deep hole and decide if it is still a high priority - if so we should be prepared with a consolidated and well structured-proposal - this will be discussed later in the meeting.

-Schrader suggested that SOHP not prioritize objectives with ratings like 1A, 1B; no matter what we intend this will still be viewed as a ranking so we muse be careful when 'lumping' priorities.

-Regional and thematic panels are of equal stature-therefore it is extremely important that liasons be established between panels.

-Norwegian Sea drilling: appears to be strictly a tectonics leg even though J. Thiede is co-chief (see Norwegian Sea discussion later).

-Winterer has stepped down from PCOM and has been replaced by M. Kastner as SIO rep.

C) ODP report: (Amanda Palmer):

Sedco/BP 741 will be out of drydock late Dec., turnover to Sedco 24 Dec, turnover to ODP about 2 Jan.

20 day shakedown cruise: on Florida slope:

2 Florida slope sites (FL1,FL2) and deep (>2500m water) site; ODP needs site survey information for FL1 and FL2-especially FL2

SOHP ACTION ITEM (C-1) Action Rick Sarg will look into whereabouts/ accessibility of Exxon data.

-staffing will be just ODP staff scientists -
there may be a post-cruise publication.
-hopefully a re-entry cone will be set at deep
site-no location for deep site has been selected
yet.

-Leg 101 will depart 22 Jan from Ft. Lauderdale. This is
17 day delay in entire schedule - and affects order of
drilling of Sites for Leg 105 because of Baffin Bay
weather window.

-Leg 101 is fully staffed and
there will be logging on Leg 101 with
41 operational days

order of sites: Little Bahama Bark
Florida Straits
Exmouth Plateau

-Leg 105-drilling times checked out
-Rob Kidd arrived at TAMU
-There are presently 4 staff scientists.
-Amanda will see that all members will get copy of
technical capabilities report on drilling vessel
-Sedco has permitted informal naming of ship:
'JOIDES RESOLUTION'-name will not be painted on
ship

Action Item
ODP

Amanda will check with TAMU on:
1-status of core orientation device
2-status of MAR sites (for L. Mayer who

has

to do site survey).

D) Panel Membership:

-The following SOHP members were appointed as informal liasons to regional panels:

E. Suess - Southern Ocean Panel

PCOM note: (atl. Shackleton)

L. Tauxe - Indian Ocean Panel

(alt. W. Hay)

P. Meyers - Atlantic Regional Panel

(alt. R. Sarg)

N. Shackleton- W. Pacific

(alt. Y. Takayanagi)

R. Embley - Central & Eastern Pacific

(alt. E. Suess)

OSOHP views on possible additional member of SOHP (noting apparent criticism from community of lack of coverage of certain subject areas) were already expressed to PCOM - in minutes of November meeting. However, SOHP does not agree with statements made in letter from G. Jenkins (and others) regarding structure of Panel.

E) Norweigan Sea:

1.) -M. Arthur expressed concern over apparent quota system (re. letter from Larson to Arthur re. Labrador Sea extension) and if we push for Norwegian Sea extension in order to achieve any serious paleoceanographic objectives we will apparently have to give up other sites.

-Bill Ruddiman

letter from D. Warnke(Cal. State, Northridge)-which concerned apparent lack of SOHP input into Norwegian Sea drilling plans.

In J. Thiede's reply to Warnke he, however, seems satisfied with plans for Norwegian Sea leg as they stand. K. Miller thought not much new could be learned from further rotary drilling but HPC at a few sites will provide important information. Schrader disagrees. Ruddiman thinks at least small E-W transect is in order and suggests:

Site 2B-which is priority 1 and site 4 or 5 (priority 2) to equal at least 2 site transect.

2)-Schrader is hesitant to attack SOHP objectives at this time (within constraints of tectonic leg). We should work for working group with greater paleo-sed. interests to look at future drilling there. - Plan for future leg with more SOHP priorities.

PCOM Note: (E-3)

SOHP recommends complete HPC of Neogene section at sites drilled (as possible)- but we emphasize that this will not satisfy most SOHP interests- endorse Thiede's response to Warnke -(comments on alternate sites).

PCOM Note: (E-4)

4.)-SOHP was not consulted in planning for Norwegian Sea leg because it had a PCOM mandate to concentrate on dipping reflector problem. - we see justification for forming a working group to look at paleoenvironmental objections in Northern high latitudes and especially Norwegian Sea - with plans for future drilling.

F) Lab. Sea/Baffin Bay (Leg 105)

-Agree that BB-3 is highest priority and maximum of 28 days approx. drilling to 2 kms.

-If we want to drill LA5 also - what can we give up?

-ENA3? The total operation time for Leg 105 53 days.

-Discussion was postponed.

G-1) Discussion of NJ-6:

-SOHP encourages drilling of NJ-6 but we place it as second priority relative to Site 603 work and well behind our Baffin/Bay/Lab Sea drilling.

SOHP urges proponents of NJ-6 to stress global ramifications of their work.

G-2) Galicia Bank - no proposal available to SOHP - some paleo objectives - but mostly structural and tectonic objectives not much more to be gained in terms of paleo-sed. objectives than from Site 398 and Bay of Biscay (Leg 80) sites.

-therefore limited interest from SOHP.

H) N.W. Africa-Equat. Atlantic Leg:

1.)M. Arthur questioned how well Ruddiman and Sarnthein have meshed their programs into one leg.

Will be discussed later(Items M,V).

2.)Weaver et al. Madeira Abyssal Plain proposal:

-timing of turbidites with respect to sea level changes; can document dissolution cycles through Pleistocene-from piston core-where shifts to red clay at 2.4 myBP;

Hypothesis - turbidites correlated to regressions

- claim can correlate with fairly high resolution based on lithology (and nannos w/in turbidites), rather than normal pelagic intervals.

Other objectives:

-geotechnical data for red waste disposal

-eastern basin seismic strat.

-dating timing of abyssal plain formation

-'burn down' of organic carbon - geochemical record of turbidite deposition.

Problems: 1)-biostrat resolution

2)-no aeolian record

3)-is this best place to test hypothesis

-higher sed rate better?

-Other site on lowermost cont. rise - to link turbidites to slumping and slides on upper cont. rise.

-At present no high resolution red clay stratigraphic

-tool - can turbidites provide time lines?

-Is preservation good enough for dating - Nanno's in turbidites appear to be close in age to turbidite events.

What other choices if we had to prioritize or wanted add sites to Leg?

Ruddiman - equat. Atlantic divergence

Sarnthein - upwelling cell

Sarg -previous research and future drilling in Bahamas region has and will, in part, address this problem.

-M. Arthur: Can long piston cores be used to develop a

longer-term record?
-In principal - we support program but compared to other sites that we have dropped on this leg we rate it as 2nd priority.

SOHP Recomm.

We suggest that Giant PC be used initially to address these objectives.

We suggest that other sites be examined as potential lists of hypotheses involved.

12:30 - Adjourn for lunch

SOHP - Monday afternoon

- Amanda Palmer-note the following (as per phone call to TAMU)

-ODP on schedule re bare rock drilling

-core orientation - renting core orientation device

-core orientation multishot-compass/camera can be used on any HPC

I. Indian Ocean Drilling: (Joe Curray reporting:)

-Indian Ocean Panel endorses proposed Southern Ocean Panel Kerguelen program.

-65-70 proposals were submitted to Panel grouped into superproposals (regional) and generated priorities.

Summary document from Curray -distributed to SOHP members.

Proposed 2 Kerguelen austral summer programs with Indian Ocean sites interspersed.

-11-top priority programs (not prioritized)

1-Agulhas Plateaus

2-West Somali Basin

3-Red Sea

4-Maccran Basin

5-Arabian Sea

6-Chagos-Lacadive Ridge

7-Central Indian Ocean Basin

8-Kerguelan

9-Southeast Indian Ocean Ridge

10-Northwest Australian Margin

11-Eastern Southern Ocean Basin and Rodriques Triple Junction

J. Curray summarized objectives as follows:

-Agulhas-Plateau (1-2 sites approx. 18 days)

Paleoceano- interocean seaways-

Changes in bottom water circ.-to Cret./Tert. bound.

Tectonic history-nature of basement.

-Problems with hiatuses and incomplete section discussed - will be looked into in further detail.

Western Somali Basin: 1 deep site approx. 20 days

tectonic-anomalously thin oceanic crust.

basement at anomaly M12

paleo-evolution of Indian Ocean-history of circulation.

Red Sea - (1 leg)

-tectonic

asked PCOM for multidisciplinary working group on Red Sea

-concentrate on axial troughs

-metalogenesis evaporites, pre-evaporite deposits.

-can't drill through thick evaporites outside of axial trough.

MaKran- tectonic-deformation of sediments as accreted into accretionary wedge -to study nature and style of deformation (some support for Sunda Arc on tectonics panel)

1-leg 7 sites) accretionary prism transect

rates of uplift-timing of uplift.

Arabian Sea (1 leg)

-evolution of monsoonal upwelling

-anoxic sediments, O_2-min.

-long-term evolution of Indus Fan

monsoonal upwelling-Owen Ridge/Oman- 15 days, 2 HPC sites - 500 m

Indus Fan (distal) 15 days, 2 HPC sites 500 m

Chagos-Laccadive Ridge - favored over 90°E Ridge because never

been drilled before (1 Leg) Hot spot trace-

N-S-tectonic objectives

E-W depth transect-paleoceanographic objectives.

Central Indian Ocean Basin:

area of anomalous seismicity; intraplate deformation

Southeast Indian Ridge Transect: (1 Leg)

with lithosphere panel (nature of oceanic crust)

paleoceanographic transect-(polar front, etc.)

Northwest Australia-tectonic-transect to Argo Abyssal

Plain-oldest oceanic crust

Eastern Southern Australian Margin

Rodriguez Triple Junction: lithosphere objectives.

will prioritize these objectives at next meeting of Indian

Ocean Panel (at AGU)

2nd priorities:

Crozet Basin

Crozet Plateau-lower priority than Kerguelan

Davie Ridge

Gulf of Aden

Seychelles

N. Somali Basin

Upper Indus Fan

90°E Ridge-EW transect and lithology

Broken Ridge-complete Tertiary and Lt. Cretaceous

section

Wharton Basin

Andaman Sea-analogous to Gulf of Calif.

Sunda Arc-tectonic-accretionary prism

J) CEPac - Dave Scholl reporting:

CEPac-2 meetings so far-devoted to "self discovery"

1-how did eastern and centralf Pacific

form? basic themes

2-effects of what happened.

SOHP interest (as summarized by panel members in discussion)

1-Paleoclimate

2-Sea level fluctuations

3-Mesozoic sedimentation

-redrill Hess rise (problems w/recovery in chert)

-redrill Shatsky rise (same)

4-High latitude Paleogene sections-seamounts in Bering Sea with pelagic cap buried under turbidites on Early Cretaceous(?) sea floor

5-What was Pacific like in middle Tertiary and before-we need strategy to attack this problem because much of older crust from mid to high latitudes has been subducted.

-SOHP refers Dave to minutes of 2nd meeting-"major themes" of SOHP" for further information.

-Dave encourages us to provide input to his panel.

M. Arthur will send 'SOHP' themes for futue focus' to T. Shipley and D. Scholl

According to D. Scholl there will be a series of workshops in order to generate Pacific drilling proposals. H. Schrader urged that these be advertised to the international community.

Next SOHP panel meeting agenda item will be to put together a "wish list" of Pacific drillimg priorities.

K) Southern Ocean Panel: E.Suess reporting (Indian Ocean Region)

2 of Indian Ocean objectives overlap with SOP and 5 more for Indian Ocean portion of S. Ocean

1. E. Ant cont. margin: Pydz Bay-4 sites-3 on margin 1 in deeper with 3 objectives.

climatic history-glacial history

breakup/separatifon of India & Antarctica

2. Kerguelen Plateau/Hurd Plateau

-N-S transect together with S.E. Ind. ridge

12 sites originally: when hopes for 2 summers of drilling

a) history of polar front-in pelagic sequences above CCD

b) Cenozoic bottom-water and intermed. water-mass history

c) subsidence history of Kerguelen Plateau

3.-AA continental margin-Adelie coast-Wilkesland (French IFP)-3 sites

-regional unconformites

-breakup Australia & Antarctica

-magmatic processes

4-SE Ind. ridge transect: 4 sites

-extension of Kerguelen Plateau transect

-develop of AA circumpolar current

-mantle geochem. along flow lines

-ridge- crest hydrothermal activity.

will be reconciled with Indian Ocean Panel's transect.

-+lithospheric targets on slow spreading ridges and fracture zones

5-Agulhas Plateau (2 sites) 1 paleocean. 1 tecton.

- shallow plateau
- Eocene-Miocene calcareous record
- tectonic history of plateau

6-Crozet Plateau (1 site) - same objectives as Agulhas

no tentative ship track yet

contraint-leaving Wadell Sea-Jan 1988

SOHP recomm. to S.O.P.

SOHP priorities are highest for Kerguelen Plateau because of lack of terrigenous input and Amery Basin because of potential for pristine - Cretaceous-Recent section. (see Section L)

Indian Ocean: SOHP priorities

The SOHP discussed in some detail the objectives and relative merits of Indian Ocean-Southern Ocean Sites or Legs in proposals previously distributed or endorsed by SOP and IOP.

1.)Kerguelen-no clastic input

-carbonate rcord

-problem is logistics

Can Amery basin and Kerguelen sites be done on one leg (approx. 72 day)-?

This would make sense logistically-can both be done on one leg -probably not.

SOHP rates Kerguelen slightly higher priority-we will focus discussion on Kerguelen sites.

major question:

was there a major Oligocene glaciation in Antarctic?

can Kerguelen sites answer this? no - not far south enough.

Bill Hay/N. Shackleton-stress importance of Amery Basin for Antarctic glaciation.

SOHP Action Item

SOHP-will establish small working group to see if Kerguelen and Amery sites can be combined into one long leg: also see if tectonic objectives can be met at Broken Ridge rather than at Kerguelan.

Mike Arthur

Jim Kennett will try to meet and discuss possibilities

-also see if tectonic problems can be addressed through paleodepth (subsidence) curves rather than transect of basement penetration sites.

-Adelie Margin will have to wait for next go around.

-End 12 Nov. 5:30 P.M.

13 Nov. 85

8:30 am:

N.B.: Phil Meyers will be liason on ARP rather than Lancelot as result of brief discussion of availability. For various reasons we have never had a representative at an ARP meeting.

M) N.W. African Margin (Leg 108) Feb-Mar.86 (Sarnthein/ Ruddiman)

49 days total:

Marseille=>Las Palmas=>28 days operation

21 days steaming

SOHP Action Item

-all sites less than 400m - M. Sarnthein asks can logging be dropped?

-need clarification from ODP-A. Palmer will check.

-first priority sites take up 25 days; would like to add 2 more sites-another 8 days=>54 day leg (total of 33 days drilling).

-Schrader pointed out that very strong scientific arguments will have to be made for additional sites because of earlier decisions of SOHP as reflected in minutes of LaJolla meeting (May, 1984).

-Sarnthein requests ODP to re-evaluate Marseilles port stop-coulkd it be changed to Azores, thereby adding additional time for operations, not steaming.-

Sarnthein & Ruddiman will present rationale for leg with prioritzed sites and drilling times tomorrow morning (see

Item V).

N) <u>Southern Ocean Panel</u> (E. Suess reporting)-Weddell Sea and region

-S.O. panel did not spend too much time discussing Wedell Sea

-2 legs discussed: Wadell Sea and Subantarctic Leg

-Subantarctic leg appears to have been dropped because of SOHP ranking of this leg as 2nd priority.

Subantarctic leg: South Atl.-Sandwich Island trench-to Agulhas Plateau transect

8 sites planned-history of AABW into S. Atlantic and some tectonic objectives - Sand. Island chain; also conjugate sites on other side of MAR.

-One problem with leg is that it does involve some redrilling of places where drilling has been done before We should present clear indication to South Ocean Panel of our feelings relative to subantarctic

-South Ocean Panel priorities:

1-Wedell Sea-highest priority, 12 sites-super leg

Bransfield St.

Weddell Sea Margin

Maud Rise

S. Shetland Plateau

Astrid Ridge

-2-Subantarctic leg-2nd priority

paleo & tectonic objectives

tectonics new but paleoceanog.-is probably in part a rerun of earlier legs.

SOHP Recomm. to PCOM

and SOP

SOHP strongly supports the Weddell Sea program as highest priority. Subantarctic drilling is of 2nd priority; of the proposed Weddell Sea sites we consider Maud Rise and Astrid Ridge of greatest importance-voted unanimous

Weddell Sea:

1) Maud Rise, Astrid Ridge-recovery of carbonate record

2) Weddell Sea-look at turbidites, magnetic anisotropy to =>current direction

3) S.W. part of S. Shetland Plateau-outcropping reflectors objective to get complete stratigraphic section

4) Bransfield St-development of back- arc basin

-glacial history (recent)

5) Caird Margin-tectonic objectives-opening of Weddell Sea-5 sites

All of these sites are of 1st priority except for Bransfield Strait site which is of 2nd priority.

There is some question of the ability to date basement on Caird Margin transect.

O) Indian Ocean Discussion (continued from K,L)

M. Arthur offered a "straw-man" proposal of SOHP high priority objectives as follows:

1) Somali Basin-remnant of paleotethys-

-long Mesozoic-Cenozoic record-adjacent to Africa
also tectonic history.

-2-3 km hole-companion to Moroccan Rise deep hole
monsoonal upwelling (part of Arabian Sea transect)
if site can be moved north

-relationship between Neogene-Quat. continental
and marine climate (as proposed by Kennett et al.)

2) Oman-Owen Ridge-upwelling-monsoon

general <u>agreement-strong</u> <u>support</u> for program

3) Indus fan:

-well studied continental record (Siwalik)

-could use HPC on distal fan to tie seismic record
and history of fan development

-good way to study sediment mass balance/sea level
and Himalayan Uplift.

4) N.W. Australia-starved passive cont.
margin-carbonates-lots of industry data-margin
subsidence-black shales-not very well understood.

-coupled with Amery basin=> N-S transect of
Cretaceous.

-much MCS site survey will be (and has been) done
there by the Australians.

5) S.E. Indian Ridge (also Southern Ocean) - Suess
concerned that compromise between tectonic and
paleoc. objectives might compromise too much.

6) Kerguelen (also SOP)- general support
but must prioritize sites-N-W transect probably

most important.

Closer look at Kerguelen/SE Ind. Ridge-SOHP objectives

-50-62°S 4 sites (minimum)-Paleogene-Cretaceous

-1 deep site approx. 57°S to basement

S.E. Indian Ridge:

3 sites: 38°S=> N of Sub Ant. conv.

-43°S=> S of Sub Ant. conv.

-48°S=> N of Polar Front Neogene

approx. 1/2 leg -61°S Kerguelan (approx. 72° E)

Amery - 4 sites to study breakup and pre- glacial history

7) Chagos-Laccadive Ridge/Mascarene Plateau: vertical H_2O gradients/N-S climatic gradients in Neogene-high priority but not as high as Kerguelen & SE Ind Ridge & Oman/Owen Ridge

8) 90°E Ridge: 1 site for Paleogene and K-T boundary

-Crozet Plateau-presents serious logitical problems-(3rd priority)

-Agulhas Plateau-perhaps 1 site in transit to Weddell Sea-not highest priority but could use a Paleogene and late Cretaceous record as argued by Shackleton and Hay.

-Red Sea: no SOHP objectives/present technology prevents SOHP objectives (galt drilling) 3rd/4 priority

SOHP priorities for Indian Ocean drilling

SOHP Recommendation to IOP, SOP and PCOM (next page)

SOHP Priorities

1. Kerguelen-Antarctic(Amery) (unam.) 12 votes
2. Oman/Owen Ridge upwelling/anoxic Indus Fan (distal) 8 for
3. Somali Basin
4. S.E. Indian Ridge transect.
5. Chagos-Laccadive

   90°E Ridge - 1 hole pickup
6. NW Australia

   Agulhas-1 hole pickup

SOHP Action Item

R.Sarg and W. Hay will come up with good location for Somali Basin site and arguments.

SOHP Action Item

M. Arthur and N. Shackleton will prepare a proposal for K-T boundary site on 90°E Ridge

-E. Suess-pointed out that we overlooked Makran Prism - we

will discuss this evening.

P) Western Pacific:

The SOHP members then engaged in a free-swinging discussion of objectives of possible interest in the W. Pac.

1. Sulu Sea-completely surrounded by landmasses very sensitive to sea level fluctuations - look at Neogene sedimentation history - dynamics of water masses and carbonate story. Not enough information to judge at this time (a proposal from

R. Thunell has been submitted).

2. South China Sea - isotopic record

-vertical gradient into intermediate water depth

-sediment budget in active margin regime.

-Himalayan uplift (Yangtze River-Okinawa Trough)

-paleomag transitions in high sed. rate environs (Tauxe)

-pore H_2O-chemical exchange during deformation/accretion (Suess)

-diagnostic faunas on accretionary wedges (Banda Arc) (Suess)

3. Izu-Ogasawara (Bonin) Arc Transect (discussed by Y. Takayanagi)

-deep water circulation-Eocene differentiation

-Neogene history of bottom water circulation

-tectonic-serpentine-diapirism on ridge

-long continuous sequence of Neogene seds.

-high resolution record of climatic change

-develop of Cenozoic intermed. & deep water masses

benthic forams

nannos

tephra

unconformities

Proposal has been submitted by Japanese colleagues to JOIDES office

4. Sea of Japan

-silled basin-fresh water

-loess record-westerlies

-correlate Asian land record to Pacific record

SOHP Action Item P-4

-Sarnthein will investigate-M. Arthur will send Sarnthein info re: Duce/Leinen/Rea work on modern dust distribution.

5. Sea of Okhotsk

-high sed. rates, high organic content, high geothermal gradient =>safety panel problems(??)

SOHP Action Item P-5

-A. Palmer will try to find old site survey/safety panel data re Sea of Okhotsk and send to Shackleton.

-deep water formation in N. Pacific

-high latitude paleoclimate

-contact Hays, Morley, Sancetta

-Siberian land climatic extremes-
margin melt back-pollen

6. Bering Sea:

-Pacific-Cretaceous-Paleogene-"low latitude" (N. Hemisphere)

-Arctic-Pacific exchange

7. Arctic Ocean-site of opportunity-in basin?

ice free ever?

-10-15 my record

SOHP Action Item P-7

L. Mayer will provide ice info re Western Arctic

There was much enthusiasm for possibly routing ship into this part of the Arctic-a total unknown.

Pa.) CEPAC: SOHP outlined a few items of interest in CEPAC, but will spend more time on subject in future:

1. Elusive Jurassic
2. Hess Rise/Shatsky-Mesozoic objectives
   -good carbonate record
3. Ontong-Java depth transect
   -(dissolution gradients)
   -(water mass properties)
   -(seismic stratigraphy)
4. Late Cretaceous-South Pacific; again, a poorly known region
5. Adelie Margin (Antarctic continental margin)/Campbell Plateau Paleogene depth transect
6. Atoll drilling (subsidence history)-selected atolls
   -carbonate diagenesis - sea level record
7. Shallow ridge crest in south Pacific -Anomaly 5-6 high latitude glaciation (Miocene)
8. Peru margin-upwelling (high priority)
9. Equatorial upwelling? (extension of Leg 85 drilling)
10. Dewatering- J. de Fuca (active deformation; pore-water properties)
11. Volcanic episodicity through time (multiple sites) (archipelagic arprons)
12. S.E. Pacific margin (Chile-Neogene)

Q) <u>Moroccan Rise</u>: (SOHP returned to a favorite topic of high priority)

-Schrader believes that if strong support for deep Moroccan hole can be given and if it fits in with either Hayes or Winterer proposal or both-there is a chance to revitalize it.

-PCOM was not aware that SOHP deep Moroccan site was different from that proposed by Hayes and Winterer.

-Winterer/Hinz proposal is apparently looking for sites with thin sediment cover - not compatible with our objectives-not clear how W/H propoasl would test Vial sea level curves.

Mor- 2 of Hayes proposal might serve us well but should justify from global-seistrat/sea level arguments-

R. Sarg

\- W. Hay will meet and sketch something out (see Sect. T)

M. Arthur should contact D. Hayes.

P. Meyers

SOHP meeting 14 Nov., 8:30 A.M.

R) Note: Panel membership:

-For second time in a row, the French & ESF representatives have failed to appear; this is disturbing and we miss their input.

SOHP Recomm. to PCOM

SOHP supports the establishment of a Northern Ocean Regional panel

Vote was 12 for (unanimous)

-M. Sarnthein will be SOHP liason

-Suggested members with SOHP interests:

David Clarke (Wisc)

John Andrews (CU)

Joe Morley (LDGO)

J. Thiede (Kiel)

G. Jones

D. Warnke (Col. State)

C. Sancetta (LDGO)

D. Bukry (USGS)

H. Nelson (USGS)

A. Aksu (Halifax)

Sejrup (Norway)

Vorren (Norway)

S) Location and timing of Next meeting: (needs to be several weeks prior to PCOM mtg. in March; a number of SOHP members will be going to Kiel for Paleoc. meeting).

options: 1) Capri/Napoli (hosted by B.d'Argenio)

2) Cambridge (hosted by N. Shackleton)

3) Kiel (hosted by M. Sarnthein)

4) Paris? (Y. Lancelot?)

Proposal: in Cambridge England

Thur 21 Feb. 1985

Fri 22 Feb. 1985

w/option of extending to Sat. 23 Feb.

-hosted by N. Shackleton

Unanimous:

T) Morrocan Deep Hole:

1.)-working group-MOR 2 is good site 4200 m water depth - 3000m section (approx. 42 days drilling) landward of Mor 2 is a diapir zone - north of Mor 2 is deformed zone which should be avoided.

want sediment section as old as possible but not on diapirs; objectives:

1-recovery of latest Triassic/Jurassic sequence; deep reflections can be traced all over basin - there is much MCS data including Exxon data that has been released.

2-seismic strat.- global

3-dating of basement

4-nature of basement on transitional crust (will, in part, deal with objectives of Hayes, et al. proposal)

5-coupled with other deep holes- Site 603, Somali Basin, N.W. African margin=>global stratigraphy and syntheses.

6.sea level -"Vail-curve" corroboration or refutation.

SOHP Action Item T-2

2.)-P. Meyers will write letter to ARP expressing our strong interest in this site.

U) Pacific (Western) E. Silver, J. Ingle present. (see Appendix II)

-E. Silver offered the following:

-W. Pac panel has not set priorities yet but have solicited proposals

-W. Pac panel has little input from SOHP so far

-WPac has been defined as "area west of trenches"

Themes: a) evolution of marginal basins

b) evolution of island arc systems

Regions:

1-Japan region (Japan Sea)

2-Philipine Sea-Nakai Trough

3-South China Sea marginal basin-passive margin development

4-Sulu Sea-tectonic (small basin opening w/oceanic depths)

-paleoc (Thunell proposal)

5-Indonesian region:

a) develop/evolution of Sunda Arc-tectonic prob.

b) develop/evolution of Banda Sea

6-Bismark Sea-marginal basin with rapid spreading

7-Solomon Sea-zone of convergence

8-Coral Sea Basin -Queensland Plateau-older pasive margin?

9-arc reversals-Solomons, timing of reversals

10-Tonga-arcs without major sed accretion

-collisions between arc systems and

seamount chains.

11-Lau Basin-incipient spreading center

12-Lord Howe Rise- S. Fiji basin

J. Ingle: now on WePac Panel- hopes to insert paleoceanographic objectives

Major problems-water mass development as isolated basin develops-can these be natural labs for studying global water mass development?

e.g. Sea of Japan-late Olig.-Recent feature-very shallow sill (approx. 200 m) yet oceanic depths in basin - as SL has risen and fallen => very dramatic effects-responses to land masses because of wind stress=>mixing throughout =>high uranium during low stands-very high prod.

Ingle would like to see utilization of onshore sequences-many islands are uplifted pieces of oceanic sequences, e.g. Okinawa

Phillipine Sea-may hold key to ribbon chert problem

Seamounts that have remained above CCD

-e.g. site 292 complete Eocene to -Recent carbonate history

-Meiji guyot-collected pelagic seds since Cretaceous Line Islands?

M. Arthur suggested that SOHP would be interested in:

Oyashio/Kiroshio current history (transects to examine fluctuatins w/climate change in W. Boundary Current)

Sediment budgets on carbonate shelf last 60-70 million years (Arthur, Shackleton, Hay) (a major problem in constructing mass balances is

S.E. Asian shelf carbonates

SOHP Action Item U

-N-Australia margin

-Borneo-Indonesian shelf

Arthur, Hay and Shackleton w/Sarg will examine

problem further

V) Integration of NW Africa/Eq Altantic Programs:

(discussion by Ruddiman and Sarnthein)

Additional 2 day S Eq . divergence

3 days nonupwelling => 42 days of

operation

Justification for additional sites:

1-extending transect to 25° N to link up with Leg

94

2-new results-Con-83 & GEONEOPIX-83 show thermal

equator moving through wide range of latitude.

A) S. Eq. divergence:

1-get some of Benguelan current signal

-max. temp anomalies-glacial/interglacial

2-better signal of S. Hemisphere trades - dust

3-more Si- rich signal (productivity)

4-look at thermal equator changes in time

-possible to reach basement at this site.

B) Non-upwelling site (redrill of Site 139)

1-Unipolar glaciation

2-monitor Canary current at shallow 2900 m water depth

3-compare upwelling vs. Canary current interest

4-trade wind-dust record

5-monitor bottom water currents and isotopes

6-formation of hiatuses

SOHP Action Item V-1

*Bill Ruddiman will provide drilling time table for minutes (see Appendix 3).

These 2 sites should be ranked as first priority but below those sites already agreed upon.

SOHP Recomm. to PCOM

W) SOHP requests that cores collected as part of site surveys be held at ODP repositories and made available to shipboard scientists.

X) SOHP will form informal working group to look at carbonate shelf problem in W. Pac.

M. Arthur

R. Sarg

N. Shackleton

J. Mulliman

The Meeting was adjourned at 12:10 pm, Wed. Nov. 14, 1984.

APPENDIX I

PROPOSED ORDER OF SITES AND ESTIMATED OPERATIONS TIMES FOR NW AFRICA-EQUATORIAL ATLANTIC LEG
(communicated by W. Ruddiman)

STAT.	1	139R -	MAV 6	15 hrs.
			MAV 5	13 "
			MAV 4	20 "
			SLR 1	50 "
			EQ 3/4/5	33 "
			EQ 6	15 "
			EQ 9	30 "
STAT.	8		EQ 7	68 "
				244 hrs. (10.2 days)

Lodging -- 2 "

Estimated Total -- 12.2 days + steaming time

APPENDIX III (supplied by E. Silver - WPac Chmn)

PRELIMINARY PROPOSALS FOR DRILLING TARGETS RECEIVED BY THE WESTERN PACIFIC REGIONAL PANEL OF THE OCEAN DRILLING PROGRAM

The following tabulation is meant to keep track of proposals in any form. Some of the proposals were complete, some were letter proposals expressing interest is specific problem areas, and some were developed verbally at one of the panel meetings. Here we are not discriminating either the type or relative merits of proposals.

INDONESIAN REGION

Proponent	Title	Area	Sites/Objectives
Karig/Moore	SUM ABC	Sunda arc - Sumatra	Foot of Forearc slope
"	SUM D	Sunda Arc - Sumatra	Lower slope basin
"	SUM E-F	Sunda Arc - Sumatra	High slope basin
"	JAVA A,B	Java Trench	Lower slope
"	JAVA C	Java Trench	Regional reference
"	JAVA D	Java Trench	Lower slope (mechanics)
"	TIM A	Timor Trough	Lower slope deformation
"	TIM B	Timor Trough	Forearc Structure
"	TIM C	Timor Trough	Neogene Evolution
Huchon	SUNDA 1	Sunda Strait	Extensional Deformation
Audley-Charles	WET 1	Wetar Strait	Vertical Motions
Jonggsma	WEB 1	Weber Deep	Vertical Motions
Schluter	TAN 1	Tanimbar-Kai	Reference Site
"	TAN 2	Tanimbar-Kai	Mechanics of Collision
"	TAN 3	Tanimbar-Kai	Timing of Deformation
Silver	BANDA 1	S. Banda Basin	Age and Origin
"	BANDA 2	N. Banda Basin	Age and Origin
"	BANDA 3	Hardi Basin	Origin of Banda ridges
"	BANDA 4	Lucipara ridge	Origin of Banda ridges

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SOUTHWEST PACIFIC REGION

Natland	MAN 1	Manus Basin	Rapid backarc spreading
Stevenson	OJ 1	Solomon Trench	Collision tectonics
"	OJ 2	Solomon Trench	Explosive Volcanism
"	SLOT 1	Solomon's Slot	Arc polarity reversal
"	SLOT 2	Solomon's Slot	Arc polarity reversal
Milsom	SOLSEA1	Solomon Sea	Origin of Solomon Sea
Stevenson	LOY 1	Loyalty Ridge	History of ridge
"	D'ENT 1	D'Entrecasteau Ridge	History of Collision

Recy	VAN 1	Vanuatu Forearc	Origin and History
"	VAN 2	Vanuatu Intraarc	Reversal History
"	VAN 3	Vanuatu Rear Trough	Incipient spreading
"	FIJI 1	Fiji Plateau	Seismology Experiment
Stevenson	LAU 1	Lau ridge	Volcanic history
Stevenson	LAU 2	Southern Lau Basin	Magma Chamber
Natland	LAU 3	Northern Lau Basin	0 Age Experiment
"	LAU 4	Lau basin	Re Core Site 203
Stevenson	TONGA 1	Tonga Forearc	Louisville ridge Collision
"	TONGA 2	Osborne Seamount	Collision Tectonics
Symonds	QUE 1	N. Queensland trough	Passive margin rifting
"	QUE 2	N. Queensland plateau	Passive margin rifting
"	QUE 3	N. Queensland plateau	Rift phase volcanism
"	CORSEA 1	Western Coral Sea	Origin of Basin
"	CORSEA 2	Western Coral Sea	Basin Sed. vs. Sea level
Exon/Symonds	LHR 1	Lord Howe Rise	Margin rift history
"	NCAL 1	New Caledonia Basin	Seds. & Ocean History
"	NORF 1	Norfolk Ridge	Origin of aseismic ridge
"	NORF 2	Norfolk Basin	Origin of backarc basins
"	3KR 1	Three Kings Ridge	Origin and Histroy
"	LAU 5	Lau Ridge	Early History
"	TONGA 3	Tonga Ridge	Structure and History
"	TONGA 4	Tonga Forearc	Structure and History

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SOUTH CHINA SEA REGION

Hayes/Lewis	SCS-A 1	S. China Sea, NW margin	Base of slope
"	SCS-A 2	S. China Sea, NW margin	Lower slope
"	SCS-A 3	S. China Sea, NW Margin	Upper slope
"	SCS-A 4	S. China Sea, NW Margin	Outer shelf
Schluter	RB 1	Reed Bank	Conjugate margin
"	RB 2	Dangerous Grounds	Conjugate margin
"	RB 3	Cagayan Ridge	Former Volcanic arc
"	RB 4	Palawan Wedge	Ancient Acc. prism
"	RB 5	Outer Sulu Sea	Deformed forearc basin
"	RB 6	Inner Sulu Sea	Ancient spreading basin
Thunnel	RB 7	Inner Sulu Sea	O_2 deficient basin
Lewis	MAN 1-?	Manilla trench	Accretion Mechanics
"	MAN ?-?	Manilla trench forearc	Forearc basin formation

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JAPAN - MARIANAS REGION

Kagami et al.	JAPAN 1A	Japan Basin	Rifting backarc
"	JAPAN 1B	Japan Basin	Rifting backarc
"	JAPAN 1C	Yamato Basin	Rifting backarc
"	JAPAN 1D	Yamato Basin	Rifting backarc
"	JAPAN 2A	Japan Basin	Hydrothermal
"	JAPAN 2B	Okushiri ridge	Compression
"	JAPAN 2C	Japan Basin	Hydrothermal
"	JAPAN 2D	Okushiri ridge	Compression
"	JAPAN 3	Yamato basin	Hydrothermal
"	JAPAN 4A	Yamato rise	Early rifting
"	JAPAN 4B	Kita-Yamato trough	Early rifting
Kagami/Taira	NAN 1	Nankai trough	High pore pressure
"	NAN 2	Nankai trough	First thrust sheet
"	NAN 3A	Nankai trough	Duplex structures
"	NAN 3B	Nankai trough	Duplex structures
"	NAN 4A	Nankai trough	Slope basin history
"	NAN 4B	Nankai trough	Slope basin history
Taylor	BON 1	Bonin trench	Reference site
"	BON 2,3	Bonin trench slope	Serpentine diapirs
"	BON 4,5AB,6AB	Bonin forearc	Forearc basin transect
"	BON 7,8	Bonin backarc	Nascent rifting
"	BON 9	Bonin backarc	Older rift history
Seno et al.	KUR 1-?	Kurile backarc	Eur-Nam convergence
Okada	IZU B1	Ab. plain E. of Bonins	Bottom water & tectonics
"	IZU B2	Osagawara forearc	Inner trench history
"	IZU B3	Osagawara forearc	Forearc sed. history
"	IZU B4	Osagawara backarc basins	Tectonic history, SOH
"	IZU B5	E. Shikoku basin	Collisions, bottom curr.
"	IZU B7	Plain S. of Zenisu R.	Intraplate thrusting
"	IZU B8	Nankai Trough	Intraplate thrusting
Kagami	OKI 1	Okinawa Trough	Rifting
Fryer	MARIA 1-?	Mariana backarc	Cross arc volcanoes

//

South East Pacific Ocean Transect

At least three sites should be continually H P C cored along a North-South transect that crosses the Antarctic Polar Front in the Southeast Pacific Ocean.

Table 1 shows location of Lamont piston cores with sedimentation rates and age of ocean crust.

The piston cores contain both Radiolaria and diatoms with discontinuous preservation of foraminifera and coccoliths. This traverse would monitor oceanographic and climatic conditions of the Western entrance to the Drake Passage.

The faunas and floras of this region can be compared with Atlantic and Indian Ocean assemblages of the mid to late Tertiary that can be used to document the initiation of circum-Antarctic circulation.

Considering the emphasis on Antarctic drilling that will be conducted in the Atlantic and Indian Ocean sectors, it would be a shame to miss the opportunity to establish this important Pacific reference traverse.

Table 1

Lat.	Long.	Depth(m)	Acc. Rate (m/100 y)	
53°04S	78°57'W	4111	4	Oligocene
54°33'S	77°51'W	3928	>3	Eocene
56°00'S	77°17'W	4296	?	Eocene
58°00S	77°00'W	4400	?	Eocene

JOIDES LITHOSPHERE PANEL MEETING

November 6-8, 1984

at Rosenstiel School of Marine and Atmospheric Sciences

Miami, Florida

SUMMARY

1. Drilling Schedule: unanimous and very strong criticism of the schedule as set in Hawaii. Neglect of 504B is unacceptable, only two legs attaching primary lithosphere objectives in the first 4-5 years constitutes an unbalanced drilling program. Panel strongly recommends adoption of EPR and 504B as the two objectives to fill the three Legs 111-113.

2. Bare Rock Drilling: development is on schedule. Long-term, ODP needs real time drill pipe TV capability; for 106 post-emplacement conventional photographic coverage is required as a minimum.

3. MARK Drilling: very successful site survey at MARK area though some worries concerning complexity of chosen ridge segment. Request prompt appointment of 106-110 co-chiefs so they can be involved in remaining planning. Logging 395 should be included as part of 110. Kane Fracture Zone drilling should be back-up on 106.

4. Downhole Measurements: minimum requirements for EPR leg (that do not exist) are i) temperature <400°C, ii) flow <400°C, iii) water sampling <400°C and iv.) side wall coring. Long-term measurements should be vertical array of flow and temperature sensors recording for >6 months down sealed hole. Wireline re-entry is needed. Major problem is how any of these measurements are going to be made. Community interest must be stimulated and coordinated somehow.

5. EPR Drilling: strong endorsement of hydrothermal part of Francheteau proposal.

6. Indian Ocean Drilling: strong endorsement of coordinated and coherent Red Sea program (Working Group should be established); concentrated effort on a single hot spot trace; and the cold spot trace. Crozet Basin seismometer emplacement and Dick fracture zone proposals also strongly supported.

7. 504B: panel will submit proposal for deepening 504B.

1. PCOM REPORT

Jose Honnorez reported on the PCOM meeting held in Hawaii on the 25th-27th September.

a) Drilling schedule: PCOM determined that the three vacant legs (111-113) in the first two years of drilling before the Weddell Sea leg be the following: East-Pacific Rise, Peru Margin and Chile Triple Junction. The alternates, in order of priority, were stated as Yucatan, NW Africa (Mesozoic) and 504B. There was unanimous agreement from the panel that this plan was unacceptable. Criticisms, expressed in the strongest terms, were focussed in three areas (with no particular prioritization):

i) The neglect of 504B: this hole has revolutionized our knowledge of the structure and chemistry of oceanic crust. Months of drilling have been invested there and it provides the best opportunity we have for answering fundamental questions concerning the formation and alteration of the dike sequence (along with natural impact of this upon ophiolite interpretations) as well as the glorious goal of eventually reaching the gabbros. At our last meeting we recommended that certainly one and preferably two legs be spent drilling this hole: as it has now been relegated to a third priority alternate site it seems probable that no progress will be made for the next five years on the hole likely to provide the single greatest advance in our understanding of crustal structure and evolution in more than a decade. The Panel requests PCOM to review the drilling schedule most carefully and to reinstate the deepening of 504B as a primary objective during the first two years of ODP.

ii) The neglect of lithosphere objectives during the first two years of drilling: in the schedule as of the September PCOM only three of the first fourteen legs have primary lithosphere objectives (MARK II, EPR, 0.5 on 102 (417-418 logging), 0.5 on MARK I (i.e. half engineering)). Although important Lithosphere objectives exist in the Indian Ocean (see later in these minutes) they are not considered to be our first-order priorities (LITHP recommended return to Pacific following Weddell). Thus, the only major new efforts at the first-order Lithosphere objectives (creation of oceanic crust) during the first 4-5 years of ODP will be one leg on the MAR and one leg on the EPR. In the Panel's judgement this does not constitute a balanced drilling program.

iii) The neglect of the 'spirit' of COSOD: i.e. the conception held by many that the strategy of ODP would differ significantly from that of DSDP in that it would consist primarily of focussed, process-oriented drilling.

The Panel reiterates its request for Legs 111-113 to be devoted to EPR and 504B drilling in the manner described in our June minutes.

b) No action was taken by PCOM on our request for an EPR working group.

2. TAMU REPORT: LOU GARRISON

a) SEDCO has the contract for the guide base design, which should be completed in time for presentation at the January PCOM: guide base development is on schedule.

b) Precise site location: TAMU has purchased a 675 kHz Mesotech Model 671 drill pipe sonar with the intention of using it as the primary means for precise guide base location determination i.e. as the means for detecting and avoiding fissures and/or unacceptably large seafloor slopes. A strong panel consensus was that this alone was insufficient, especially for the early attempts at bare rock drilling, where if failure or problems were experienced it would be essential to have unambiguous (i.e. not dependent upon subjective interpretation of sonar images) knowledge of detailed seafloor morphology. Strong, long-term recommendation is for TAMU to acquire real-time, down-pipe TV monitoring capability ($150-250K), but given funds are not available for this in time for 106 then some alternative (less costly) method for obtaining optical images must be sought. Two possibilities were discussed:

i) Pre-emplacement wireline ANGUS-type camera survey by drill ship in its own acoustic nav net thus allowing co-chiefs to pick guide base location (following processing of film) accurate to a few meters: rejected due to 'waste' of ~2 days of drill ship time, although some strong support was expressed for this option.

ii) Some kind of guide base or drill pipe camera that would provide photos after the fact so at least if difficulties were encountered it could be determined whether or not morphology was the cause. The panel strongly recommends this as an essential minimum.

In addition the Panel recommends attempts at 'ground truthing' the sonar with photos perhaps during MAR crossing on 103 or 105. For the long-term, however, the Panel requests that PCOM instructs TAMU to acquire an effective real-time drill pipe video capability. The Panel recognizes that the spud-in capability is only one part of the zero-age drilling problem: the other and perhaps larger problem is rubble drilling. Again, the Panel requests that TAMU investigate ways of overcoming this problem.

3. MARK SITE SURVEY REPORT: R. DETRICK

Bob Detrick presented the results of the extremely successful SEABEAM cruise on R/V ROBERT D. CONRAD to the MARK area. Essentially continuous coverage was obtained over the whole of the Kane transform and a >100 km length of the southern ridge segment. The Site Survey team's preliminary interpretation of the data was that the transform exhibited all the normal classical characteristics of fracture zone morphology; however, the southern ridge segment appeared complex and anomalous: specifically its lack of a definable neovolcanic zone e.g. linear string of volcanoes as in FAMOUS and secondly, because of termination of western crestal mountains 30-40 km south of the fracture zone. Purdy presented new results of refraction experiment that suggested this coincided with a dramatic thinning of the crust.

The discussion focussed on recommendations to the Site Survey Team concerning the January SEAMARC I cruise on C.S.S. HUDSON. The plan as presented by Detrick was generally approved with the following three modifications: additional coverage north of the MAR-KFZ intersection to study possible young volcanic features; at least one additional E-W traverse of the ridge within 30-40 km of the intersection; and coverage of small selected areas within the median valley in high-frequency, high-resolution mode. The

Panel endorsed the Site Survey Team's existing plans for ground truthing the SEAMARC in one or two areas using the Ryan 'Cheap Tow' camera system and for the acoustic beacon deployment. TAMU was urged to organize delivery of beacons, complete with 'long-life' mooring hardware, to Detrick in a timely manner.

4. MARK DRILLING: LEGS 106 AND 110

a) The Site Survey results were discussed with some concerns being voiced concerning the lack of an identifiable neovolcanic zone and the major along-axis changes in ridge morphology. The former was not a concern as it is not clear that on slow-spreading ridges such a concept is valid; the latter, however, especially with regard to study of along-axis geochemical changes north and south of the Kane could be a problem. A possible interpretation presented by Purdy is that the 30-40 km ridge segment immediately south of Kane suffered a recent ridge jump of 10-20 km to the east. Consideration was given to the diversion of some of the SEAMARC coverage to the ridge segment north of Kane but this was rejected in favor of a concentrated effort as planned with the aim of elucidating the recent volcanic history on the ridge south of the Kane.

b) The logging of 395: discussion was held concerning when this should be carried out to give maximum manning efficiency. Suggestion was that Kane fracture zone drilling should be the back-up program on 106 (if guide base testing proves disastrous): minimum logging team would then be required on this leg. Leg 110 would then carry a full logging and downhole measurements team that would log and carry out suite of downhole measurements in <u>both</u> 395 and the deepened MARK hole.

c) Co-chiefs for 106 and 110: the Panel urges PCOM to treat these two legs as one continuing program and encourages communication and overlap between the participants. Panel requests PCOM and TAMU to appoint co-chiefs for 106 and 110 in sufficient time so they can attend our February meeting. Suggestions for co-chiefs combining qualities of previous drilling experience, site survey participation and, on 110, downhole measurements expertise are as follows:

106: Honnorez and Ryan; alternates Juteau and Detrick-Fox

110: Bryan and Becker-Hyndman; alternates Langmuir and Von Herzen-Langseth.

5. DOWNHOLE MEASUREMENTS

The plan made at our June Lithosphere Panel meeting was that this should be a full joint meeting with DMP so that the important and immediate problems of EPR hydrothermal planning, and initiatives for long-term monitoring and advanced downhole measurements could be considered. Under the circumstances only limited progress could be made on these issues.

a) Becker reviewed existing capabilities in both Schlumberger logging and in the downhole measurements especially with regard to temperature limitations.

i) Temperature measuring capabilities: Schlumberger, <150°C; Barnes-Uyeda, <100°C; Von Herzen, <70°C.

ii) Flow meter, water sampling and temperature: Becker recently funded by NSF: capable of <200°C and 100m/hr.

iii) Large-scale resistivity: Becker existing gear <100°C.

iv) TAM Packer: Becker <120°C (need was expressed for water sampling along wih this).

v) 3-component seismometer: Stephen (WHOI) <150°C (maybe better)

vi) 3-component seismometer with temperature and tilt: Duennebier (HIG) <120°C

vii) Magnetometers: U.S.G.S. <100°C FRG?

viii) Accurate depth measurements: what is existing capability and how good do we need it?

a) A discussion ensued regarding predicted requirements. This focussed specifically on the EPR leg, as a more general discussion was held at our previous meeting. Consensus was to focus on emphasizing a modest minimum capability and then set about devising ways of obtaining it. Four primary capabilities were defined that were judged to be essential:

i) Temperature <400°C, absolute to ±1-2°, relative ±0.2°C

ii) Flow <400°C: limits of flow rates to be measured requires careful study.

iii) Sealed small volume formation water sampling <400°C.

iv) Side wall coring (as insurance against poor recovery).

Future goals that are probably fantasy right now should be high-temperature conductivity-salinity and neutron activation remote sensing geochemistry.

c) Long-term measurements: again very strong support was demonstrated for simultaneous long-term (several years) measurement of a wide range of parameters: temperature, flow, seismic activity, detailed geodetic measurements, tiltmeters, strain, and periodic small-volume water sampling. However, a realistic goal for this first EPR leg was stated as the emplacement of a vertical array of temperature and flow meters downhole capable of recording for more than six months. This requires the capability to seal the hole upon departure of the drill ship. Is this feasible? The hope was expressed that an OBS array could be deployed around the drill site for a comparable period of time.

As in previous meetings the panel reaffirmed the importance of wireline re-entry development.

d) Dick Traeger (Los Alamos) provided a detailed review of high-temperature capabilities in continental drilling. A vast range of tools with exactly the capabilities needed by JOIDES are becoming available. In particular, a set of 400°C tools for temperature, pressure, fluid sampling and flow are being assembled for the Saltons Sea drilling. There is a small chance they could be borrowed for the EPR leg. This needs to be followed up: but by whom?

e) The key issue, however, is how is any of this going to actually be achieved? We can recommend objectives to DMP but what can they do? The system within which we operate is designed only to respond to proposals. Much discussion ensued; the only conclusion of which was to attempt to stimulate proposals by writing a brief article for EOS describing what opportunities might exist if the EPR is successfully drilled as well as targeting specific interested individuals with personal letters, Purdy-Salisbury-Becker will do this. This problem needs PCOM's attention.

6. EPR DRILLING

The Francheteau proposal was reviewed in some detail. This proposal consisted of three components i) establishing a cluster of holes in a hydrothermally active area, ii) a transect across the rise crest, and iii) deep structure of OSC's. The panel strongly endorses the first of these objectives. Three issues require further detailed discussion: the precise justification for the configuration of the holes to study the hydrothermal vents; the exact nature of the downhole measurements; and the regional context of the 13°N area compared with MARK (e.g. proximity to large offset fracture zone). The Panel requests that Francheteau attend the next meeting so these matters can be discussed and a final detailed plan established.

7. INDIAN OCEAN DRILLING

We began the review of these propoals by asking what the Indian Ocean had to offer in terms of lithosphere objectives:

i) Aseismic Ridges and Oceanic Plateaus

ii) Hotspots

iii) Residual depth anomalies and ultramafic variability

* iv) Major change in spreading direction

v) Triple Junction

vi) Australian-Antarctic Discordance

* vii) Intermediate spreading rate ridge

viii) Rifting - young ocean

* ix) Fossil spreading ridge.

Those marked by an asterisk were discounted because comparable or better examples existed in more accessible places. The proposals were reviewed with these objectives in mind.

Two grading schemes applied to proposals, A, B and C for non-lithosphere primary sites and 1, 2 and 3 for primary lithosphere sites. Of course, we rate all the latter sites higher than the former. A summary of the results is given below.

Site	Location	Proponent	Grade
L1	Red Sea	Bonatti Ross	1
L2	Carlsberg Ridge	Natland	2
L3	Chagos/Mascarene	Duncan	2
L4	SW Indian Ridge	Dick	1,2,3
L5	SE Indian Ridge	Duncan	2
L6	SE Indian Ridge	Langmuir	1
L7	Crozet	Brocher	1
S9	SE Indian Ridge	Owen and Rea	B+
T5	NW Indian Ocean	Heirtzler	C
T6	Central Indian Ocean	Weissel et al.	N
T7	90°E Ridge	Curray and Duncan	A
T10	S. Australian Margin	Cande and Mutter	C
T11	Broken Ridge	Curray	C
T12	SE Indian Ridge	Forsyth	I
Southern Ocean	Wilkesland Adelie	Wannesson	C
Informal Pre-submission	Kerguelen	Schlich et al and Ciesielski	A

N = no discernible lithosphere objective, therefore ungraded.

I = insufficient information upon which a responsible review could be made

Some notes on the results of these reviews:

L1 Very strong general support for Red Sea drilling. Bonatti-Ross proposal combines several important problems: oceanization of continental crust; geochemical evolution as ridge propagated to north; mantle peridotite drilling; several hydrothermal problems. Much detailed criticism of this proposal was presented, but it seems several other proposals are imminent and some unified and practical plan should be put together for our review. Panel supports formation of Red Sea working group with strong Lithosphere representation. Suggested members are Bonatti, Emmerman, Hawkins, Juteau.

L2: Very good problem but why in Indian Oceanµ Better done elsewhere.

L3: Geochemical variation along a hot spot track better studied in concentrated manner along a single track e.g. 90°E Ridge. Study of Seychelles continental fragments better done with seismics than drilling.

L4: Very strong endorsement for fracture zone drilling in general (Grade 1), less of an endorsement for drilling those fracture zones specifically (Grade 2) because of inaccessibility, and much criticism of peridotite-upper mantle stratigraphy objective (Grade 3) because i) fracture zones mess things up, ii) better done on land exposures, iii) looking at a few hundred meters is simply scraping the surface and not getting at the big problems.

L5: Rather than try to sample every hot spot trace, do a good job on one.

L6: Proposed by a Panel member. Unique feature, fundamental problem of mantle heterogeneity: very strong support.

L7: Unique opportunity, first class objectives, very strong support given adequate progress made on solving the technical problems. Reservations expressed concerning misrepresentation of this project to legitimize nuclear weapons testing. Specifically not supported by Professor Banno.

8. OVERVIEW OF LITHOSPHERE PANEL PRIORITIES IN THE INDIAN OCEAN

The three major targets are fundamental processes of which there are particularly good, if not unique, examples in the Indian Ocean. In no particular order of priority they are i) Red Sea, ii) 90°E Ridge, and iii) Cold Spot Trace. The Red Sea needs a working group to generate a coherent unified plan. The Indian Ocean has many hotspot traces and, not surprisingly, the proposals we reviewed, in total, wanted to sample all of them. Geochemical variations along a hotspot trace is a complex problem: rather than scatter our meager resources over several of them we recommend a concentrated and detailed effort on one of them: for this we recommend the 90°E ridge but this choice was made without adequate comparative data. The Cold Spot objective is simply an opportunity to sample a unique phenomenon that may elucidate mantle heterogeneity problems.

In addition, the Dick fracture zone proposal and the Brocher Crozet Basin objectives were considered strong, high-priority efforts.

9. 504B PROPOSAL

The Panel considered the deepening of 504B to be an essential part of the first two years of drilling: the community has 'taken it for granted' that this would occur and thus the proposal pressure that the system needs to function has not been generated. To overcome this difficulty the Panel decided itself to submit a 504B proposal and plans were laid to achieve this before the January PCOM meeting. An advance copy of a Mottl proposal for single-bit holes around 504B was reviewed and considered an ideal back-up program to the above effort.

10. WESTERN PACIFIC DRILLING

A discussion led by Jim Hawkins was held on the back-arc spreading objectives in this region. Jim was encouraged in his plans to hold a workshop and we planned to define specific site survey objectives at our spring meeting. John Sinton and Margaret Leinen were requested to provide a very brief review of more general Pacific objectives for our next meeting.

11. NEXT MEETING

1. Hawaii Volcano Observatory, 26-27 February. Guests: 106-110 Co-Chiefs and Francheteau (Postscript: venue not approved by JOIDES office - now set at DSDP, Scripps, same date).

2. Strasbourg, 23-24 May (Postscript: not confirmed but seems possible).

Attendees

G.M. Purdy

J. Delaney

C. Langmuir

M. Leinen

K. Bostrom

S. Banno (representing Ozima)

T. Juteau

R. Emmerman

J. Sinton

J. Sclater

J. Hawkins

P. Robinson

Absent

K. MacDonald

A. Saunders

Liaisons

J. Honnorez (PCOM)

L. Garrison (TAMU)

A. Adamson (TAMU)

Visitors

G. Brass (NSF)

R. Traeger (DMP)

F. Duennebier (DMP)

R. Detrick (URI: MARK)

K. Becker (DMP, Site Survey Team)

PANEL MEMBERSHIP AND PCOM LIAISON

1. Panel Membership:

1.1 The ODP Panels have now been in operation for two years and it is appropriate that their membership be reviewed at this time. It is also necessary to review the membership in the light of international participation in the Program and the effect of any changes in international membership which has a consequential effect on the panels. It will be seen from Annex 1 that Canada, the ESF and the U.K. account for 48 places out of 189 and include 4 panel and working group chairmanships. Any change in representation from these partners will represent a major disruption in panel membership and scientific balance. It should be noted that PCOM has the discretion to invite key scientists from all over the world on an *ad hominem* basis.

1.2 The Panel membership is generally based on one representative from each of the non-U.S. partners plus U.S. membership from both JOIDES and non-JOIDES institutions to arrive at a scientific balance. In addition, certain panel members are invited to serve on more than one panel in order to create an effective liaison between panels. Panel membership is given in Annex 2.

1.3 The Planning Committee is asked to review its panel membership bearing in mind the consequences of any changes in international participation, the need to ensure a scientific balance to meet the panels' mandates (Annex 3) and a fair representation from U.S. institutions and the need for inter-panel liaison. Suggestions for membership changes have been made in panel reports and directly by PCOM members and others and these should be considered at this point.

2. Working groups:

2.1 Three working groups have been established to assist the Atlantic Regional Panel in its work, i.e. the Caribbean, Mediterranean and Norwegian Seas. The scientific complexity of the Caribbean and Mediterranean amply justified the establishment of working groups whilst the Norwegian Sea Working Group was a political necessity. With the establishment of the drilling programme in the Atlantic until mid-1986, the need for the working groups no longer exists and the Planning Committee is asked to formally disband these groups and thank their members.

2.2 The Planning Committee should consider whether there is any need for the creation of new working groups. Proposals have been received to establish working groups for the Red Sea and the Sunda/Banda Arcs and the PCOM is asked to consider these requests and the extent to which their needs may be met by correspondence, inter-panel liaison and through the JOIDES Office itself.

3. PCOM Liaison:

The members of PCOM serve on panels in a liaison capacity to ensure that panels are aware of PCOM thinking and to relay requests from the panels directly to the PCOM. The current status of PCOM liaison is given in Annex 4. The Planning Committee is asked to review its present liaison assignments to ensure that all panels are adequately covered.

Annex 1

PANEL	Canada	FRG	France	Japan	U.K.	ESF	Others	RSMAS	OSU	HIG	URI	LDGO	UW	UTA	TAMU	SIO	WHOI	non-U.S. JOIDES	TOTAL	non-U.S. JOIDES	U.S. JOIDES	U.S. non-JOIDES	Others
LITH	1	1	1	1	1	1				1	1	1*	1	1		1	1	1	14	6	7	1	
TEC	1	1	1	1	1*	1						1	1			1	1	3	13	6	4	3	
SOHP	1	1	1	1	1	1			1		1*	1				1		4	14	6	4	4	
DMP	1	1	1	1	1	1				1		1***				2*		6	16	6	4	6	
PPSP	1	1		1		1												4*	8	4		4	
SSP	1	1	1	1	1*	1										1			7	6	1		
IHP	2**	1	1		1	1									1***			4*	10	6	1	4	
ARP	2+	1	2***			1		1				1		1			1	3	13	6	4	3	
CEPAC	1	1	2+	1	1	1				1			2	1*		1		2	14	7	5	2	
IOP	1	1	1		2+	1	1***					1		1		2*		1	12	6	4	1	1
SOP	1	1	1	1	1	1			1		1*	2					1	3	14	6	5	3	
WPAC	1	1	2**	2+	1	1				1	1	1				1		2*	14	8	4	2	
TEDCOM	1	1			1*													6	9	3		6	
CAR-WG		1	2		1	1	1				1	1						4*	12	5	2	4	1
MED-WG		2	2*		2	2						1						1	10	8	1	1	
NOR-WG		2	1		1	2*						1						1	8	6	1	1	
TOTAL	15	18	19	10	16	17	2	1	2	4	5	12	4	3	1	10	4	46	189	95	47	45	2

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* Includes Chairman ** Includes Member-at-large *** Contractor liaison + Includes liaison with other panels (only noted for non-U.S. members)

ODP PANEL/WORKING GROUP MEMBERSHIP

(for use at Jan. '85 PCOM meeting/Austin)

LITHOSPHERE PANEL

1. Purdy, M., Chairman (WHOI)
2. Bostrom, K. (ESF-Sweden)
   Alt.: Piccardo, G. (Italy)
3. Delaney, J. (UW)
4. Emmermann, R. (FRG)
5. Hawkins, J. (SIO)
6. Juteau, T. (France)
7. Langmuir, C. (LDGO)
8. Leinen, M. (URI) + WPAC
9. MacDonald, K. (UCSB)
10. Ozima, M. (Japan)
11. Robinson, P. (Canada) + ARP
12. Saunders, A. (UK)
13. Sclater, J. (UT) + IOP
14. Sinton, J. (HIG) + CEPAC

TECTONICS PANEL

1. Leggett, J., Chairman (UK) + IOP
2. ~~Bally, A. (Rice) + ARP~~
3. Becker, K. (SIO)
4. Blanchet, R. (France)
5. ~~Bouma, A. (Gulf)~~
6. Cowan, D. (UW) + CEPAC
7. Ewing, J. (WHOI)
8. Hinz, K. (FRG)
9. Marsh, B. (Johns-Hopkins)
10. Nakamura, K. (Japan) + WPAC
11. Riddihough, R. (Canada)
12. Van Hinte, J. (ESF-Neth.)
    Alt: Stephansson, O. (Swe.)
13. Weissel, J. (LDGO) + SOP
14. to be announced (hard rock petrologist)

SEDIMENTS & OCEAN HISTORY PANEL

1. Arthur, M., Chairman (URI)
2. D'Argenio,, B. (ESF-Italy)
   Alt.: Vorren, T. (Norway)
3. Embley, R. (NOAA-Newport, OR)
4. Hay, W. (U. Colo.)
5. Lancelot, Y. (France)
6. Mayer, L. (Canada)
   Alt.: Moodie, P. (Canada)
7. Meyers, P. (U. Mich.)
8. Ruddiman, W. (LDGO)
9. Sarg, R. (Exxon) + CWG
10. Sarnthein, M. (FRG)
11. Shackleton, N. (UK)
12. Suess, E. (OSU) + SOP
13. Takayanagi, Y. (Japan)
14. Tauxe, L. (SIO) + IOP

DOWNHOLE MEASUREMENTS PANEL

1. Salisbury, M., Chairman (SIO)
2. Anderson, R. (LDGO Logging liaison)
3. Becker, K. (SIO) + TECP
4. Bell, S. (Canada)
5. Duennebier, F. (HIG)
6. Georgi, D. (Exxon)
7. Howell, E. (Arco)
8. Jageler, A. (Amoco)
9. Jung, R. (FRG)
10. Kinoshita, H. (Japan)
11. Olhoeft, G. (U.S.G.S.)
12. Pascal, G. (France)
13. Smits, L. (ESF-Netherlands)
    Alt.: Hovem, J. (Norway)
14. Timur, T. (Chevron)
15. Traeger, R. (Sandia Labs)
16. Worthington, P. (UK)

INFORMATION HANDLING PANEL

1. Appleman, D., Chairman (Smithsonian)
2. Gibson, I. (Canada)
3. Hathaway, J. (WHOI)
4. Jones, M. (UK)
5. Latremouille, M. (Canada)
6. Loeblich, A. (UCLA)
7. Loughridge, M.(NOAA-Boulder)
8. Melguen, M. (France)
9. Merrill, R. (~~TAMU~~)
10. Nowak, J. (FRG)
11. Saunders, J. (ESF-Switzerl.)

POLLUTION PREVENTION & SAFETY PANEL

1. Claypool, G., Chairman (U.S.G.S.)
2. Ball, M. (U.S.G.S.)
3. Byramjee, R. (France)
4. Campbell, G. (Canada)
5. Damiani, E. (ESF-Italy)
   Alt.: Ziegler, P. (Netherlands)
6. Green, A. (Exxon)
7. Hotz, E. (FRG)
8. MacKenzie, D. (Marathon)
9. to be announced (UK)
10. to be announced (Japan)
11. to be announced SSP liaison

SITE SURVEY PANEL

1. Jones, J., Chairman (UK)
2. Mauffret, A. (France)
   Alt.: Renard, V. (France)
3. Nagumo, S. (Japan)
   Alt.: to be announced
4. Orcutt, J. (SIO)
5. Peirce, J. (Canada)
   Alt.: Louden, K. (Canada)
6. Sartori, R. (ESF-Italy)
   Alt.: Haugland, K. (Norway)
7. Weigel, W. (FRG)
   Alt.: Wong, H. (FRG)

ATLANTIC REGIONAL PANEL

1. Montadert, L., Chairman (France)
2. Austin, J. (UT)
3. Bally, A. (Rice)
4. Eldholm, O. (ESF-Norway) + NWG
   Alt.: Schuttenhelm, R. (Neth.)
5. Jansa, L. (Canada)
6. Klitgord, K. (U.S.G.S.)
7. Mascle, J. (member-at-large, France) + MWG
8. Mutter, J. (LDGO) + NWG
9. Robinson, P. (Canada) + LITH
10. Schlager, W. (UM)
11. Speed, R. (Northwestern) + CWG
12. Thiede, J. (FRG)
13. Tucholke, B. (WHOI)
14. ~~to be announced~~ (UK)
15. to be announced SOHP liaison

CENTRAL & EASTERN PACIFIC REGIONAL PANEL

1. Shipley, T., Chairman (UT)
2. Chase, R. (Canada)
   Alt.: Davis, E. (Canada)
3. Cowan, D. (UW) + TECP
4. Francheteau, J. (France)
   Alt.: Bourgois, J. (France)
5. Jenkyns, H. (UK)
6. Johnson, P. (UW)
7. Lancelot, Y. (France) + SOHP
8. Mammerickx, J. (SIO)
9. Okada, H. (Japan)
10. Olausson E. (ESF-Sweden)
    Alt.: Kelts, K. (Switz.)
11. Rea, D. (U. Mich.)
12. Scholl, D. (U.S.G.S.)
13. Sinton, J. (HIG) + LITH
14. von Stackelberg, U. (FRG)

INDIAN OCEAN PANEL

1. Curray, J., Chairman (SIO)
2. Cochran, J. (LDGO)
3. Falvey, D. (member-at-large, Australia)
4. Gradstein, F. (Canada)
5. Herb, R. (ESF-Switzerland)
6. Leggett, J. (Inter-Panel liaison, UK) + TECP
7. Prell, W. (Brown)
8. Schlich, R. (France)
9. Sclater, J. (UT) + LITH
10. Tauxe, L. (SIO) + SOHP
11. White, R. (UK)
12. von Rad, U. (FRG)
13. to be announced (Japan)

SOUTHERN OCEANS REGIONAL PANEL

1. Kennett, J., Chairman (URI)
2. Anderson, J. (Rice)
3. Barker, P. (UK)
4. Bornhold, B. (Canada)
5. Ciesielski, P. (U. Fla.)
6. Dick, H. (WHOI)
7. Elliot, D. (Ohio S.U.)
8. Fuetterer, D. (FRG)
9. Kaminuma, K. (Japan)
10. Kristoffersen, Y. (ESF-Nor.)
    Alt.: Eisma, D. (Neth.)
11. LaBrecque, J. (LDGO)
12. Needham, D. (France)
13. Suess, E. (OSU) + SOHP
14. Weissel, J. (LDGO) + TECP

WESTERN PACIFIC REGIONAL PANEL

1. Silver, E., Chairman (UCSC)
2. Audley-Charles, M. (UK)
3. Hesse, R. (Canada)
4. Ingle, J. (Stanford)
5. Jongsma, D. (ESF-Netherlands)
   Alt.: Premoli-Silva, I. (Italy)
6. Kagami, H. (Japan)
7. Langseth, M. (LDGO)
8. Leinen, M. (URI)
9. Nakamura, K. (Japan) + TECP
10. Natland, J. (SIO)
11. Rangin, C. (France)
12. Recy, J. (member-at-large, France)
13. Schluter, H. (FRG)
14. Taylor, B. (HIG)

TECHNOLOGY AND ENGINEERING DEVELOPMENT COMMITTEE

1. Francis, T., Chairman (UK)
2. Bingman, W. (Shell)
3. Dennis, B. (Los Alamos Nat'l. Labs.)
4. Gardner, T. (Exxon)
5. Guinard, J-P. (France)
   Alt.: Delacour, M. (France)
6. Hocott, C. (UT)
7. Manchester, K. (Canada)
8. Marx, C. (FRG)
9. Newsom, M. (Sandia Nat'l. Labs.)
10. Schuh, F. (Arco)
11. Silcox, W. (Chevron)
12. to be announced (ESF)
13. to be announced (Japan)

CARIBBEAN WORKING GROUP

1. Speed, R., Chairman (Northwestern)
2. Barker, L. (Barbados)
3. Carey, S. (URI)
4. Case, J. (U.S.G.S.)
5. Hemleben, C. (FRG)
6. Ladd, J. (LDGO)
7. Martin, R. (Gulf)
8. Mascle, A. (France)
9. Montadert, L. (France) + ARP
10. Moore, J. (UCSC)
11. Premoli-Silva, I. (ESF-Italy)
12. Westbrook, G. (UK)

MEDITERRANEAN WORKING GROUP

1. Mascle, J., Chairman (France) + ARP
2. Brooks, M. (UK)
3. Cita-Sironi, M. (ESF-Italy)
4. Fabricius, F. (FRG)
5. Kastens, K. (LDGO)
6. Kelling, G. (UK)
7. Makris, J. (FRG)
8. Montadert, L. (France) + ARP
9. Thunell, R. (Univ. S.C.)
10. Zachariasse, J. (ESF-Neth.)

NORWEGIAN SEA WORKING GROUP

1. Eldholm, O., Chairman, (ESF-Nor.) + ARP
2. Hinz, K. (FRG)
3. Montadert, L. (France) + ARP
4. Mutter, J. (LDGO) + ARP
5. Ronnevik, H. (Norway)
6. Smythe, D. (UK)
7. Talwani, M. (Gulf)
8. Thiede, J. (FRG)

TERMS OF REFERENCE
Science Advisory Structure of JOIDES for the Ocean Drilling Program (ODP)

The purpose of the Terms of Reference for the ODP Science Advisory Structure of JOIDES is to formulate the most productive scientific plan for the program. Thus the SAS is open to suggestions and proposals from the entire scientific community, and its plans shall be open to continued review and revision.

1. The Science Advisory Structure of JOIDES will consist of a Planning Committee, an Technology and Engineering Development Committee, three thematic panels, five regional panels, and five service panels. Ad hoc working groups and task groups may be created by the Planning Committee as requested by the panels or by the Planning Committee itself.

2. Each committee, panel and working group will operate under a mandate, along with guidelines as to membership and frequency of meetings. Mandates, guidelines, and their amendments shall be proposed by the Planning Committee for approval by the Executive Committee.

3. Planning Committee

3.1 General Purpose. The Planning Committee recommends to the Executive Committee and to the science operator plans designated to optimize the scientific productivity and operational efficiency of the drilling program, normally by coordinating, consolidating, and setting into priority the advice received from the panels. More specifically, the Planning Committee is responsible (a) to plan the general track of the drilling vessel about 3 years in advance of drilling; (b) to foster communications among and between the general community, the panels, the science operator, and itself; (c) to solicit, monitor, and coordinate the advancement of drilling proposals; and (d) to establish a scientific drilling program by about one year in advance of drilling.

3.2 Mandate. The Planning Committee drafts the mandates of the various panels and working groups and names their members. It approves their meetings and agendas and may assign special tasks to them. The Planning Committee sponsors and convenes COSOD-type conferences about every three years. It identifies the proponents of proposals and assigns to thematic and regional panels proposals for review. It sets the scientific objectives of the proposals into final priority after they are reviewed by the Thematic Panels and Regional Panels. The Planning Committee nominates the chief scientists to the science operator. It periodically reviews this advisory structure in the light of developments in science and technology and recommends amendment of its panel structure and mandates. Much of the working of the Planning Committee will be by the commissioning of reports from the panels, the working groups, task groups and ad hoc subcommittees of its own membership, and by its chairman at the JOIDES office.

3.3 Structure. The Planning Comittee is empowered to establish an infrastructure appropriate to the definition and accomplishment of tasks described in its annual program plan as approved by the Executive Committee and the National Science Foundation. Communication with its panels is maintained by having their chairmen meet with the Committee annually, and by assigning committee members as non-voting liaison members to its panels and working groups. Where council and communication are deemed important, other individuals may be asked ad hoc to meet with the Committee or a panel.

3.4 Membership. Each member of the Executive Committee shall designate one member of the Planning Committee and an alternate to serve in the absence of the designated member. Commencing January 1, 1984, one quarter of the Planning Committee members shall rotate off the Committee annually, so that its membership is replaced every four years. Reappointment shall be made only in exceptional circumstances. All appointees to the Planning ommittee shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to the program. Balance of fields of specialization on the Planning Committee shall be maintained as far as possible, by informed consultation amongst the U.S. member institutions prior to selection of their appointees. The chief scientists of the science operations and wireline logging contractors and an appointee of the NSF are non-voting, liaison observers.

3.5 Organization. The Planning Committee meets at least three times a year, normally in January, May and September. Roberts 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 at all times constitute 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.

4. **Thematic Panels** are mainly, but not exclusively, process oriented. They are established by the Planning Committee to redefine as scientific drilling objectives scientific problems identified by COSOD (16-18 November 1981) and by the JOIDES 8-year program for drilling (April 1982). They are responsible for reviewing any other scientific objectives proposed by the pre- and post-1983 reports and white papers, the national science structures of the various non-U.S. participants, and the scientific community at large. Thematic Panels maintain a constant review of science in their theme. Thematic Panels are composed of one member from each non-U.S. participant, and a subequal number from U.S. institutions. PCOM approves the panel membership. Panelists serve for two years; the chairmen may be held for a third year. 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 meetingdates, locations and

agendas. The mandates are guidelines and do not restrict panels. Considerable overlap in thematic coverage is expected to evolve. The Planning Committee may ask Panels to take up topics not in their original mandates.

4.1.1 The Ocean Lithosphere Panel is concerned with the origin and evolution of oceanic crust, and more particularly with volcanic, metamorphic, hydrothermal and diagenetic processes occurring in the ocean crust:

(a) Processes of submarine volcanology, intrusion and plutonism; crustal construction at spreading axes; petrology, geochemistry, mineralogy, and magnetic and other physical properties of igneous and metamorphic rocks from the ocean floor, from seamounts, from oceanic plateaux, 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 hydro-thermal solutions.

(c) Processes of submarine diagenesis; geochemistry of pore waters from sediments and hard rocks; petrology, geochemistry and mineralogy of diageneti-cally altered sediments and hard rocks.

4.1.2 The Ocean Lithosphere Panel will be responsible for planning the drilling of sites concerned with these problem areas at the following levels:

(a) long-range identification of objectives and review of research proposals for future drilling operations.

(b) selection of target areas within which these objectives can be met;

(c) helping the site survey organization to plan surveys of the target areas;

(d) identification of proponents or working groups for particular target areas;

(e) selection of sites for location of drill holes within the target areas, so that objectives can be reached;

(f) advice to the Planning Committee and the project chief scientist on the selection of co-chief scientists and other scientists;

(g) encouragement of specific shore-based laboratory work on the samples recovered by drilling;

(h) advice to the project curator on the handling of recovered samples;

(i) advice to the Planning Committee and the project chief scientist on provision of equipment for use of the drilling ship and in shore laboratories run by the Science Operator;

(j) coordination of plans for down-hole experiments in projected holes.

4.1.3 In the course of the work specified in paragraph 4.1.2, the Ocean Lithosphere Panel will maintain the closest contact with the appropriate Regional Panels, in particular during planning of survey work and site selection. The OLP will participate in the formation of the Specific Working Groups with the Regional Panels and other specialists.

4.1.4 The Ocean Lithosphere Panel is responsible to the Planning Committee, and will respond directly to request from it, as well as reporting to it on a regular basis.

4.1.5 The Ocean Lithosphere Panel will act as a means of disseminating and correlating information in the appropriate problem areas by:

(a) receiving reports from co-chief scientists on the progress with shore-based research on samples;

(b) encouraging and sponsoring symposia at which the results of drilling will be discussed;

(c) publishing progress reports in the open literature to inform and encourage participation in the project;

(d) generating White Papers as requested by PCOM.

4.2 Tectonics Panel: Mandate

The Tectonics Panel is concerned with the standard history of ocean margins and plates, especially as might be studied in critical transects and along strike by coordinated geological, geophysical, and drilling programs:

a. Special emphasis is placed on the early rifting history of passive continental margins, on the dynamics of forearc evolution, and on the structural sedimentological and volcanic history of island arcs, back-arc basins, and marginal seas.

b. Additional problems under the purview of this panel include the development of continental slopes and rises; detailed histories of vertical movements at margins; thermal and mechanical evolution of passive margins; structural variability along strike; sheared margins; post-rifting tectonism of passive margins; the study of stress fields at active margins; global relations among arc systems; collision tectonics; the development of passive margins in back-arc basins; studies of transform faults at fracture zones; the origin, structure and tectonic evolution of oceanic plateaus and aseismic ridges; and the determination of plate-kinematic models.

c. Of interest to this panel as well as to other panels are the composition, structure and formation of the oceanic crust and upper mantle, tephrochronology, and the study of "global" unconformities and the synchroneity of tectonics and sea level events along margins as well as coral atolls and guyots.

4.3 Sediments and Ocean History Panel: Mandate

The Sediments and Ocean History Panel is concerned with investigations of marine stratigraphy, marine sedimentology and paleoceanography. Areas specifically include:

a. Stratigraphy including the subdivision, correlation and dating of marine sediments. Examples are: refinement of magnetostratigraphy, radiometric dating, chemostratigraphy, biostratigraphy, tephrochonology, and seismic stratigraphy.

b. Processes of formation of marine sediments, diagenesis, organic and inorganic sedimentary geochemistry and global mass balancing of oceanic sediments.

c. Long-term history and driving mechanisms of the oceanic atmosphere and biosphere. Central to this theme are relations among plate tectonics and ocean paleocirculation, sedimentation patterns, global paleoclimates, glacial and ice-sheet evolution, sea level change and its effects on marine sedimentation and evolution of marine life.

5. Regional Panels: Mandate

The Regional panels are responsible for:

a. Helping Thematic Panels to translate their broad thematic programs into concrete regional drilling plans.

b. Identifying regional problems not covered by Thematic Panels

c. Recommending integrated drilling programs in their regions.

d. Monitoring the status of knowledge on regional geology and geophysics.

e. Advising on regional and site surveys needed for future drilling.

PCOM chooses panel members for their expertise and experience in a region. Each non-U.S. JOIDES member can nominate one member to each Regional Panel, and PCOM will name a subequal number from the U.S. and from non-member countries. Members normally serve for two years; the chairman may be held for a third year.

Regional panels meet at the request of PCOM as frequently as required by ship scheduling and routing.

PCOM will establish liaison between Regional and Thematic Panels by overlapping memberships.

The map shows the general areas of prime responsibilty for the Regional Panels, but the boundaries are not fixed limits: Panels should view their responsibility as including all areas relevant to their regional problems. The Regional Panels are:

a. Atlantic Ocean
b. Central and Eastern Pacific Ocean
c. Western Pacific Ocean
d. Indian Ocean
e. Southern Oceans

6. **The Ad Hoc Working Groups** have the responsibility of integrating the drilling targets selected by PCOM upon recommendations of the Thematic and Regional Panels into an efficient drilling program in each of the target areas. The Ad Hoc Working Groups must consider the merits of the drilling targets with respect to both geophysical processes and regional geology. The Ad Hoc Working Groups are named by PCOM which also drafts their mandate and specifies their term. The Ad Hoc Working Groups are comprized of 1/3 members of the Thematic Panels, 1/3 members of the Regional Panels, and 1/3 outside members (not members of any Thematic or Regional Panel). The Ad Hoc Working Groups' members will receive their specific assignment from the Planning Committee (chairman) as a series of drilling targets. The Working Group chairmen will organize the preparation of their groups' work by correspondence. The second phase will be carried out during a single meeting during which the Working Group members will discuss the drilling plan and draft their preliminary report. The final report will be drafted by the chairman of the Ad Hoc Working Group and mailed to the chairman of PCOM. The mandate and term of each Ad Hoc Working Group is limited to fulfilling its specific mission. After finalization of drilling plans for that target area, the Ad Hoc Working Group will disband.

7. **The Technology and Engineering Development Committee** is responsible for ensuring that the proper drilling tools/techniques are available to meet the objectives of targets to be drilled according to the planned Schedule. The TEDC will identify within a proper time frame the new drilling tools/techniques to be developed, help JOI/Science Operator write RFPs for engineering firms leading to the development of the tools/techniques, and will monitor the progress of their development. The members of the TEDC are engineers nominated by PCOM. The first mission of the TEDC will be to collaborate (through an interface Working Group) with the ship design committee and with the Downhole Measurements Panel.

8. **The Service Panels** provide advice, services and products to the JOIDES Advisory Structure, to the Science Operator, and to the various entities responsible for the processing, curation and distribution of samples, data and information (including publications) to the scientific community. The Service Panels, beyond their help to the JOIDES Advisory Structure, are not directly involved with selection of drilling targets or definition of cruise objectives. Service Panels have specific mandates. Service Panels meet at least once a year or as requested by PCOM at the Science Operator headquarters.

8.1 **Site Survey Panel:** Mandate---.

8.2 **Pollution Prevention and Safety Panel:** Mandate---.

8.3 **Information Handling Panel:** Mandate---.

8.4 **Downhole Measurements Panel:**

(a) **General Purpose.** To determine the physical state, chemical composition, and dynamic processes in ocean crust and its sediment cover from downhole measurements and experiments. Areas of responsibility include: routine logging (including industry standard and special tools widely used in ODP); routine data processing and interpretation; new and adapted logging tools, techniques, and data processing; downhole experiments and data acquisition (including downhole recording).

(b) **Mandate.**

1. Reports to and advises PCOM on logging and downhole measurement programs of ODP.

2. Advise on, and recommend to the ODP wireline service operator, the required logging facilities.

3. Advise the ODP Science Operator on the scientific desirability, technical feasibility, scheduling and operational requirements of proposed programs.

4. Interface and coordinate with WHOI (U.S.) and other national downhole instrumentation development groups.

5. Solicit and expedite new logging capabilities and experiments.

6. Evaluate new technology and recommend future measurement directions.

(c) **Structure.** Membership consists of well-balanced representation approximately half logging and other downhole technologists and half with scientific backgrounds and interests. The Wireline Services Operator and Science Operator of ODP shall each be represented by non-voting members on the Panel.

9. **Task Groups.** The Planning Committee and its panels may set up Ad Hoc Task Groups for more intensive study of certain aspects that may arise. Post-1983 Working and Task Groups will follow the general IPOD rules for Working Groups as to minimum membership, no travel expenses, chairmanship held by a member of the parent committee or panel, and dissolution when work is complete.

PCOM LIAISON TO JOIDES PANELS

Panel	1st Liaison	2nd liaison
ARP	Buffler	Cadet
CEPAC	Buffler	Beiersdorf
DMP	McDuff	Von Herzen
IOP	Honnorez	Kastner
IHP	Gartner	Cadet
LITHP	Honnorez	McDuff
PPSP	PCOM Chairman	
SOHP	Schrader	Gartner
SOP	Hayes	Hsü
SSP	Beiersdorf	Malpas
TECP	Cann	Moberly
TEDCOM	von Herzen	Kastner
WPAC	Hayes	Kobayashi

SERVICE PANEL MANDATES

1. The terms of reference of the Science Advisory Structure of JOIDES for the Ocean Drilling Program have been the subject of extensive revision. Revised terms of reference and panel mandates were agreed in May 1984 with the exception of the mandates for the Information Handling (IHP), Pollution Prevention and Safety (PPSP) and the Site Survey (SSP) Panels. These have been the subject of further review as these panels previously operated under DSDP mandates.

2. Attached as annexes (1-3)* are the draft mandates from the three service panels which are submitted to the Planning Committee for approval.

*Information Handling Panel Mandate to follow.

8.2 Pollution Prevention and Safety Panel: Mandate

The Pollution Prevention and Safety Panel gives advice to the Planning Committee and 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. The preliminary site survey information and the operational plan are reviewed for each site. Advice is communicated in the form of site approval, lack of approval, or approval on condition of minor site relocation or amendment of the operational plan. Approval is based on the judgment of the Panel that a proposed site can be safely drilled in light of the available information and planning.

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 elimated by careful planning and proper site surveys. 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 safety.

Site Survey Panel Mandate

1. SSP receives mature proposals from the regional and thematic panels, reviews the site survey data packages and makes its recommendations to PCOM.

2. The SSP provides international cooperation and coordination of site surveys.

3. The SSP must ensure that there is proper coordination with member nations' site survey activities.

4. The SSP maintains communications with and provides advice to JOIDES panels on site survey specifications.

5. SSP identifies data gaps in future drilling areas and recommends appropriate action to ensure that sufficient survey information is available for pinpointing specific drilling targets.

6. The SSP must encourage the fullest use of new technologies for surveying potential drill sites.

7. The SSP ensures that all data used for planning and execution of drilling targets are lodged in a proper format in the ODP Data Bank.

DRAFT MANDATE: JOIDES INFORMATION HANDLING PANEL (IH-SP)

The Information Handling Panel provides information and advice to the Joides Planning Committee, the Ocean Drilling Program (ODP) and the Deep Sea Drilling Project (DSDP) with regard to the following general subjects.

(1) Publications. This includes (a) types of publications to be produced; (b) publication formats; (c) schedules and deadlines; (d) publications policy and goals of the publications program. Both ODP and DSDP publications are included.

(2) Sample Curation. This includes (a) operation of the Core Repositories; (b) curatorial policy; (c) filling of sample requests; (d) curatorial data management; and (e) long-term goals for the preservation of the core materials and other physical samples obtained by ODP and DSDP. Also included is (f) establishment and operation of the various Micropaleontology Reference Centers.

(3) Data Base Management. This subject includes (a) the types and contents of the data bases to be maintained by ODP and DSDP; (b) the treatment of raw data; (c) the establishment of uniform procedures and standards for data handling and processing; (d) the structure, philosophy and goals of the information systems produced by the program; and (e) the management of data bases, information systems and data centers. This last topic also includes coordination between various data centers established by ODP and DSDP.

(4) Data Standards. This subject deals with 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.

(5) Computing. This area includes (a) shipboard and shore-based computer facilities, equipment and procedures; (b) software development; (c) data collection techniques; and (d) meeting the computational needs of shipboard and shore-based scientists, as well as providing access to data bases for all interested parties.

(6) Archiving. This subject includes (a) long-term preservation of the raw data generated by ODP and DSDP; (b) preserving all past records bearing on sample history; and (c) preservation of any other records of the program which might benefit future workers.

(7) National and International Data Centers. This subject includes 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.

In all of the above areas the IHP offers advice and input from the scientific community to assist the program managers in setting priorities among competing goals, and to satisfy the needs of both program scientists and others for timely access to data, samples and publications.

REVIEW OF COSOD OBJECTIVES

1. The proposal to NSF for the Ocean Drilling Program was based on the COSOD report which was stated to "provide the most thorough and detailed scientific basis and justification for the AODP." The NRC/NAS report on "Options for Scientific Ocean Drilling" (1982) also considered that the COSOD report "produced one of the best summary statements justifying continued ocean drilling." The summary of the COSOD ~~conditions~~ conc... is given in Annex 1.

2. The PCOM has now established a detailed scientific plan for the first two years of drilling and is now actively considering medium-range plans for the Indian Ocean and elsewhere. At this time operational drilling is about to commence and the Program will have been set and will be establishing its momentum.

3. It seems timely to spend some time reviewing the short- and medium-range plans and endeavouring to assess the extent to which COSOD objectives are now being met.

SUMMARY OF THE CONFERENCE ON SCIENTIFIC OCEAN DRILLING

A. INTRODUCTION

The drilling of sediments and rocks of the ocean basins makes contributions to many branches of science. The continuous and detailed record of microfossils preserved in ocean sediments may give the best data for describing evolutionary changes and for understanding their causes. Sediments bear the imprint of ocean temperatures and currents, information critical to the reconstruction of oceanic circulation of the past and hence to the reconstruction of ancient climates. Drilling provides access to the rocks of the oceanic crust and thus helps to unravel their structures and motions, information required to understand the phenomena of sea-floor spreading and continental drift and, more broadly, the structure of the earth as a planet. Deep-sea sediments record the contributions of the rivers and winds of the past and thus the history of the continents, records otherwise lost by erosion of the land. In addition to greatly increasing our knowledge of earth history in general, the scientific information gained by drilling is basic to the search for mineral and petroleum resources both on land and beneath the seas. As the ocean is the last frontier for these resources, the importance of a thorough understanding of its geologic history and framework cannot be overstated.

Before the *Glomar Challenger* ever set sail on her initial trials, JOIDES identified as primary objectives for the Deep Sea Drilling Program "the determination of the age and processes of development of the ocean basins." Implicit in these objectives was the need to have long cores for "biostratigraphy, physical stratigraphy, paleomagnetism... and for studies of the physical and chemical aspects of sediment dispersal, deposition, and the post-depositional changes in sediments." The success of the program in achieving or progressing toward these goals is almost legendary. Indeed the results confirmed the concept of sea-floor spreading, the relationship of crustal age to magnetic anomalies, the basaltic nature of the oceanic crustal rocks, and, through the systematic sampling afforded by the drill, initiated an entirely new field of study — paleoceanography.

This technology has taken the science through more than a decade of unprecedented advancement and has been instrumental in bringing us to our present level of understanding of the origin and history of the ocean environment. That understanding stems primarily from reconnaissance drilling based on reconnaissance geophysical studies. We now need to advance our level of technical expertise in both drilling and geophysical surveying, as well as in downhole instrumentation. It is clear from the discussion and position papers presented at the Conference on Scientific Ocean Drilling that we are entering into a new era of ocean exploration utilizing the concepts of natural laboratories on the sea floor and carefully chosen arrays of drill sites to study general processes and global problems. In the past decade we have learned that the keys to geological processes and much of the history of the earth for the past 200 m.y. are recorded in the sediments and rocks of the ocean basins. We have only begun to read and to interpret the story that they hold.

B. GENERAL RECOMMENDATIONS OF THE STEERING COMMITTEE

1. A world-wide program of long-term drilling is an essential component of research in the earth sciences. The projects described here will require at least a decade to complete and will require drilling in the Atlantic, Pacific, Indian, and polar oceans. Many of these programs can be accomplished with the currently available drill ship *Glomar Challenger*, but the extended capabilities of the *Glomar Explorer* are required to accomplish a large number of other objectives. Thus, it is the unanimous conclusion of the conference attendees and the steering committee that *Glomar Explorer* is clearly the preferable vessel for future scientific ocean drilling. It is recognized that the availability of *Glomar Explorer* is subject to a yet-to-be conducted cost analysis and that the drilling system would almost certainly be operated without a riser and blowout prevention system for at least several years.
2. Future drilling must be part of a larger scientific program that includes adequate support for problem definition, site surveying, geophysical experimentation, and sample analyses. Broad-scale problem definition and fine-scale site examination and selection must precede drilling. The cores from the drill hole then become the ground truth that translates these geophysical parameters into geological reality. Lead times of two or three years are required for pre-drilling activities and support is required for post-drilling scientific analyses.
3. The integration of continental geology and marine geology should progress through scientific drilling programs. The oceans are the modern laboratories in which we can observe geologic processes typical of those that have occurred over the past 200 m.y. Understanding these processes is one of the keys to understanding ancient continental geology. We encourage this integration to proceed through the planning and execution of geophysical and drill-site transects from the dry land to the deep sea across well-chosen continental margins.
4. International cooperation should continue and expand. The *Glomar Challenger* program has cross-pollinated the scientific and cultural thinking of the earth science community in a fundamental and unique way. The resulting international research programs have been essential to the success of the program. Especially if the *Glomar Explorer* is utilized in the future, this international cooperation should be expanded. The JOIDES/IPOD (International Phase of Ocean Drilling) structure appears to be a good organizational framework for future drilling programs.

C. TOP PRIORITY SCIENTIFIC PROGRAM RECOMMENDATIONS

The following twelve scientific topics were selected by the working groups at COSOD as top priority objectives that should be attacked with scientific ocean drilling and related programs in the next decade. A further prioritization was not attempted by the steering committee, and these topics are listed here in a non-preferential order.

1. Processes of magma generation and crustal construction at mid-ocean ridges.
   What is the character and composition of the deep portion of the oceanic crust?
2. Configuration, chemistry, and dynamics of hydrothermal systems.
   What are the dimensions and characteristics of hydrothermal systems at ridge crests versus those on ridge flanks?
   How does overlying sediment cover, or the lack of it, affect these hydrothermal systems?
3. Early rifting history of passive continental margins.
   What is the shallow and deep structure of stretched and normal faulted margins versus those characterized by excessive volcanism?
4. Dynamics of forearc evolution.
   What are the relative motion, deformation, and pore water characteristics of sediments at accreting and erosional margins?
5. Structure and volcanic history of island arcs.
   What are the space and time relationships of forearc subduction, accretion, and erosion; and of backarc spreading, compression, and volcanism at island arcs?
6. Response of marine sedimentation to fluctuations in sea level.
   Which stratigraphic sequences and intervening unconformities represent fluctuations of sea level, and which represent vertical tectonic motion?
   What is the response of deep-sea sedimentation to fluctuations of sea level?
7. Sedimentation in oxygen-deficient oceans.
   What are the ocean circulation, paleoclimate, and potential hydrocarbon characteristics associated with black shale deposits?
8. Global mass balancing of sediments.
   What are the best estimates of the world sediment mass and composition balances in space and time?
9. History of ocean circulation.
   How do patterns of ocean circulation respond to changing ocean boundaries, e.g., changing ocean size, the extent of shallow continental seas, and the opening and closing of oceanic passages, especially the Drake passage, the Isthmus of Panama, and the Tethys seaway?
   What is the history of abyssal circulation?
10. Response of the atmosphere and oceans to variations of the planetary orbits.
    How do gravitational interactions with other planets, especially Jupiter, affect paleocirculation in the atmosphere and hydrosphere?
11. Patterns of evolution of microorganisms.
    How has the process of evolutionary change proceeded in marine organisms?
12. History of the earth's magnetic field.
    What is the nature of the magnetic field during a magnetic reversal?
    What is the detailed history of magnetic reversals and changes in the intensity of the magnetic field during the past 200 m.y.?

D. SUMMARY OF THE WORKING GROUP POSITION PAPERS

This summary statement is organized around the top-priority scientific recommendations listed above. The complete position papers of the working groups are printed in the following section. In this summary, recommendations duplicated by two working groups have been condensed under one heading. Each topic is numbered in the same manner as in the previous list. *We again emphasize that this numerical listing is not an attempt to further prioritize these topics, and that they are discussed in non-preferential order.*

D.1 Origin and Evolution of the Oceanic Crust

Introduction. The oceanic crust is built from overlapping volcanic units measuring approximately a few kilometers by a kilometer. These are erupted at mid-ocean ridges from vertical fissures within the very narrow zone where plates spread apart. The volcanic heat brought up by this process drives vigorous systems of hot springs that emerge at temperatures of up to 350°C, carrying with them iron, copper, zinc, and hydrogen sulfides, which react to form surficial sulfide ore deposits at the axes of ocean-floor spreading. As the crust cools, this initially vigorous circulation is replaced by different, gentler systems that carry iron and manganese oxides to the sea floor. The circulation not only alters the ocean crust and produces hydrothermal deposits but also controls the composition of the world ocean by exchanging elements, such as magnesium, calcium, sulfur, and oxygen, between sea water and rocks.

The highest priority proposals for drilling oceanic crust center on the concept of natural laboratories. These are arrays, or clusters, of holes, some deep, some relatively shallow, grouped together in fours and fives in particularly critical parts of the ocean floor. Not only would samples be extracted from the holes, but they would be used for emplacement of sophisticated instruments, some during the drilling period, and others for long-term monitoring after drilling had ceased. The group of holes in any such cluster would be spaced closely together, often no more than a few hundred meters apart, to facilitate the conduction of experiments and collection of samples on the same scale as that of the architecture of the oceanic crust.

1. Processes of Magma Generation and Crustal Construction at Mid-Ocean Ridges. Within each laboratory complex, one hole would be targeted for deep penetration to allow sampling material from hitherto unreached levels in the ocean crust. Developments in drilling techniques and in vessel capability have at last put such targets within our grasp and open the possibility of sampling the layers of the crust as yet characterized only indirectly by geophysical studies. Such information would allow both the calibration of the great resource of existing geophysical data and the extension of drilling results laterally by geophysical means.

2. Configuration, Chemistry and Dynamics of Hydrothermal Systems. Some of the natural laboratories would be chosen primarily to study hydrothermal circulation, investigating inflow and outflow areas, collecting both rocks and fluids from the holes, and measuring temperature, fluid flow rates, and in-hole chemistry of flowing water. Initially, laboratories would be set up in more technically accessible areas, such as active, medium-temperature systems and extinct, high-temperature systems, using techniques which are now available. Eventually, however, two of these would be placed in zero-age crust, one in the fast-spreading crust of the Pacific and the other in the slow-spreading Atlantic crust, using special new engineering facilities for starting holes on bare-rock surfaces. Other laboratories would be chosen to examine the way the crust is constructed, monitoring the chemical characteristics of the lavas and using the signature of the earth's magnetic field, which was frozen into the lavas when they were formed, to act as a marker within the volcanic pile.

Other Important Problems. Drilling has provided important insights into mantle processes, hot spots, heterogeneity, and generation of flood basalts. Many targets of this kind remain to be drilled, especially within the Pacific, and clearly would have great scientific merit. Aging of the oceanic crust leads to changes in crustal structure and interchange of elements between ocean water and crustal rocks. Drilling is the only way to study this effectively. Geophysical work on the large transform faults that offset the mid-ocean ridges suggests models of processes within these important structural elements of the ocean crust. Drilling will clearly be important in testing such models. Young ocean basins, such as the Gulf of California, give insights into processes of crustal splitting and the development of new continental margins. They are also sites of intense high-temperature hydrothermal activity and of complex volcanism. Metamorphism and mineralization occurring in thick sediments in one or more young oceans should be investigated by drilling.

Finally, the region of the island arcs that fringe the Pacific are important elements in the oceanic crustal story. They are zones where characteristic ore deposits are developed and where a variety of very different volcanic magmas are available. Such zones have been incorporated into continental crust, and drilling into regions of active island arcs to understand processes there will not only benefit marine geology but will have great importance for understanding the development of continents.

D.2 Tectonic Evolution of Continental Margins and Oceanic Crust

Introduction. The concept of plate tectonics holds that the outer shell of the earth is broken into a few large plates that move relative to each other. This outer shell, known as the lithosphere, is about 100 km thick and is rigid except at the boundaries of the plates. Plate tectonics can be fairly called a revolution in the earth sciences because most earth scientists now accept the evidence for large scale horizontal motion of the lithosphere. This motion, originally called continental drift, has been quantified by marine geophysical studies in recent years so that the amounts, rates, and directions of past and present horizontal motions are precisely known for most regions.

Plate boundaries occur where two plates are diverging, converging, or slipping past each other. In the oceanic realm, plates diverge at mid-ocean ridges, where new lithosphere is formed from hot, upwelling magma. Evidence for the initiation of this divergence is preserved at the passive margins of the diverging continents. Plate convergence in the oceans takes place at active margins, where one plate is subducted beneath another. These plate boundaries are the focus of major tectonic questions that can be solved with programs of scientific ocean drilling. At divergent boundaries, the major question is the nature of breakup of continents prior to sea-floor spreading. At convergent boundaries, the focus is on island arcs, their structure and volcanic history. These volcanic islands, arrayed in a curved, or arcuate pattern, are the dry-land expression of a complex tectonic system. On the oceanic, or forearc, side of the islands lie the deep-sea trench and other compressional structures associated with subduction of the oceanic lithosphere. On the continental, or backarc, side of the islands lie the backarc basins generally believed to form by crustal extension.

3. Early Rifting History of Passive Continental Margins. Two major types of passive margins have been identified. In one there is a significant amount of continental crustal stretching resulting in normal faults. In the other, the early breakup is marked by massive outpourings of volcanic material, resulting in seaward dipping seismic reflectors. The objective of drilling is to study the deep structure of both types of margins, including the nature and extent of stretched continental crust, the nature of the seaward dipping reflectors, and the relative proportion of pre-rift sediments deposited during rifting. This can be accomplished by drilling transects across sediment-starved margins such as the Bay of Biscaye, northwest or southwest Australia, the Lord Howe Rise, and the Grand Bahamas (normal faulted margins), and Norway, Argentina, Southwest Africa, Greenland, or Antarctica (seaward dipping reflectors).

4. Dynamics of Forearc Evolution. The evidence that forearc basins can either accumulate sediments or be eroded through time needs to be evaluated by delineating the characteristics of the sediments in the forearc basin. In particular, the pressure, flow, and composition of fluids in the sediments, the vertical and lateral motions of sediments through time, and deformation stages along and across the sediments at depth need to be studied as functions of material input and convergence parameters. These phenomena should be studied in both erosional and accreting forearc regions; and comparisons should be made between ocean-continent margins and ocean-ocean margins. Examples of accreting margins are the Lesser Antilles, Oregon-Washington, the Aleutians, the Sunda Arc, and Ecuador, whereas non-accreting or erosional margins are found in Japan, Peru, Central America, and the Marianas.

5. Structure and Volcanic History of Island Arcs. The importance of timing of events across convergent margins is stressed in this type of study. The backarc basins are known to have spread at times, but occasional times of compression are also recognized. The volcanism of the island arc is also episodic, as is the dynamic history of the forearc basin. Transects which cross all portions of a convergent margin will help to determine the relative timing of all these episodic events.

Other Important Problems. In addition to the three top-priority topics listed above, the tectonics group identified top-priority crustal and sedimentary studies which are incorporated with topics 1, 2, and 6. Other important tectonic topics can be grouped into passive margin, active margin, and oceanic crust problems. Future drilling of passive margins should investigate the development of continental slopes and rises, the detailed history of vertical movements (both uplift and subsidence) at margins, thermal and mechanical evolution of passive margins, variability along strike in margin structure, sheared margins, and the nature and origin of post-rifting tectonic events on passive margins. Problems for drilling active margins include the study of stress fields at active margins, global relations between arc systems, collision tectonics, and the development of passive margins in backarc basins. Problems of oceanic crustal tectonics include the determination of plate kinematic models; determination of the magnetic reversal time scale, the crustal structure, and tectonic evolution of aseismic ridges and oceanic plateaus; the timing, extent, and origin of intraplate volcanism; the structure of transform faults and fracture zones; and the study of coral atolls and guyots and their volcanic cores.

D.3 Origin and Evolution of Marine Sedimentary Sequences

Introduction. Sedimentation in the oceans, and ultimately the stratigraphy of marine deposits, depends strongly on the changing depths and shapes of ocean basins that result from processes of plate tectonics. However, marine sedimentation also responds to, and records the variations in, oceanic and atmospheric circulation, biological productivity, continental elevation and runoff, world-wide sea level, and the climate of the planet. The most important questions focus on the global control of sedimentation by the interplay of tectonics, sea level, and climate. We shall depend strongly on ocean drilling in the future to describe the long-term history of this interplay by studying three topics that have particularly far-reaching implications: deep-sea sedimentation versus changes in sea level, sedimentation in oxygen-deficient oceans, and sediment mass balances.

6. Response of Marine Sedimentation to Fluctuations in Sea Level. It is hypothesized that the sequences of onlap and offlap and intervening unconformities observed in the seismic stratigraphy of continental margins often represent global fluctuations in sea level. The timing of these fluctuations can be calibrated with drill core data, although the magnitudes of changes of sea level are poorly known. The proposed curve of eustatic sea level has notable, abrupt regressions that occur at several times in the Cretaceous/Tertiary record. In order to test this hypothesis, drilling should be done in two types of settings. The first is in sediment-rich continental shelves in which seismic unconformities can be seen. This will enable us to identify the sedimentary causes and the timing of the seismic unconformities. It is necessary that good paleodepth control be available, which probably means that shelf areas such as the east coast of the United States are the prime target areas. It will also be advantageous to drill on carbonate banks and platforms, such as the Bahamas, or on atolls and guyots. There the carbonates are produced close to sea level so that the difficulty of knowing the paleowater depth is removed. Provided that good enough age control is available, it should be possible to see unconformities produced by proposed fluctuations of sea level. The large Oligocene fall in sea level and the smaller changes during the Mesozoic are of special importance.

Although it is widely accepted that fluctuations of sea level exert a strong control on shelf sedimentation, there is no consensus on how the deep sea responds to these changes, whether deep-circulation varies systematically with sea level, and whether unconformities on the shelves extend into the deep sea. Drilling on transects across seismically well-documented passive ocean margins (e.g., North Atlantic, Gulf of Mexico, western Australia) is needed to answer these questions.

7. Sedimentation in Oxygen-Deficient Oceans. Large volumes of organic-rich sediments were deposited during certain periods in earlier history, such as the Cretaceous and the Eocene, when sea level stood higher and climate was more equable than today. These deposits are both economically important and scientifically puzzling. We recommend a concerted effort to study the sedimentology and geochemistry of these deposits by drilling transects across some Cretaceous ocean basins (North and South Atlantic, equatorial Pacific) and by studying small-scale, modern analogs such as zones of upwelling off Peru, southwest Africa or southern Arabia.

8. Global Mass Balancing of Sediments. Mass balancing implies a global view of sedimentation and depends largely on ocean drilling for basic information on volumes and composition of sediments. Standardized analyses and continuously updated data banks can greatly improve the effect of ocean drilling in this field. Drilling also provides the only opportunity to obtain crucial information on specific areas that acted at certain times as local sinks of materials and had a disproportionately large effect on global mass balance. Examples include giant evaporite deposits in the South Atlantic, the Gulf of Mexico, and the Mediterranean.

Other Important Problems. A number of other problems are of general significance and depend largely on ocean drilling for their solution. These include the sedimentary record of abyssal circulation and its history in the Mesozoic and Cenozoic; the anatomy of gravity-displaced sediments, including both large-scale slumps on continental slopes and submarine fans; glacio-marine sediments as monitors of the waxing and waning of polar ice; carbonate platforms as indicators of changes in sea level, vertical tectonics, and surface conditions in the oceans; the sedimentary signature of specific tectonic domains, such as trenches, continental rises, and backarc basins; marine hydrology, i.e., the movement of pore water fluids and the resulting alteration of slowly compacting sediments, both on continental margins and under hydrothermal conditions over oceanic crust.

D.4 Causes of Long-Term Changes in the Atmosphere, Oceans, Cryosphere, Biosphere, and Magnetic Field

Introduction. There now exists an important opportunity to conduct an integrated study centered on the history of circulation of the ocean. Our present knowledge of ocean circulation and its important role in the climate system derives primarily from studies of the modern ocean and its interaction with the atmosphere. Studies of the Pleistocene ocean have added to our knowledge, but we have little understanding of ocean circulation in the more distant past. Insights into the sensitivity of the earth's climate to different oceanic circulatory states can be derived either from modeling these states or studying deep-sea sediments that give us past measures of specific characteristics of these states. Yet models ultimately need evidence from the geologic record to be substantiated.

Since the evolution of marine organisms took place within the changing circulatory regime of the ocean, insight into the evolutionary process can best be gained by studying evolutionary change concomitantly with studies of past oceanographic change.

We are now in a position to launch a global study of past ocean circulation and the simultaneous evolution of ocean biota for three reasons: (1) detailed studies of Pleistocene deep-sea sediment have provided the analytical techniques needed; (2) deep-ocean sediment sampling programs (both piston coring and drilling) have provided a knowledge of the global characteristics of deep-sea sediments so that the best sampling sites for such a project can be carefully selected; (3) the development of the hydraulic piston core has provided a means of acquiring sequences of undisturbed sediments from deep below the sea floor (200 meters).

We envisage an experimental design for a study of the circulation history of the ocean of the following form. A sampling program (after careful analysis of existing data and site-survey information) would be designed to produce a global array of horizontal and vertical transects of the world ocean. The vertical component would be achieved by sampling different depths in the oceans such as the flanks of oceanic ridges or continental slopes. Sufficient sites would be needed to monitor major water masses and boundaries of important water masses. This set of cores then would become a global monitoring system for studying the changing patterns of ocean circulation, biotic evolution, and behavior of the earth's magnetic field. The core array would allow monitoring of specific aspects of the hydrosphere, biosphere, and magnetosphere including the following.

9. Ocean Circulation History. How has ocean circulation responded to changing boundary conditions through time, such as changes in ocean size, alterations of important oceanic passageways (e.g., the Tethys Seaway), changing climatic conditions, and changes in the wind driven circulation? What was the structure and circulation pattern of the ocean when there was no permanent ice, and what was the relative importance of evaporation and cooling in the formation of deep water during these ice-free times?

10. Response of the Atmosphere and Oceans to Variations of the Planetary Orbits. The changing geometry of the earth's orbit around the sun appears to have controlled the timing of major Pleistocene climatic changes. Since these orbital changes are caused by gravitational interactions between the earth and the other planets, primarily Jupiter, they should extend into the distant past. The response of the earth's climate system to these changes, however, is dependent upon the configuration of the boundary conditions of the system at any given time. In order to learn more about the sensitivity of our climate to changes in these boundary conditions, we can measure the ocean response to orbital variations when the earth had no permanent ice, extensive shallow seas, and ocean basins of different size and shape. These measurements will be critical to those attempting to understand how our climate system works and to predict future climate.

11. Patterns of Evolution of Microorganisms. Deep-sea sediments provide the best geologic medium for studying evolutionary change. Such studies will be far more reliable if they are coupled with paleoceanographic studies. The global array of cores will allow the mapping of morphologic change in space and time, and the paleoceanographic studies will provide an opportunity to differentiate between morphologic change induced by changing ecologic conditions and morphologic change due to changing genetic structure. The rate of evolutionary change can be measured and the rate at which these changes are dispersed through the ocean by migration can be accurately mapped.

12. History of the Earth's Magnetic Field. It has been hypothesized that the main dipole field component of the earth's magnetic field breaks down during the reversal process, although very little information is available on the details of these transitions. In order to test the nature of the earth's field during reversals, it is necessary to recover high-sedimentation rate cores that are azimuthally oriented from both hemispheres and all oceans. If the quadrupole or octupole field components dominate during these transition intervals, the records from widely separated sites will be markedly different.

Although the obvious reversal sequences have been documented by studies of deep-sea cores and sequences of magnetic anomalies, there have been many reports, often poorly substantiated, of occasions during which the earth's magnetic field either reversed very briefly or went through a large intensity fluctuation and then emerged in the same orientation. The nature of the earth's magnetic field and the reversal process has been approached with statistical calculations that predict the frequency of occurrence of reversals. Testing such analyses is not possible until the nature of the short events is resolved because inserting even a few short period polarity events into a presently accepted reversal time scale would completely alter the frequency spectrum of that time series. The set of cores necessary for the study of the reversal process is also necessary here because the possibility exists that the short events are non-dipole phenomena. In addition, if care is taken to locate some of these cores downwind from sites of Tertiary and Cretaceous volcanism, it should be possible to establish a direct correlation of radiometric and reversal time scales by dating volcanic ash layers in the midst of the reversal sequences.

D.5 Tools, Techniques, and Associated Studies

Platforms. The *Glomar Challenger* has been an outstanding platform for conducting the drilling for the past 13 years and she is capable of continuing her role for an additional 5 to 10 more years. In the short term she may represent the most economical means of continuing the current program, but in the longer view the *Glomar Explorer*, owned by the United States government, may prove to be the better choice. This larger ship offers the following technical features believed to be most relevant:

1. The *Glomar Explorer* has a displacement six times greater than the *Glomar Challenger* and a draft that is almost double. These characteristics make it a very stable platform that would enable drilling operations to continue when on *Glomar Challenger* they would have to shut down.
2. Greatly increased laboratory and living facilities on the *Glomar Explorer* would permit an increased number of scientists to participate in the cruises, offering the possibility of expanding the membership in IPOD. In addition, there would be room to accommodate technicians needed for proposed downhole instrumentation programs and engineers for testing new devices to support a continuing program designed to improve the drilling and coring capabilities.
3. The *Glomar Explorer* can be ice-strengthened permitting transit in small block ice conditions to drilling sites in high latitudes, a modification not feasible on the *Glomar Challenger*.
4. A large mud capacity on the *Glomar Explorer* could be important if drilling without mud return proves viable and is essential if a mud return system is adopted.
5. A longer drill string will be available for use in deep-water targets, but use of this capability is dependent on drill-string design as well as smaller motion expected for the larger ship.

The size of the *Glomar Explorer* has the following disadvantages:

1. It cannot transit the Panama Canal.
2. The choice of ports and drydocking facilities is limited.

Both vessels would need a refit requiring the *Glomar Challenger* to be in drydock 1 to 2 months and the *Glomar Explorer* from 12 to 18 months.

Conclusions. The selection of the vessel will depend greatly on economic considerations not discussed here, but also the decision will bear heavily on the perception of the duration of scientific drilling in the ocean. Although *Glomar Explorer* will offer advantages even in the short term, economic considerations may dictate the use of the *Glomar Challenger*. If, on the other hand, drilling in the oceans is perceived to be an on-going program extending even beyond the 1980's then the balance falls in favor of the *Glomar Explorer*. Not only does the *Glomar Explorer* have the advantage of being a new vessel capable of at least 20 years service, it also has appreciable growth potential in capability. The use of full riser and mud systems, large storage capacity, capability for deployment of heavy equipment, and the housing of engineers and technicians on the ship all become feasible.

The COSOD general assembly unanimously endorsed the use of the *Glomar Explorer* as the preferred vessel to achieve the scientific goals described in this report.

Drilling Technology. There must be a continuing effort to improve our capability to drill deeper into both sediments and rock and to recover a greater percentage of the rock cores while maintaining or improving the quality of the condition of the sample retrieved. This may require a broader application of conventional techniques, such as the use of mud, casing, and, in hard fractured rock, grouting, and a commitment to advancing the technology. Better heave compensation coupled with downhole sensors could greatly enhance penetration and core recovery by maintaining closer control on bit dynamics or facilitating the use of downhole motors or turbo-drills that are sensitive to bit pressure. Coring devices that extend into the sediment ahead of the bit may be modified to cut cores from hard rock.

Currently there is no capability to drill directly into basalts on the sea floor without a sediment cover to stabilize the bit. A system that would enable drilling in areas without sediment cover is feasible and will greatly extend the value of deep-ocean drilling by providing the first opportunity for scientists to probe the system of circulation of hot water and mineral deposition actively taking place.

Logging and Downhole Experiments. A detailed report has been prepared on the use of logging in the deep oceans to enhance the scientific return from a drilled hole. Newly developed techniques will provide for the long-term emplacement of instruments in a hole abandoned by the drill ship by using conventional oceanographic vessels or perhaps even by deep submersibles.

Geophysical and Geological Studies. The COSOD scientific working groups have designed programs that emphasize the solving of geologic problems rather than continuing the quest for reconnaissance information. This new direction requires, more than ever, extensive regional and site-specific surveying and study prior to drilling. Such activities require long lead times and better long-term planning, both for the surveys and the drilling. Long-term planning requires a commitment by funding organizations to a continuing program of drilling beyond the relatively short funding period.

Many new instruments designed for surveys of large and small scale have been developed recently and undoubtedly more will be forthcoming. Scanning sonars, real-time swath mapping of sea-floor features, cameras capable of photographing large areas of the sea floor, sea-floor seismic systems, and submersibles are all available for deployment where required.

*Dates to be decided dependent schedule of the JOIDES Resolution.

JOIDES/ODP MEETINGS 1985 (to be approved)

	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.
EXCOM				Miami*		14-16 Washington, DC +ODP Cncl.				16-17 Bonn, FRG		early Nov.	
PCOM		8-11 Austin			*16-20 Norfolk		25-27 Hannover FRG				16-18 Rhode Is.		
TEDCOM					* Norfolk								
ARP				26-28 Austin									
CEPAC				11-12 Menlo Pk									
IOP	10-12 La Jolla												
SOP					22-24 Florida	bring forward							
WPAC		18-20 Hawaii											
DMP			26-27 SIO (tentative)										
IHP													
PPSP					2-3								
SSP						late May Bologna, Italy or LDGO							
LITHP			26-27 SIO(tentative)			23-24 Strasbourg (tentative)							
SOHP			21-23 Cambridge UK										
TECP				18-20 ~~[illegible]~~ Houston									

Paper M

JOIDES

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December 4, 1984

TO: PCOM Membership

FROM: Roger Larson, PCOM Chairman R. L.

The attached schedule for the first six legs of ODP is predicated on the present assumption that the start of Leg 101 will be delayed until January 22 and all following legs are kept intact and delayed by the same amount. Leg 102A does not materially affect the schedule, as it is primarily a transit leg to avoid similar long steaming time on Leg 103.

This schedule pushes Leg 105 into and partially beyond the statistically favorable weather window for Baffin Bay, and thus will be an important subject of discussion at the Austin PCOM.

OCEAN DRILLING PROGRAM
OPERATIONS SCHEDULE
1985

LEG	DEPARTS LOCATION	DEPARTS DATE	OPERATIONS AREA	ARRIVES	DATE	ESTIMATED TIME BREAKDOWN (Days) TRANSIT	OPERATIONAL	TOTAL
101	Ft. Lauderdale, Florida	22 Jan	Bahamas	Miami, Florida	4 March	1	41	42
102	Ft. Lauderdale, Florida	9 Mar	Sites 418A 603	Norfolk, Virginia	24 Apr	6	41	47
102A	Norfolk, Virginia	30 Apr	Transit	Punta Delgada	8 May	8	01	09
103	Punta Delgada	9 May	Galicia Bank	Bremerhaven, Germany	27 June	8	42	50
104	Bremerhaven, Germany	3 July	Norwegian Sea	Stavanger, Norway	18 Aug	6	41	47
105	Stavanger, Norway	24 Aug	Baffin Bay Labrador Sea	St. Johns, Newfoundland	20 Oct	15	43	58
106	Newfoundland	11 Oct	MARK I	Malaga, Spain	21 Dec	15	42	57

11/19/84

January 1985 PCOM

OFFICIAL ODP PANEL ABBREVIATIONS

EXCOM	Executive Committee
PCOM	Planning Committee
TEDCOM	Technology and Engineering Development Committee

Thematic Panels

LITHP	Ocean Lithosphere Panel
SOHP	Sediments and Ocean History Panel
TECP	Tectonics Panel

Regional Panels

ARP	Atlantic Regional Panel
CEPAC	Central and Eastern Pacific Regional Panel
IOP	Indian Ocean Regional Panel
SOP	Southern Oceans Regional Panel
WPAC	Western Pacific Regional Panel

Service Panels

DMP	Downhole Measurements Panel
IHP	Information Handling Panel
PPSP	Pollution Prevention and Safety Panel
SSP	Site Survey Panel

Working Groups

CAR-WG	Caribbean Working Group
MED-WG	Mediterranean Working Group
NOR-WG	Norwegian Sea Working Group

JOIDES Office 12/4/84

ODP SITE SURVEY STANDARDS

ENVIRONMENTS

X = vital
(X) = desirable
(X)* = desirable, but may be required in some cases (e.g. bottom simulating reflectors)

TECHNIQUES	A PELAGIC (shallow penetration)	B SMALL BASIN/OPEN OCEAN (shallow penetration) subject to debris flow	C PASSIVE MARGIN single bit	D reentry	E FORE-ARC WEDGE	F SPREADING RIDGE zero or thin sediment cover	G OCEAN CRUST thick sediment cover	H HIGH TEMPERATURE ENVIRONMENT
1. Air Gun SCS	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
2. Water Gun SCS (or other high resolution system)	X	X	X	(X)	X		X or 5	X or 5
3. 3.5 KHz.	X	X	X	(X)	(X)		(X)	
4. Chirp Sonar	(X)					(X)		
5. MCS		(X)	X	X	X		X or 2	X or 2
6. Seismic Velocity Determinations			X	X	X	X	X	
7. Side Scan Sonar	(X)	X	(X)or (8)	(X)or (8)	(X)or(8)			
8. Seabeam Bathymetry	(X)		(X)or (7)	(X)or (7)	(X)or(7)	X		
9. Piston Cores	X	X	(X)*	(X)	(X)	(X)	(X)	X
10. Heat Flow			(X)*	(X)*	(X)*	(X)*	(X)	X
11. Magnetics/Gravity			(X)	(X)		X	X	X
12. Dredging and/or Bare Rock Drilling						X		
13. Photography (e.g. ANGUS)						X		(X)*
14. Submersible						(X)		(X)*
15. Current Meter (for bottom shear)			(X)*	(X)*	(X)			

JOIDES POLICY (since 1981)

Executive Committee

204	Special Interest Groups (1981) [Consensus]	Considers seriously matters of cooperating with special groups such as the Seabed Working Group. It recognizes problems in such arrangements, both political, philosophical and technical. It generally agrees that such arrangements should be treated as a case-by-case basis and evaluated on their scientific merits. The EXCOM does not rule out cooperative efforts between JOIDES and other groups to address objectives of initial interest so long as such programs are made sufficiently early so that they may be handled through JOIDES Panels and PCOM in the usual way.
217	Ownership of Holes (1982) [Consensus]	Generally agreed that it was unwise to pose the question of ownership of JOIDES-drilled holes to governmental agencies. The problem to be addressed was one of <u>coordinating</u> the use of holes internally within the international marine geological and geophysical community. JOIDES could perhaps establish a mechanism to internally coordinate the responsible use of holes.
*222A	Scientific Program (1982) [Motion]	The scientific program funds must be identified in accordance with a sound plan including surveys, syntheses and new technological developments designed to achieve the scientific objectives of high priority as given in the COSOD report. These funds should be separately budgeted from the project, ships conversion and operations funds to ensure that the scientific efforts remain in propoer balance with the other elements of the drilling program.
*222B	Logging (1982) [Motion]	EXCOM repeats its recommendation that logging should be a normal requirement of each leg, exceptions being made, for example, where a leg consists of shallow holes cored by HPC.

*223A	Site Survey (1982) [Motion]	EXCOM recommends that the PCOM provide a list of areas of interest and their priority as a basis for submission and coordination of site and regional survey efforts. To this end, PCOM members should be invited to present annually the cruise programs of their institution (or nation), followed where possible by a formal undertaking to carry out site surveys in specific areas. Coordination of scientific effort and equipment is desirable.
*242	JOIDES Office (1983) [Motion]	The JOIDES Office will rotate biannually among participating U.S. institutions except for the science operator. The JOIDES Office will be responsible for the JOIDES Journal. JOI Inc. will provide logistical support and travel arrangements.
*250A	PCOM Membership (1983) [Motion]	Each member of the EXCOM shall designate one member of the PCOM and an alternate to serve in the absence of the designated member. Commencing 1/1/84, one quarter of the PCOM members shall rotate off the Committee annually, so that its membership is replaced every four years. Reappointment shall be made only in exceptional circumstances. All appointees to the PCOM shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to the program. Balance of fields of specialization on the PCOM shall be maintained, as far as possible, by informed consultation amongst the U.S. member institutions prior to selection of their appointees. The chief scientists of the science operations and wireline logging contractors and an appointee of NSF are non-voting, liaison observers.
*250B	Science Advisory Structure (1983) [Motion]	EXCOM accepts and approves the concept of the science advisory structure presented by PCOM (see Figure 1).

250C	Core Storage Matters (1983) [Motions]	*i. Existing sample distribution policy should be adopted without substantial change (Motion - adopted). ii. One core curator should be in charge, regardless of the number of repositories, and the core curator should be located at the science operator institution (Motion approved with insufficient votes for 2/3 policy adoption). *iii. Initial Core Descriptions should be reinstated in published form (Motion - adopted). *iv. It is desirable that sample distribution should be accomplished within 2 months of request of receipt (Motion - adopted).
*244	Downhole Measurements Panel [Motion]	EXCOM authorizes PCOM to reinstate the Logging Advisory Panel (DMP) as a component of the science advisory structure.
263	DSDP Initial Reports (1983) [Consensus]	The target for receipt of scientific contributions is 36 months after the cruise; some flexibility in the schedule is desirable.
268A	Panel Membership (1983) [Consensus]	An ODP project panel (not a JOIDES panel) informally known as an Industry Review Group will provide TAMU with technological advice on an ad hoc basis. A JOIDES Task Group should be formed to assist TAMU in securing drilling clearances. Formal contacts should be paralleled by contacts at the scientific level.
*268B	Conflict of Interest (1983) [Motion]	If a PCOM member is a proponent of drilling sites, the proposal must be reviewed independently by thematic or regional panels and the PCOM member is not to be involved in any substantive advisory role or in any final voting on the proposal at PCOM meetings.

268C	Drill Sites Proposals Publication (1983) [Consensus]	To ensure that all sites are treated fairly, the list of drill sites and the reason for acceptance or rejection should be published.
268D	Archives (1983) [Consensus]	DSDP/IPOD material will be archived at SIO or will be temporarily stored at JOI Inc. until such time as a permanent repository can be found. Funds for historical analysis of the files may be available within NSF Directorates for such studies and interested historians may submit unsolicited proposals to NSF.
*270A	EXCOM Terms of Reference-Annex B (1983) [Motion]	Annex B be adopted as amended.
270B	Developing Countries Scientists (1983) [Motion]	EXCOM generally supports the inclusion of developing countries in the drilling program.
*283	Site Surveys Coordination (1984) [Motion]	a. EXCOM recognizes that it should be the responsibility of those scientists making specific drilling proposals to obtain adequate site survey information. b. EXCOM asks PCOM to examine the role of the Site Survey Panel. c. EXCOM suggests that PCOM should consider the desirability that the JOIDES Office acts as a coordinating office to link scientists having specific drilling proposals needing additional site survey information to a representative of each panel who will be in a position to disseminate the need to relevant scientists and institutions in their constituency.
*290	Leg Numbering (1984) [Motion]	The ODP legs shall be numbered consecutively beginning with LEG 101 and Site 625.
296	Budgeting Decisions (1984) [Consensus]	JOI will keep a record of how important budgetary decisions are reached and will distribute the record to EXCOM as part of the JOI report.

301A	Proposals Publication (1984) [Consensus]	EXCOM recommends that the PCOM publish, in the JOIDES Journal, lists of proposals received by JOIDES. The lists are to be grouped by region and/or theme. Proposal status is to be that they have been referred to the appropriate regional or thematic panels and that interested scientists wishing to contribute to these ideas can submit other proposals to the JOIDES Office or can contribute comments addressed to the appropriate panel chairman.
301B	PCOM Chairman (1984) [Consensus]	The Chair of PCOM shall rotate with the JOIDES Office among the U.S. JOIDES institutions, excluding the science operator institution. The term of office is normally two years.
305A	ODP Data Bank (1984) [Motion]	Co-mingled funds are to be used to support the IPOD Data Bank and, further, the name of the IPOD Data Bank shall be changed to the ODP Data Bank.
305B	Proposals and Site Surveys (1984) [Consensus]	EXCOM will not interfere with panel decisions regarding proposal recommendations. Further, the Chile Triple Junction site survey problems are primarily a U.S. community issue, but the decision to include it in the drilling program is a JOIDES decision.
306	Ship's Name (1984) [Motion]	EXCOM accepts the name JOIDES Resolution as the the non-legal name of the drillship SEDCO/BP 471.
309	Panel Responsibilities (1984) [Consensus]	Panel decisions on proposed drill sites should be based on their scientific merit and not on political issues.
310	Site Survey Funding (1984) [Consensus]	EXCOM does not favor the use of co-mingled funds to fund site surveys.

311	Membership (1984) [Motion]	EXCOM recognizes that the ODP is scheduled to begin its operational phase on 5 January 1985. At that time, JOIDES membership will consist of those countries which have a regular member MOU agreement with NSF. Further, those countries who have made a commitment to NSF to join ODP in the future will be given observer status on EXCOM and PCOM. Scientists from non-JOIDES countries which were formerly candidate member countries will no longer be members of PCOM panels after 5 January 1985, but they shall be eligible for re-appointment.

Figure 1

JOIDES ORGANIZATION

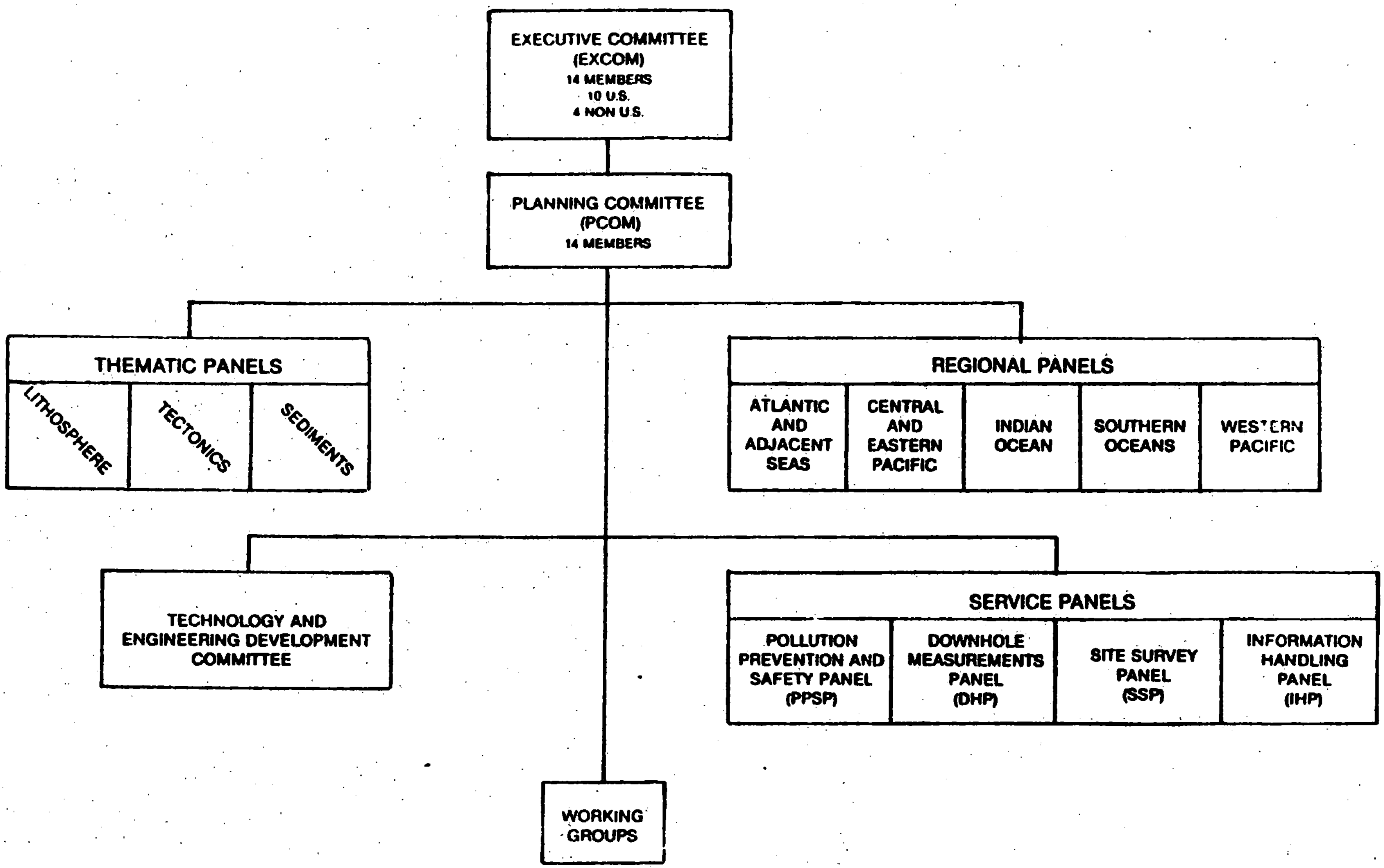

Figure 1

ANNEX B (as amended)

Terms of Reference for
JOIDES EXECUTIVE COMMITTEE
FOR THE OCEAN DRILLING PROGRAM

1. This committee shall formulate scientific and policy recommendations with respect to the Ocean Drilling Program (ODP). It shall conduct the ODP planning, as well as evaluation and assessment of the Program as to its accomplishments as compared to the goals and objectives which have been established. It may be assigned managerial and operational responsibilities for appropriate tasks.

2. The members of this committee shall be representatives of oceanographic and marine research institutions or other organizations which have a major interest in the study of the sea floor and an adequate capability in terms of scientific manpower and facilities to carry out such studies.

3. The initial membership of this committee will be comprised of one representative of each of the tour non-U.S. countries participating in International Phase of Ocean Drilling (IPOD) under active Memoranda of Understanding (MOU) with the National Science Foundation (NSF) [France, Federal Republic of Germany, Japan, and the United Kingdom] and one representative of each of the 10 existing U.S. institutions (University of Miami, University of Washington, Oregon State University, University of Hawaii, University of Rhode Island, University of Texas at Austin, University of California, San Diego, Texas A&M University, Woods Hole Oceanographic Institution and Columbia University) which are currently participating in the JOIDES Executive Committee for IPOD. The appointment of additional members will be determined by the Board of Governors on the recommendation of the JOIDES Executive Committee. In the case of

representatives of non-U.S. country participants. the existence of a valid MOU with NSF is a prerequisite to membership.

Membership of any member may be cancelled by the Board of Governors on the recommendation of the JOIDES Executive Committee or in the event of a non-U.S. country participant ceasing to have a valid MOU in existence.

4. Each institution or organization designated for participation on this committee by the Board of Governors shall provide one voting member, normally the director or senior deputy thereto.

5. The Executive Committee shall reach all its decisions by the affirmative vote of at least two-thirds of all members including members from at least two countries. A quorum shall consitute two-thirds of the Executive Committee. Notices of meetings and agendas will be sent to members 60 days prior to the time of the meetings. If a member of the Executive Committee is absent from a duly called meeting of the Executive Committee, he or she may designate an alternate from his or her institution, with full authority to act for him or her in his or her absence.

6. The Committee may establish subcommittees for cognizance of certain components of the Ocean Drilling Program. Areas of cognizance and the terms of reference for each subcommittee shall be defined by the Executive Committee. In particular a Planning Committee shall be established. It shall be composed of one member (with an alternate) designated by each member of the Executive Committee. This Committee shall act on the basis of a vote of a majority of all members.

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

8. Members of this Committee, and members of subcommittees duly appointed thereby, while acting within the terms of reference, shall be indemnified, and held harmless by the corporation from and against any and all liabilities, damages and demands, losses,

costs, and expenses arising from acts or omission related to performance as committee members.

9. These Terms of Reference, upon ratification by members of the existing JOIDES Executive Committee for IPOD and adoption by JOI as an amendment to its By-Laws, will supercede all previous JOIDES agreements.

JHC
September 9, 1983

JOIDES POLICY (since 1981)

Planning Committee

375	DSDP Phase Down (1982) [Motion]	a. Essential to the task of completing the Challenger is to maintain the present level of effort in publishing the Initial Report volumes and other DSDP publications for a period of 30 months after drilling. b. Recognizing that data processing and dissemination are long-term tasks and will continue into the indefinite future, PCOM recommends that the present DSDP staff continue these functions for at least 30 months after Challenger drilling. c. Whilst recognizing that the Challenger cores will provide an invaluable asset for the indefinite future, PCOM recommends to NSF that curatorial activities continue at their present level for a period of five years beyond drilling.
376D	TEDCOM (1982) [Motion]	To ensure the availability of new engineering and technological developments necessary to achieve the scientific objectives of ODP as identified in the COSOD document, PCOM designates the establishment of an Engineering and Technological Development Panel.
382	Ship Operations (1982) [Consensus]	Ship operations should be under the control of the project Chief Scientist and free from excess interference by management.

390	Site Surveys (1982) [Consensus]	Each non-U.S. member representative should try to determine (at least approximately) the likely level of activity in site surveys, regional synthesis and post-cruise studies, for presentation to PCOM. PCOM recignizes that need for science services and science development and alerts members of the international community to these needs.
417	Continental Drilling (1983) [Consensus]	PCOM should attempt, as soon as possible, to establish formal contacts with the continental drilling community.
423	Core Storage Matters (1983) [Motion - see EXCOM for EXCOM reaction to PCOM motion]	i. Existing sample distribution should be adopted without substantial change (adopted by EXCOM). ii. One curator should be in charge regardless of the number of repositories (adopted by PCOM, favored by EXCOM with insufficient votes for policy adoption). iii. One core repository having a convenient location should house all existing and future cores (rejected by EXCOM). iv. Initial Core Descriptions should be reinstated (adopted by EXCOM). v. HPC cores should be routinely x-radiographed and videotaped (adopted by PCOM). vi. Sample distribution should be accomplished within 2 months of receipt of request (adopted by EXCOM).
426	Planning (1983) [Consensus]	a. PCOM adopts a ship route which shows a Gulf of Mexico start, a clockwise transit of the North Atlantic, the Mediterranean Sea, passing through the Panama Canal and a southward transit along the west coast of South America to the Weddell Sea. b. The list of targets between the Norwegian Sea and the Weddell Sea and a bare-rock East Pacific Rise target are the areas for which site surveys will be required in the near future.

428	Scientific Advisory Structure (1983) [Motion]	a. The science advisory structure of JOIDES will consist of a Planning Committee, a Technology and Engineering Development Committee, three thematic panels, a number of regional panels and five service or operational panels. Ad hoc working groups will be nominated as required. b. The five regional panels shall be: Atlantic; Central and Eastern Pacific; Western Pacific; Indian Ocean; and Southern Oceans Regional Panels. c. The general purpose, mandate, structure, membership and organization of the PCOM as defined in the terms of reference (Appendix 1) be submitted to EXCOM for approval. PCOM requests that the EXCOM define the terms of membership and the terms of office.
432	DSDP Ship Scheduling (1983) [Consensus]	Ship scheduling is an operations problem and is not the concern of PCOM.
433	ODP Publications Policy (1983) [Consensus]	PCOM supports the TAMU effort to make publication of ocean drilling results more efficient.
435	Drilling Proposals & Site Surveys (1983) [Consensus]	The existing policy that proponents should supply site survey information with a drilling proposal should be enforced.
436	Wireline Services (1983) [Motion]	PCOM appointed a subcommittee to examine the Logging Advisory Panel should also consider: a) policy for distribution of log data; b) mandate for the advisory panel; and c) policy to ensure the LDGO does not have unfair advantage in the use of ODP log data.
438	PCOM Membership (1983) [Motion]	PCOM accepts the EXCOM version of PCOM membership.

439	Initial Drilling Schedule (1983) [Motion and Consensus]	PCOM adopts the area in the vicinity of $23^{o}N$ and the Kane Fracture Zone as the location of an axial drilling leg and a test of bare-rock drilling [Motion] PCOM favored early development of bare-rock drilling [Consensus].
440	Panel Membership (1983) [Motion]	a. PCOM adopts the Downhole Measurements Panel terms of reference (Appendix 1). b. Membership of thematic panels will be appointed by PCOM, which will maintain a balance between non-U.S. JOIDES participants, U.S. JOIDES institutions and others.
442A	Archives (1983) [Motion]	DSDP engineering development files be sent to TAMU as soon as possible.
442B	ODP (1983) [Motion]	EXCOM is requested to restore an international character to the new drilling program.
453	Conflict of Interest (1984) [Consensus] (Proposals)	a. The PCOM member "is not to be involved in any substantive role" is understood by PCOM to mean that a PCOM member who is also a proponent of specific drilling sites shall not utilize his PCOM position to preferentially promote the proposed drill sites. He may, however, relay information and enter into pertinent discussions to the same extent expected of any other (non-PCOM) proponent. He may not be involved in any final voting on the proposal at PCOM meetings. PCOM members are not to be excluded from the pool of scientists from which co-chief scientists for ODP cruises are selected. b. Fairness will be ensured if all drilling proposals are reviewed by one or more advisory panels. The panels prioritization of proposals and the teasons for prioritization should satisfy the "reason for acceptance or rejection issue." Furthermore, the PCOM chairman will explain the reason for rejection in a letter t the proponent. Fairness in the treatment of all proposals will also be promoted by tighter control of each proposal through the JOIDES system. The JOIDES Office will track the status of each proposal.

454	Micropalaeontology Reference Center (1984) [Motion]	a. The eighth micropalaeontological reference center shall be located at TAMU. b. A micropalaeontology reference collection not be maintained on the drillship and the location of that collection be held in abeyance until further membership of ODP is known.
455	Downhole Measurements (1984) [Motion and Consensus]	PCOM endorses the recommendations of the DMP logging recommendations (see Appendix 2) [Motion]. PCOM agreed that industry representatives should help determine logging requirements for each leg (on a leg by leg basis) [Consensus].
457	Bare-rock Drilling (1984) [Consensus]	ODP is reminded of the importance of bare-rock drilling in the new program. Development of bare-rock drilling is a high priority task.
460	Proposal Guidelines	A guide for the submission of drilling ideas should be compiled and publicised. This should be in two parts. Part (a) should be for submission of ideas (not a formal proposal) and part (b) is the guide for submission of drilling proposals. It should be made clear that completion of part (b) must be completed before a proposal is considered by PCOM.
473	Budget (1984) [Motion]	The PCOM requests that it receive, each year, a draft of the proposed ODP budget at a sufficient level of detail so that it may have full information for future scientific recommendations.
475A	Logging (1984) [Motion]	PCOM reiterates its scientific advice that there should be conventional logging on every leg.
478	Ship's Capabilities (1984) [Consensus]	TAMU should define the drilling limits of the new vessel and should make the information available to PCOM so that future planning is realistic.

486	Initial Reports Publication (1984) [Motion]	All IPOD/DSDP Initial Reports are to be published.
491	ODP Publications (1984) [Motion]	a. PCOM recommends against publication of ODP Journal. b. To accept the recommendations of the IHP regarding publication for each leg of an initial report (Part A) to include a simple introduction, the site chapters with the ICD equivalents and a simple summary, to appear about one year post-cruise and a scientific report (Part B) to appear 3 years post-cruise.
497	Working Groups and Workshops (1984) [Consensus]	PCOM was not in favor of endorsing a particular working group or groups. Workshops could be a good way, in principle, to channel plans, proposals and ideas into the ODP and national or international groups should be urged to hold workshops.
500	Shipboard Party (1984) [Motion]	On each leg at least one scientist competent and interested in using logs for science be part of the scientific crew, and that other logging specialists on board should not be regarded as part of the scientific staff.
504	Panel Chairmen Expenses (1984) [Motion]	Each thematic, regional and service panel chairman is to receive up to $1000 p.a. from JOIDES for incidental expenses.

TERMS OF REFERENCE
Science Advisory Structure of JOIDES
for the Ocean Drilling Program (ODP)

The purpose of the Terms of Reference for the ODP Science Advisory Structure of JOIDES is to formulate the most productive scientific plan for the program. Thus the SAS is open to suggestions and proposals from the entire scientific community, and its plans shall be open to continued review and revision.

1. The Science Advisory Structure of JOIDES will consist of a Planning Committee, an Technology and Engineering Development Committee, three thematic panels, five regional panels, and five service panels. Ad hoc working groups and task groups may be created by the Planning Committee as requested by the panels or by the Planning Committee itself.

2. Each committee, panel and working group will operate under a mandate, along with guidelines as to membership and frequency of meetings. Mandates, guidelines, and their amendments shall be proposed by the Planning Committee for approval by the Executive Committee.

3. Planning Committee

3.1 General Purpose. The Planning Committee recommends to the Executive Committee and to the science operator plans designated to optimize the scientific productivity and operational efficiency of the drilling program, normally by coordinating, consolidating, and setting into priority the advice received from the panels. More specifically, the Planning Committee is responsible (a) to plan the general track of the drilling vessel about 3 years in advance of drilling; (b) to foster communications among and between the general community, the panels, the science operator, and itself; (c) to solicit, monitor, and coordinate the advancement of drilling proposals; and (d) to establish a scientific drilling program by about one year in advance of drilling.

3.2 Mandate. The Planning Committee drafts the mandates of the various panels and working groups and names their members. It approves their meetings and agendas and may assign special tasks to them. The Planning Committee sponsors and convenes COSOD-type conferences about every three years. It identifies the proponents of proposals and assigns to thematic and regional panels proposals for review. It sets the scientific objectives of the proposals into final priority after they are reviewed by the Thematic Panels and Regional Panels. The Planning Committee nominates the chief scientists to the science operator. It periodically reviews this advisory structure in the light of developments in science and technology and recommends amendment of its panel structure and mandates. Much of the working of the Planning Committee will be by the commissioning of reports from the panels, the working groups, task groups and ad hoc subcommittees of its own membership, and by its chairman at the JOIDES office.

3.3 Structure. The Planning Comittee is empowered to establish an infrastructure appropriate to the definition and accomplishment of tasks described in its annual program plan as approved by the Executive Committee and the National Science Foundation. Communication with its panels is maintained by having their chairmen meet with the Committee annually, and by assigning committee members as non-voting liaison members to its panels and working groups. Where council and communication are deemed important, other individuals may be asked ad hoc to meet with the Committee or a panel.

3.4 Membership. Each member of the Executive Committee shall designate one member of the Planning Committee and an alternate to serve in the absence of the designated member. Commencing January 1, 1984, one quarter of the Planning Committee members shall rotate off the Committee annually, so that its membership is replaced every four years. Reappointment shall be made only in exceptional circumstances. All appointees to the Planning ommittee shall satisfy the fundamental criteria of having the ability and commitment to provide mature and expert scientific direction to the program. Balance of fields of specialization on the Planning Committee shall be maintained as far as possible, by informed consultation amongst the U.S. member institutions prior to selection of their appointees. The chief scientists of the science operations and wireline logging contractors and an appointee of the NSF are non-voting, liaison observers.

3.5 Organization. The Planning Committee meets at least three times a year, normally in January, May and September. Roberts 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 at all times constitute 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.

4. **Thematic Panels** are mainly, but not exclusively, process oriented. They are established by the Planning Committee to redefine as scientific drilling objectives scientific problems identified by COSOD (16-18 November 1981) and by the JOIDES 8-year program for drilling (April 1982). They are responsible for reviewing any other scientific objectives proposed by the pre- and post-1983 reports and white papers, the national science structures of the various non-U.S. participants, and the scientific community at large. Thematic Panels maintain a constant review of science in their theme. Thematic Panels are composed of one member from each non-U.S. participant, and a subequal number from U.S. institutions. PCOM approves the panel membership. Panelists serve for two years; the chairmen may be held for a third year. 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 meetingdates, locations and

agendas. The mandates are guidelines and do not restrict panels. Considerable overlap in thematic coverage is expected to evolve. The Planning Committee may ask Panels to take up topics not in their original mandates.

4.1.1 The **Ocean Lithosphere Panel** is concerned with the origin and evolution of oceanic crust, and more particularly with volcanic, metamorphic, hydrothermal and diagenetic processes occurring in the ocean crust:

(a) Processes of submarine volcanology, intrusion and plutonism; crustal construction at spreading axes; petrology, geochemistry, mineralogy, and magnetic and other physical properties of igneous and metamorphic rocks from the ocean floor, from seamounts, from oceanic plateaux, from volcanic arcs and from basins adjacent to volcanic arcs.

(b) Processes of submarine hydrothermal circulation; petrology, geochemistry and mineralogy of hydrothermally altered rocks and hydrothermal deposits from the ocean floor; geochemistry and physical properties of hydrothermal solutions.

(c) Processes of submarine diagenesis; geochemistry of pore waters from sediments and hard rocks; petrology, geochemistry and mineralogy of diagenetically altered sediments and hard rocks.

4.1.2 The Ocean Lithosphere Panel will be responsible for planning the drilling of sites concerned with these problem areas at the following levels:

(a) long-range identification of objectives and review of research proposals for future drilling operations.

(b) selection of target areas within which these objectives can be met;

(c) helping the site survey organization to plan surveys of the target areas;

(d) identification of proponents or working groups for particular target areas;

(e) selection of sites for location of drill holes within the target areas, so that objectives can be reached;

(f) advice to the Planning Committee and the project chief scientist on the selection of co-chief scientists and other scientists;

(g) encouragement of specific shore-based laboratory work on the samples recovered by drilling;

(h) advice to the project curator on the handling of recovered samples;

(i) advice to the Planning Committee and the project chief scientist on provision of equipment for use of the drilling ship and in shore laboratories run by the Science Operator;

(j) coordination of plans for down-hole experiments in projected holes.

4.1.3 In the course of the work specified in paragraph 4.1.2, the Ocean Lithosphere Panel will maintain the closest contact with the appropriate Regional Panels, in particular during planning of survey work and site selection. The OLP will participate in the formation of the Specific Working Groups with the Regional Panels and other specialists.

4.1.4 The Ocean Lithosphere Panel is responsible to the Planning Committee, and will respond directly to request from it, as well as reporting to it on a regular basis.

4.1.5 The Ocean Lithosphere Panel will act as a means of disseminating and correlating information in the appropriate problem areas by:

(a) receiving reports from co-chief scientists on the progress with shore-based research on samples;

(b) encouraging and sponsoring symposia at which the results of drilling will be discussed;

(c) publishing progress reports in the open literature to inform and encourage participation in the project;

(d) generating White Papers as requested by PCOM.

4.2 Tectonics Panel: Mandate

The Tectonics Panel is concerned with the standard history of ocean margins and plates, especially as might be studied in critical transects and along strike by coordinated geological, geophysical, and drilling programs:

a. Special emphasis is placed on the early rifting history of passive continental margins, on the dynamics of forearc evolution, and on the structural sedimentological and volcanic history of island arcs, back-arc basins, and marginal seas.

b. Additional problems under the purview of this panel include the development of continental slopes and rises; detailed histories of vertical movements at margins; thermal and mechanical evolution of passive margins; structural variability along strike; sheared margins; post-rifting tectonism of passive margins; the study of stress fields at active margins; global relations among arc systems; collision tectonics; the development of passive margins in back-arc basins; studies of transform faults at fracture zones; the origin, structure and tectonic evolution of oceanic plateaus and aseismic ridges; and the determination of plate-kinematic models.

c. Of interest to this panel as well as to other panels are the composition, structure and formation of the oceanic crust and upper mantle, tephrochronology, and the study of "global" unconformities and the synchroneity of tectonics and sea level events along margins as well as coral atolls and guyots.

4.3 Sediments and Ocean History Panel: Mandate

The Sediments and Ocean History Panel is concerned with investigations of marine stratigraphy, marine sedimentology and paleoceanography. Areas specifically include:

a. Stratigraphy including the subdivision, correlation and dating of marine sediments. Examples are: refinement of magnetostratigraphy, radiometric dating, chemostratigraphy, biostratigraphy, tephrochonology, and seismic stratigraphy.

b. Processes of formation of marine sediments, diagenesis, organic and inorganic sedimentary geochemistry and global mass balancing of oceanic sediments.

c. Long-term history and driving mechanisms of the oceanic atmosphere and biosphere. Central to this theme are relations among plate tectonics and ocean paleocirculation, sedimentation patterns, global paleoclimates, glacial and ice-sheet evolution, sea level change and its effects on marine sedimentation and evolution of marine life.

5. Regional Panels: Mandate

The Regional panels are responsible for:

a. Helping Thematic Panels to translate their broad thematic programs into concrete regional drilling plans.

b. Identifying regional problems not covered by Thematic Panels

c. Recommending integrated drilling programs in their regions.

d. Monitoring the status of knowledge on regional geology and geophysics.

e. Advising on regional and site surveys needed for future drilling.

PCOM chooses panel members for their expertise and experience in a region. Each non-U.S. JOIDES member can nominate one member to each Regional Panel, and PCOM will name a subequal number from the U.S. and from non-member countries. Members normally serve for two years; the chairman may be held for a third year.

Regional panels meet at the request of PCOM as frequently as required by ship scheduling and routing.

PCOM will establish liaison between Regional and Thematic Panels by overlapping memberships.

The map shows the general areas of prime responsibilty for the Regional Panels, but the boundaries are not fixed limits: Panels should view their responsibility as including all areas relevant to their regional problems. The Regional Panels are:

a. Atlantic Ocean
b. Central and Eastern Pacific Ocean
c. Western Pacific Ocean
d. Indian Ocean
e. Southern Oceans

6. The **Ad Hoc Working Groups** have the responsibility of integrating the drilling targets selected by PCOM upon recommendations of the Thematic and Regional Panels into an efficient drilling program in each of the target areas. The Ad Hoc Working Groups must consider the merits of the drilling targets with respect to both geophysical processes and regional geology. The Ad Hoc Working Groups are named by PCOM which also drafts their mandate and specifies their term. The Ad Hoc Working Groups are comprized of 1/3 members of the Thematic Panels, 1/3 members of the Regional Panels, and 1/3 outside members (not members of any Thematic or Regional Panel). The Ad Hoc Working Groups' members will receive their specific assignment from the Planning Committee (chairman) as a series of drilling targets. The Working Group chairmen will organize the preparation of their groups' work by correspondence. The second phase will be carried out during a single meeting during which the Working Group members will discuss the drilling plan and draft their preliminary report. The final report will be drafted by the chairman of the Ad Hoc Working Group and mailed to the chairman of PCOM. The mandate and term of each Ad Hoc Working Group is limited to fulfilling its specific mission. After finalization of drilling plans for that target area, the Ad Hoc Working Group will disband.

7. The **Technology and Engineering Development Committee (TEDC)** is responsible for ensuring that the proper drilling tools/techniques are available to meet the objectives of targets to be drilled according to the planned Schedule. The TEDC will identify within a proper time frame the new drilling tools/techniques to be developed, help JOI/Science Operator write RFPs for engineering firms leading to the development of the tools/techniques, and will monitor the progress of their development. The members of the TEDC are engineers nominated by PCOM. The first mission of the TEDC will be to collaborate (through an interface Working Group) with the ship design committee and with the Downhole Measurements Panel.

8. The **Service Panels** provide advice, services and products to the JOIDES Advisory Structure, to the Science Operator, and to the various entities responsible for the processing, curation and distribution of samples, data and information (including publications) to the scientific community. The Service Panels, beyond their help to the JOIDES Advisory Structure, are not directly involved with selection of drilling targets or definition of cruise objectives. Service Panels have specific mandates. Service Panels meet at least once a year or as requested by PCOM at the Science Operator headquarters.

8.1 Site Survey Panel: Mandate---.

8.2 **Pollution Prevention and Safety Panel:** Mandate---.

8.3 **Information Handling Panel:** Mandate---.

8.4 **Downhole Measurements Panel:**

(a) **General Purpose.** To determine the physical state, chemical composition, and dynamic processes in ocean crust and its sediment cover from downhole measurements and experiments. Areas of responsibility include: routine logging (including industry standard and special tools widely used in ODP); routine data processing and interpretation; new and adapted logging tools, techniques, and data processing; downhole experiments and data acquisition (including downhole recording).

(b) **Mandate.**

1. Reports to and advises PCOM on logging and downhole measurement programs of ODP.

2. Advise on, and recommend to the ODP wireline service operator, the required logging facilities.

3. Advise the ODP Science Operator on the scientific desirability, technical feasibility, scheduling and operational requirements of proposed programs.

4. Interface and coordinate with WHOI (U.S.) and other national downhole instrumentation development groups.

5. Solicit and expedite new logging capabilities and experiments.

6. Evaluate new technology and recommend future measurement directions.

(c) **Structure.** Membership consists of well-balanced representation approximately half logging and other downhole technologists and half with scientific backgrounds and interests. The Wireline Services Operator and Science Operator of ODP shall each be represented by non-voting members on the Panel.

9. **Task Groups.** The Planning Committee and its panels may set up Ad Hoc Task Groups for more intensive study of certain aspects that may arise. Post-1983 Working and Task Groups will follow the general IPOD rules for Working Groups as to minimum membership, no travel expenses, chairmanship held by a member of the parent committee or panel, and dissolution when work is complete.

Appendix 2

DOWNHOLE MEASUREMENTS PANEL

DMP recommends that in principle all sites be logged, and all holes deeper than 400 m be logged. Approximately 1 to 1.5 days at each site will be required for logging.

Other DMP recommendations:

a) A more aggressive pore water program should be adopted.

b) Develop wire line reentry. (A savings in ship time would result, and larger diameter tools could be used.)

c) Cheaper reentry cones should be developed. (The current cost of $75,000/cone is too expensive.)

d) The heat-flow tool should be upgraded to perform at higher temperatures.

e) A cold-room should be considered for handling cores containing clathrates to reduce the likelihood of explosion.