JOIDES LITHOSPHERE PANEL
MINUTES OF 17-19 MARCH 1993 MEETING
SANTA BARBARA, CALIFORNIA

EXECUTIVE SUMMARY

3.0 ENGINEERING DEVELOPMENTS AND CONCERNS

3.1 RFP for *In Situ* Fluid Sampling

LITHP continues to strongly support the development of *in situ* fluid sampling capabilities, and is concerned that the RFP has not yet been issued. LITHP would like to expedite the process and suggests that, if insufficient funds exist for the RFP to be sent out immediately, then a "letter of intent approach" be adopted to conduct a feasibility study for *in situ fluid* sampling.

LITHP also makes the following recommendations regarding the requirements of the system as delineated in an RFP or request for letters of intent:

- the operating temperature requirements should be higher (up to 350°C?) given the interest in obtaining formation fluids from basement and from hydrothermal systems
- any candidate technology should be reviewed for future potential modifications that will make it usable in slim holes with the DCS.

3.2 Preparation for Hard Rock Drilling Legs

There have now been a number of legs that have drilled in new basement lithologies and in new situations, and it is clear that hard rock drilling legs face a number of problems unique to each leg. In addition, it also appears that hard rock legs result in a greater loss of equipment, which must be anticipated if we are to avoid losing valuable drilling time.

LITHP is concerned about the engineering readiness (in terms of available equipment) and the anticipation of potential problems on hard rock drilling legs. Now that ODP has some experience in drilling in various types of basement formations, it is critical that the ship puts to sea with sufficient, and appropriate, equipment to avoid losing valuable drilling time. In this regard, the following three recommendations are made in an attempt to help foresee possible problems:

- **LITHP will try to identify and communicate the likely challenges that each hard rock drilling leg will face**
- **LITHP requests that ODP assign an engineer *now* to begin to address engineering requirements for the FY'94 hard rock drilling legs**
- **LITHP recommends that, for technologically challenging legs, the Co-Chief Scientists make a presentation to TEDCOM (as the advisory panel**

on technology and engineering) about the objectives of the leg, and obtain advice from them on how best to prepare for potential difficulties.

3.3 Borehole Televiewer

The digital borehole televiewer (BHTV) has not worked reliably for at least the past four legs. Apart from giving useful information by imaging the borehole surface, it is critical for stress measurements -- an important goal of LITHP.

The borehole televiewer (BHTV) is required for LITHP to attain its scientific goals. LITHP is concerned that the BHTV has not worked in recent past legs, and would like some assurance that future legs will sail with a reliable and functional BHTV, and that the operators are able to use and maintain it.

4.0 PROPOSAL REVIEWS

4.5 Scheduling of the Proposal to CORK Hole 395A

LITHP continues to strongly support this program, which addresses objectives that are important to the Panel

LITHP feels that the most appropriate leg on which to deploy the CORK is Leg 158, which will have the appropriate staff on board for deployment of the CORK at TAG. LITHP recommends that this project be scheduled as part of that Leg.

LITHP also concurs with the proponents that this program should be scheduled as a backup for the MARK Leg in case of drilling difficulties with that program. However, it is essential that one or two scientists sail with that shipboard party who are capable of supervising both the CORK deployment and the pre-CORK logging program.

LITHP feels strongly that the program NOT be scheduled as a backup to the DCS tests on Leg 157, as it is essential to maximize time with the DCS in order to provide an adequate test. Furthermore, there was some concern that DCS and CORK deployment may be incompatible, due to the presence of the DCS hardware above the rig floor.

5.0 REVISION OF THE LITHP WHITE PAPER

A draft revision of the LITHP White Paper was circulated to all members prior to the meeting. Time was spent at this meeting working in small groups to edit and/or modify the text, and reorganize the document. A second draft will be prepared in the next month, and circulated to all members, as well as to other panels for their comments.

Although PCOM did not clearly endorse the proposed schedule of production of the White Paper, the Advisory Structure Committee recommended that the LITHP approach of holding an open meeting be adopted. E. Kappel has indicated that USSAC would be willing to consider a proposal to support participation of U.S. scientists in such a meeting. However, there is serious concern among the

international LITHP members that there will be limited funds available (if any) for participation by scientists from the member countries. LITHP views international participation as critical to gaining community-based input. Consequently, the possibility of holding such a meeting in the UK will be investigated. This will reduce travel costs for four of the member countries or consortiums. In addition, attendance at the meeting will be apportioned by discipline (to ensure a well-rounded group of participants) and by international partner membership.

LITHP requests a clear statement from PCOM endorsing the approach that it is taking in revising its White Paper in order to facilitate LITHP in accessing funds to support an open meeting as part of its revision schedule.

6.0 GLOBAL RANKING OF PROPOSALS

6.1 Global Ranking

The results of the global rankings are listed below. In addition, an assessment of each program's drillability in FY'95 was made and is included in the table. Caveats and explanatory notes can be found in the Minutes.

Rank	No.	Proposal	Members Voting	Score ($\pm 1\sigma$)	Drill in 1995
1	420	The Evolution of Oceanic Crust	15	11.5 (3.7)	No
2	300-Rev	Return to Hole 735B	15	10.4 (4.6)	(Yes)
3	NARM	NARM Volcanic Leg 2	15	9.9 (4.1)	Yes
4	SR-Rev	Sedimented Ridges II	14	9.8 (4.2)	Yes
4	86-Rev2	Drilling in the Red Sea	15	9.8 (3.3)	No
6	--	LIP Timing (Kerguelen/Ontong-Java)	13	9.5 (3.9)	No
7	--	Forearc/Backarc (W. Pacific)	14	9.1 (3.3)	No
8	426	Mantle reservoirs, AAD	15	8.9 (4.3)	No
9	407/425	MAR at 15°37'N	14	7.9 (4.6)	Yes
10	--	Mass Balance at Subduction Zone	15	7.7 (3.1)	No
11	376/382	Vema FZ - VE-1 and VE-2	15	7.3 (2.7)	Yes
12	368	Return to 801C	15	6.9 (4.1)	Yes
12	--	Caribbean LIP/KT Boundary	15	6.9 (3.3)	No
14	374	Oceanographer FZ	15	4.0 (3.2)	No
15	380-Rev3	VICAP	15	3.3 (3.0	No

Based on the global rankings, completion of LITHP's high priority programs for the 1993-1998 time frame will require that the drillship leave the Atlantic, adjacent seas and eastern Pacific after its currently planned stay through

April 1996. Programs in the Indian Ocean and western Pacific are likely to be highly ranked by LITHP for drilling in 1997-1998.

In terms of procedural issues, the global ranking is at times very difficult, given that many of the proposals date back several years (beyond the tenure of most Panel members!) and have been kept alive by revisions and addenda.

LITHP recommends that the requirement of an extended abstract, complete with short descriptions of proposed sites, be added to drilling proposals. For the spring meetings of the thematic panels, the JOIDES Office should compile the abstracts of all active proposals and circulate them to the Panel Chairs. They, in turn, could circulate those relevant to their Panels for consideration during the global ranking procedures.

8.0 REVIEW OF THE REPORT OF THE JOIDES ADVISORY STRUCTURE REVIEW COMMITTEE

LITHP reviewed this report, and offers a number of comments and recommendations that can be found in the Minutes.

9.0 FALL JOINT MEETING WITH DMP

The fall LITHP meeting will be held in Santa Fe, New Mexico on 12-14 October 1993. One day will be spent in joint session with DMP.

10.0 MEMBERSHIP ISSUES

Nominations for Tom Brocher's replacement were not accepted by PCOM because of institutional representation reasons.

For Tom Brocher, LITHP nominates the following:
- Anne Sheehan (University of Nevada, Reno)
- Doug Wiens (Washington University, St. Louis)

For Dan Moos, LITHP nominates the following:
- Andy Fisher (now at ODP; soon to be at Dept. of Geophysics, Texas A&M University)
- Rich Jarrard (Utah University)

For Susan Humphris, LITHP nominates the following:
- Kathy Gillis (WHOI)
- Craig Manning (UCLA)

LITHP also wishes to record its thanks to Jamie Allan for his considerable lively input over the time that he was the ODP liaison - both on scientific issues and on operational concerns.

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Attending: J. Bender, S. Bloomer, M. Cannat, D. Caress, M. Coffin, P. Herzig, S. Humphris, P. Kempton, Y. Kristoffersen, J. Ludden, D. Moos, J. Tarduno, T. Shibata (alternate for Y. Tatsumi), D. Wilson, R. Zierenberg

Liaison: J. Alt (SGPP), J. Mutter (PCOM)

WELCOMING REMARKS

S. Humphris welcomed the Panel to Santa Barbara. As there were new Panel members, everyone introduced themselves, and the Panel welcomed John Ludden as the new Canadian representative, Dave Caress as a new member, and Tsugio Shibata as the alternate for Yoshi Tatsumi. Unfortunately, neither an ODP Engineer or an ODP Representative was able to attend this meeting; P. Clift will replace J. Allan as the ODP liaison Staff Scientist.

1.0 LIAISON REPORTS

1.1 PCOM (J. Mutter)

When PCOM last met in December in Bermuda, the most important action was the scheduling of drilling for FY'94. Six legs - five scientific and one engineering - were scheduled as follows:

Leg 153	MARK
Leg 154	Ceara Rise
Leg 155	Amazon Fan
Leg 156	Barbados
Leg 157	Engineering Leg - Vema transverse ridge
Leg 158	TAG hydrothermal field

In the NSF report, Bruce Malfait announced that NSF has approved in principle the renewal of ODP through 2003, and approved funding through 1998. It was now certain that there would be six international partners with no Russian participation expected in the near future. These partners have all committed to the program, but only the UK has signed the renewal MOU. Since PCOM, there has been a question raised concerning continued Canadian participation; this has still to be resolved.

Tom Pyle for JOI Inc. reported that the targeted budget for FY'94 was about $4M below the projections for completion of the Long Range Plan, and so this would be a difficult budget year.

Rotation of the JOIDES Office
The JOIDES Office will rotate to the UK after completion of its term at the University of Washington. There also continue to be discussions concerning the distinction between JOI and non-JOI institutions in terms of where the JOIDES Office can be located within the US, especially now that about 50% of the advisory panel members are from non-JOI institutions. The concept of a "member at large" on PCOM from these institutions continues to be discussed, but there are still problems concerning how such a member would be chosen.

ODP Wireline Logging Services
An RFP for the ODP Wireline Logging Services was sent out from JOI, Inc. in December with proposals due by 15 January 1993. Two proposals were received, and the contract has just been awarded again to Lamont.

Core Repository
At the PCOM meeting, it was reported that the core repository issue had been decided and that, on the basis of least-cost estimates, the repositories would remain at TAMU and LDEO, with expansion to cover the storage needs through the next phase. However, EXCOM has since indicated that they wish to be involved in the decision, so an RFQ (request for quotation) has been issued, with responses due before the next EXCOM meeting in June.

Computing/ Database System
An RFP for the upgrade of the computing/database system was put out in mid-December requesting letters of intent dealing with the design of the system as well as improvements in the data input and retrieval for the present ship systems. Seventeen letters were received by the deadline (15 February 1993) and were evaluated for possible funding for the development of a full proposal. Three bidders were selected to each receive $50,000 for preparation of a full proposal: Meyer and Meyer (a company formed by Audrey and Bill Meyer), a combination of TRACOR with some connection to UTIG, and a consortium of EG&G, Lamont and GEOMAR. These bidders have also been given the opportunity to sail of the *JOIDES Resolution* during the transit from Panama to Lisbon.

Working Groups
On the recommendation of the PANCHM, PCOM disbanded the Sea Level and Offset Drilling Working Groups with thanks, and with a mandate to the thematic panels that they follow up on the recommendations of the Working Groups.

DCS
TEDCOM, PCOM, and EXCOM are still very committed to the development of the DCS. Work is proceeding with DCS retractable bit technology, which would save bit trip time and maximize time available for coring. There are two different designs of prototypes (Longyear and Christensen) that work, and ODP is pursuing the Christensen plan that incorporates collapsible bits in the core barrel design. It is believed that this will be part of the Engineering test on Leg 157.

Deep Drilling
PCOM endorsed TEDCOM's recommendation that the RFQ for deep drilling be issued by the Science Operator, and that both parties review the responses for a report to PCOM in April before any financial commitments are made. This will use hole parameters submitted by LITHP and TECP for a determination of the cost of drilling such deep holes, as well as an assessment as to whether such drilling can be accomplished by the *JOIDES Resolution.*

Advisory Structure Review Committee Draft Report

The Advisory Committee participated in the PANCHM and PCOM meetings in Bermuda, and interviewed a number of panel members at that time, as well as having a joint meeting with PCOM. Since the meeting, they have issued a draft report with recommendations that needs comment.

The major recommendations of interest to LITHP are as follows:

- The Committee endorsed the approach suggested by LITHP for the revision of their White Paper and recommended that it be accepted and applied to all thematic panels. They also suggested that, after an open meeting and revision of the White Paper, it be published in the JOIDES Journal to give more guidance for proponents.

- The Committee supported the proactive stance now being taken by the thematic panels and indicated that they should solicit proposals for those high priority themes that are not being addressed through unsolicited proposals.

- Overlap of panel and committee memberships between JOIDES and other international geoscience initiatives is currently considered appropriate and serving the desired purpose of communication.

- The Committee recommended that SSP should become a smaller group (SSG) that meets more frequently than at present. These meetings should be held at the ODP Data Bank and become involved in assessing drilling readiness in the very early stages of proposals .

- PCOM is so involved in the details of short-term decision-making that they are not acting as an effective planning body. The committee recommended that more work and decision-making should be left to the thematic panels, and that the Chairs of these panels should be steady attendees of the PCOM meetings. PCOM should also establish a small subcommittee to handle the needs of the service panels in a timely fashion. There is also a question concerning whether there is enough technical expertise within PCOM to respond to the advice provided by TEDCOM and the service panels.

- The Committee recommended that the proposal and ship scheduling procedures should be changed to the following system:

August 199(x-1)	PCOM declares the areas of operation for FY' 199(x+2)
January 199x	Proposals submitted to the JOIDES Office
March 199x	Panels review proposals
September 199x	Thematic panels rank proposals
October 199x	A DPG meets and selects 8-10 legs of drilling for FY' 199(x+2) from 12 highly ranked proposals
December 199x	DPG presents to PCOM several scenarios for drilling, and PCOM selects one of them to constitute the 199(x+2) drilling plan.

LITHP should review this document and provide comments and feedback.

1.2 PANCHM (S. Humphris)

PANCHM met for a day preceding the PCOM meeting and discussed a number of issues.

Proposal Review Process

There were several problems encountered within the proposal review system in the last year. These included the difficulties with PPSP approval of the planned shallow water drilling of the New Jersey margin leg, problems with submission of information to the Data Bank for proposals that might be drilled in FY'94, and lack of identification of lead proponents for drilling scheduled from a DPG report (for example, North Atlantic Rifted Margins).

PANCHM made the following recommendations to PCOM:

- PPSP should define the data and data quality required for assessment of safety in shallow water drilling situations
- proponents of legs with potential safety problems should attend the August SSP meeting
- SSP should maintain a watchdog system, but the thematic panels need to be more active in ensuring proponents understand and comply with data submission to the Data Bank
- DPGs should assign a lead proponent as a point of contact for proposal revisions and SSP requirements.

LEss THan A Leg (LETHAL) Proposals

PANCHM reviewed the recommendations made at the last PANCHM meeting as to how these should be handled. It was the general consensus that the option of submission of such proposals should be maintained so that ODP can be responsive to hot thematic topics and to opportunities that would not otherwise arise. Thematic panels will still be expected to take the lead in recommending how to incorporate high priority LETHAL proposals into longer drilling legs. However, on the basis of recent experiences with the Santa Barbara Basin proposal, two additional caveats were added:

i) PPSP must review any LETHAL proposal during their March meeting in the FY before drilling is scheduled
ii) SMP/IHP needs to define a procedure for processing cores collected at add-on sites to avoid missing any important data acquisition procedures.

DCS

Development of the DCS is still supported by the PANCHM, although it is clear that the level of support is varied between the panels, with less support from SGPP. This panel, together with SMP are concerned that other technical developments that are critical are being delayed because of the resources required for DCS development. PANCHM also felt that the next sea trials of the DCS must be successful (defined as recovering core) if continued development was to be supported by the community. There was some interest in having a cut-off date for DCS support if unsuccessful, but this was not unanimous among the Panel Chairs.

ODP Computing System

PANCHM considered the shipboard computing system central to ODP activities, and recommended that replacement proceed as expeditiously as possible. This will require substantial funds in the second half of the next fiscal year, and planning should begin in expectation of this outlay. PANCHM also

recommended that core-log data integration be incorporated into the RFP for this project.

Working Groups
PANCHM recommended that the Sea Level and Offset Drilling Working Groups be disbanded.

The issue of the creation of the Caribbean Working Group was discussed, primarily at the instigation of the LITHP chair. The decision was made not to recommend such a Working group, based on the lack of several highly ranked Caribbean drilling proposals, and on the suggestion that the panels, together with the Chair of PCOM, send a letter to the proponents requesting again that they work together to produce a viable drilling proposal that addresses a number of thematic objectives.

Deep Drilling RFQ
PANCHM supported the TEDCOM initiative to send out an RFQ for deep drilling. However, concern was expressed that this was a big ticket item, and that it needs to be considered against other special technology developments when competing for available funds.

ODP Scientific Output
PANCHM recommended that scientific results from drilling be presented in the form of thematic summary volumes. Each should be a collection of papers for specific thematic objectives that have been presented at a symposium. Such symposia could be organized through panels (though not necessarily *by* panels), and should occur at the rate of about 1 symposium/year. Publication of the papers should be in the outside literature rather than in TAMU publications.

Interactions with Other Global Programs
PANCHM recognized that many panel members overlap with other global programs and there is no need to formalize relationships. However, the Panels will make an effort to include regular updates on other programs as part of one of their meetings each year.

PANCHM Attendance of Spring PCOM Meeting
This issue was raised by the Chair of PCOM as important in assisting PCOM in the global ranking process and in identification at an early stage of any site survey problems. There was some concern that this would result in a major extra burden on the Panel Chairs, but its potential value was acknowledged.

1.3 Sedimentary and Geochemical Processes Panel (R. Zierenberg)

The primary business was the review of new proposals and global ranking of all proposal of interest to SGPP. The results of the initial ranking of the 16 proposals is as follows:

Global Ranking

Rank	**Proposal**		**Score** (max.=16)
1	423	Gas hydrates	14.9
2	412	Bahamas sea level transect	13.1
3	380	VICAP/MAP	12.2
4	391	Mediterranean Sapropels	11.7

5	400	Costa Rican Wedge	11.2
6	SR II	Sedimented Ridges II	9.9
7	330	Mediterranean Ridge	
8	422	Santa Monica Basin	
9	404	N. Atlantic Sediment Drifts	
10	424	CORK 395A	
11	253	Shatsky Rise	
12	386	California Margin	
13	427	S. Florida Margin	
14	407	N. Atlantic Mantle Anomaly	
15	368	Return to 801C	
16	420	Evolution of Oceanic Crust	

SGPP's highest ranked proposal from the 1994 drilling prospectus was the New Jersey Sea Level drilling. Safety concerns over the potential for intersecting shallow gas pockets in shallow water nearly lead to cancellation of this leg. The proponents prepared a revised drilling plan that eliminated the shallow water sites, thereby keeping the leg on the schedule. However, this revised drilling plan will not meet the sea level objectives that caused SGPP to rank this proposal so highly. Therefore, a second leg of drilling that includes the shallow water portion of the transect is needed, pending completion of a high resolution seismic survey and approval by the PPSP. Because the highly ranked theme of paleosealevel is not adequately addressed by Leg 150, SGPP decided that the top six proposals should be re-ranked with a second leg of drilling in shallow water on the New Jersey margin included. The results are as follows:

Second Ranking

Rank	**Proposal**		**Score** (max.=7)
1	423	Gas hydrates	6.7
2	NJ-2	New Jersey Sea level II	4.5
3	412	Bahamas sea level transect	4.4
4	391	Mediterranean Sapropels	3.6
5	380	VICAP/MAP	3.5
6	400	Costa Rican Wedge	2.8
7	SR II	Sedimented Ridges II	2.2

Preliminary results of Cascadia Margin drilling (Leg 146) were presented by Casey Moore and Miriam Kastner. Tom Pettigrew, ODP Engineer, presented a report on the engineering developments. The CORKing operations on Leg 146 were occasionally hampered by difficult drilling and weather conditions, but the CORKs continue to perform reliably. A French magnetometer and susceptibility tool was tested with very good results. The vibrapercussive corer failed, and computer simulations of the tool suggest that it needs to be totally redesigned. Modifications to the pressure core system resulted in good success in capturing fluid under pressure, but the tool repeatedly failed to recover core. Minor engineering modifications to the existing tool should improve the prospects for core recovery. The GEOPROPS tool failed and is felt to be unlikely to ever work as designed. It was recommended that support for the tool be discontinued. The modified WSTP tool returned some reasonable temperature measurements, but all water samples from this tool are either circulation fluid or very highly diluted with circulation fluid. The temperature measurements with the WSTP tool are not as efficient, reliable, or accurate as the APC tool, and the water sampling tool is not likely to work in its present configuration; however, pore fluid can be sampled

from the type of material for which the WSTP was designed. Therefore, there is no justification for use or support of the WSTP tool. The need for *in situ* fluid sampling and physical properties measurements was once again reiterated, as it has been for at least the last six SGPP meetings. **SGPP is extremely distraught that the RFP for *in situ* fluid sampling has not been issued.**

A one half-day joint session was held with OHP to discuss areas of mutual interest. Important topics were the status of the DCS, proposal to address sea level changes, and progress in high resolution core/log correlation with examples from Leg 138.

The preliminary Advisory Structure Review committee report was discussed with Bill Hay.

The next SGPP meeting is proposed for Sept. 17-20 in Corner Brook, Newfoundland.

1.4 Ocean History Panel (J. Tarduno)

The OHP Spring Meeting was held in Santa Cruz, March 4-6. The meeting included a joint session with SGPP. In the OHP session substantial discussion centered on the implications of the Leg 150 failed safety review. Watchdogs and proponents will have to work much more closely with the safety review panel, especially as OHP interests are pushed into shallow water drilling.

The joint meeting with SGPP consisted of a series of presentations including DCS (T. Francis), core-to-core integration (T. Helgelberg), shipboard measurements (K. Moran) and the Advisory Structure Review Committee (W. Hay). The DCS issues were largely those discussed previously at LITHP meetings. Discussion included a suggestion, linked to the panel chairs, that a deadline be set for the DCS program. The DCS program should demonstrate substantial progress (defined as recovered core) during the next engineering test or some panel support will be lost. T. Helgelberg discussed core-to-core correlations using GRAPE, magnetic susceptibility and digital color reflectance data completed during Leg 138. By taking their own Sun computer systems onboard the ship, members of the Leg 138 Shipboard Scientific Party were able to produce composite sections for each of the drilled sites. To obtain the composites, a single set of corrections were applied to the offset APC sequences at each site. No attempt was made to account for core expansion. Instead, the composite sections were allowed to 'grow' in depth. Measurements done in Kate Moran's lab can account for some of the growth in the composite depth sections due to elastic rebound. Substantial discrepancies, however, still exist. Kate Moran also discussed computer issues, including those related to the use of external computer systems on Leg 138. Kate also expressed concern over the lack of preparation for problems encountered during drilling in the Santa Barbara Basin. Substantial gas was encountered in the cores. The shipboard party punched holes in the core linings to release the gas. Kate felt that sediment was lost in this process compromising the high resolution stratigraphic record.

A general presentation on the report of the Advisory Structure Review Committee was given by Bill Hay. OHP discussed the report with Bill Hay separately. Included in the OHP discussions of the report was the suggestion that extended abstracts be required for all submitted proposals.

Global Rankings

OHP first grouped proposals under consideration for the global ranking into four thematic groups: high resolution studies (mainly Neogene), ancient oceans (Paleogene and Mesozoic studies), upwelling and sealevel. The proposals in each group were ranked; the two proposals included in the upwelling group were not ranked relative to each other. Sealevel proposals were divided into those of high priority to OHP and those of secondary interest. After this initial ranking, several proposals were excluded from further consideration to limit the number of proposals in the final global ranking to approximately 15. The thematic groupings were as follows:

Thematic Program Groupings:

High Resolution Studies:

1. NAAG II/416 (gateway studies)
2. 430 Sub-SAT (high latitude)
3. 391-Rev. Sapropels (organic carbon deposition)
4. 404-Bermuda Rise/BBOR- Blake Bahamas Outer Rise
5. 347-Rev. S. eq. Atlantic
6. 406 Feni drift/372-Add
7. 418 Reoccupation of Site 372 (10 days-2 wks)
8. 429- Atlantic Mediterranean gateway

Ancient Oceans

1. 415-Rev. Caribbean Ocean
2/3. 079-Rev Somali Basin
2/3. 253-Rev/253-Add Shatsky Rise
4. 390/Bering Sea

Upwelling

1/2. 354-Rev/Add Benguela and Angola/Namibia (Neogene)
1/2. 386-Rev2/422-Rev (and high resolution)

Sealevel (Primary OHP Interests)

1. 427 South Florida Margin
2. 337/337-Add New Zealand
3. 367/367-Add Cool water Carbonate, S. Australia
4. 338/338-Add Marion Plateau (less than 1 leg)
5. 345/345-Add West Florida Margin

Sealevel (Secondary interests)

412/412-Add Bahamas (extensive stratigraphy problems)

After the thematic grouping, the following OHP Global ranking was determined:

Spring 1993 OHP Global Ranking - All Oceans

1.	NAAG II	0.942
2.	430 Sub-SAT	0.861
3.	354-Rev/Add Benguela	0.753
4.	415-Rev Caribbean	0.703
5.	386-Rev2/422-Rev CA. Current	0.651
6.	404 BR/BBOR	0.604

7.	427 South Florida Margin	0.503
8/9.	391-Rev. Med. Sapropels	0.460
8/9.	079-Rev Somali Basin	0.460
10.	337/337-Add New Zealand	0.367
11.	253-Rev/253-Add Shatsky Rise	0.302
12.	347-Rev S. Equatorial Atlantic	0.295
13.	406 Feni Drift/Reocc of Site 372	0.275
14.	367/367-Add Cool Water Carb.	0.173
15.	BS/390 Bering Sea	0.168

Secondary Interest:

408-Rev. N. Nicaraguan Rise
412/412-Add Bahamas Transect (2 on SGPP list - Stratigraphy questions)
403-Rev2 K/T Boundary, Gulf of Mexico
380-Rev3 VICAP-MAP (MAP-only)

Future OHP meeting sites and dates were proposed. The Spring 1994 meeting was scheduled in consideration of Leg 154 on which several OHP members may participate.

Fall 1993:	October 6-8, Bremen, Germany
Spring 1994:	March 29-31, U. Mass., Amherst (probable)

1.5 Tectonics Panel (M. Cannat)

Tectonics Panel has not met since the last LITHP meeting. They will be meeting next week in Davis, CA, and M. Cannat will be present as liaison.

1.6 TEDCOM (D. Moos)

TEDCOM has not met since the last LITHP meeting. However, at their next meeting, they will be reviewing the responses from the RFQ concerning Deep Drilling.

LITHP reviewed the generic "LITHP" site included in the RFP and, felt that overall it is representative of the environment likely to be encountered by a deep hole. It should be noted that the 1700 m thickness of Layer 2 is more likely to be a lower limit rather than an average for oceanic crust. Furthermore, based on the results of the recent Leg 148 drilling at Hole 504B, of seafloor observations at mid-ocean ridges, and of off-axis seismic experiments, it is likely that through-going fault zones may be more common in the mid- and lower crust than previously assumed, and therefore the drilling design should take these into account.

1.7 Downhole Measurements Panel (S. Humphris)

DMP met at College Station, Texas in January 1993 under the new Chairmanship of Peter Lysne. A number of items of importance to LITHP were discussed, including agenda items for the fall joint meeting.

In situ Fluid Sampling

There are four issues associated with *in situ* fluid sampling that have been identified:

- borehole fluids are not representative of *in situ* formation fluids
- most fluid samplers have valve closure problems
- samplers often contaminate the sample, especially at high temperatures
- removal and stripping of the sample is often a problem.

DMP recommended to PCOM that an RFP be issued for engineering, and this recommendation was endorsed by both LITHP and SGPP. It now stands behind the DCS and the Information Handling System on PCOM's priority list. In the meantime, the US DOE/OBES has instituted development of a high temperature sampler at Sandia which should address the valve closure problem. Sample contamination and extraction are being addressed by K. Von Damm and M. Lilley in a proposal submitted to JOI.

The RFP has been revised to make it as strong as possible, and it will be forwarded to PCOM for consideration. DMP has requested that the thematic panels review this RFP and send a strong message concerning the priority of an *in situ* fluid sampling effort.

Wireline Logging Services

JOI issued an RFP for Wireline Logging Services in December, which caused two major concerns. First, DMP felt that they did not have sufficient input into the details and technical work statement of the RFP. Second, there was a problem with the timing of the issuance of the RFP and the deadline for responses. The intervening Christmas holidays, and German laws concerning post-and-bid processes made it impossible for them to respond. Other potential bidders from the US also indicated similar problems. The German EXCOM member will bring this up at the next EXCOM meeting.

High Temperature Tools

CSMA Resistivity Tool -- this is being constructed as a joint development between ODP and the UK Dept. of Energy. There has been a manufacturing delay concerning ceramic components for the resistivity array, and the earliest possible tests would be in March 1993.

French Temperature Tool and Cable -- the tool was subjected to temperature and pressure autoclave tests, and experienced some electrical failures in non-tool cables and some leakage in the tool. The cable and cable head were tested in the Lardarello geothermal field in Italy. The cable failed at 110°C due to corrosion. Samples of the borehole fluids will be given to K. Von Damm to determine whether they are similar to those that are likely to be encountered in a submarine hydrothermal system.

HTBI Tool (WHOI) -- R. Von Herzen is developing a slimhole tool that will be capable of being used at temperatures of up to 350°C for 12 hours. It will measure pressure, temperature, fluid velocity, fluid electrical conductivity, acceleration, the location of casing collars, borehole diameter and tool internal temperature. There have been some delays in development but it may be ready for a land test towards the end of the year.

US DOE Tools -- A low-cost Dewared memory tool for pressure/temperature measurements is being developed and features an Onset Model 5 computer that

has been temperature cycled repeatedly to 150°C. It is scheduled to be deployed this summer. A spectral gamma tool has been delayed due to the failure of the photo multiplier tube at elevated temperatures.

There have been a number of important experiences on recent legs concerning some downhole logging tools:

Water Sampler, Temperature and Pressure Tool (WSTP) -- the pore pressure sensing capabilities of the WSTP were removed prior to Leg 139 so that high temperature electronics could be added. Modeling studies have suggested that the WSTP design results in uncertainties in the pressure data related to disturbance of material ahead of the bit. On Leg 139, the tool was deployed 14 times for fluid samples, and resulted in 13 specimens, 12 of which were contaminated with borehole fluids. In addition, the electronics are noisy, and out of 38 temperature deployments, only 16 gave usable records.

ADARA Temperature Tool -- this tool fits inside the shoe of the piston core barrel, which is deployed 9 m ahead of the primary bit. During Leg 146, the tool was deployed 23 times with 13 good measurements. 6 of the deployments failed because of problems with the battery packs, which are now being modified.

On Leg 146, a comparison between temperature measurements using the ADARA tool and WSTP was made, and demonstrated a 1.7°C calibration difference between the two instruments.

GEOPROPS Tool -- this tool is a nightmare to deploy as it needs to be inserted into a hole specially drilled with the MDCB, and the hole tends to fill in before the tool can be deployed. If the tool is to work, then the entire design needs to be rethought. A report is being prepared by T. Pettigrew that will assess the future of GEOPROPS.

Magnetometers --

BGR Magnetometer -- this has been upgraded to include addition of 2 inclinometers for the determination of hole deviation. It has been used in the KTB hole up to temperatures of 162°C. This tool has now met all third-party tool requirements and an application has been filed for Certified Tool status.

French Magnetometer -- this tool was used last on Leg 145 and will be commercially marketed by Schlumberger. It may be available to ODP free of cost, since Schlumberger is interested in further field tests.

Tool Watchdogs

DMP has set up watchdogs to provide points of contact and to better assess the operational principles, engineering constraints, and costs associated with various downhole measurement tools.

Cross-Borehole Acoustic Techniques

DMP had a briefing on cross-borehole techniques that are used in the hydrocarbon industry to generate velocity and attenuation maps over distances of up to several hundred meters. The technology is expensive, but will be kept track of in terms of its applicability to ocean drilling and lithosphere characterization.

2.0 REPORTS OF RECENT LEGS

2.1 Leg 147 - Hess Deep (S. Humphris)

Hess Deep is an example of a tectonic window in oceanic lithosphere where dismembered crustal sections created at the fast-spreading East Pacific Rise are exposed by the westward propagating oceanic rift valley of the Cocos-Nazca Spreading Center. Submersible observations by *Nautile* (22 dives in 1988) and *Alvin* (11 dives in 1989) have shown that the dike/gabbro transition, sections of gabbros and peridotites crop out on the walls and the floor of this rift. Two alternative rifting models for Hess Deep have been proposed: one emphasizes the vertical movement of mantle horsts or serpentinite diapirs to expose mantle rocks, while the other postulates rupture of the lithosphere by low-angle detachment faults.

The primary success of Leg 147 was the recovery of continuous sections of crustal gabbroic rocks and shallow mantle harzburgite, dunite, and intercalated gabbroic rocks from the Hess Deep. Site 894 (proposed HD-3) was located close to the summit of the intra-rift ridge, and the principal objective of this site was to sample a section of oceanic gabbros created at a fast-spreading center. Seven holes were drilled: three on the flat, slightly sedimented summit of the ridge (Holes 894A, 894D, 894E), and two on ledges close to southern edge of the summit (Holes 894B and 894F). An attempt to start Hole 894C with the guidebase failed. Problems were encountered in determining the location as the TV camera cannot see around the hard rock guidebase (HRB), so it had to be set using X-Y coordinate offsets. This resulted in the HRB being set on a sediment slope 60m east and 20m downslope of the target site. Circulation while drilling destabilized the sediment slope and caused it to slump. When the bit was pulled to the seafloor, the HRB tilted, broke the BHA and toppled over.

Hole 894G was the principal hole, penetrating 154.5 mbsf with an average recovery of 35.4%. Gabbros occurred in the upper part of the section, with gabbronorites, which were the most abundant, appearing at 45 mbsf. Other rock types recovered included olivine gabbros and oxide gabbros. These plutonic rocks are non-layered, although there are magmatic penetrative fabrics defined by the preferred orientation of euhedral plagioclase in many of them. Coprecipitation of plagioclase-clinopyroxene-orthopyroxene suggests that the magma became more highly evolved than that which normally erupts on the East Pacific Rise. Zircon and apatite, which are abundant in coarser grained pockets, may have crystallized from a volatile-rich magma that segregated and/or percolated through the crystallizing matrix. The lack of layering and textural variability, and the presence of coarse-grained pockets in these recovered rocks, are most similar to gabbroic rocks found in the upper parts of the plutonic sequence of ophiolite complexes. At least 80% of the rocks are moderately altered to greenschist and amphibolite mineral assemblages.

Hole 894G was abandoned because of high torque from deviation and ledges, and the inability to clean the hole. Unstable hole conditions with high torque, and packing-off with large cuttings and unstable rock falling into the hole were constant problems. This may have been exacerbated by the decision to set the HRB as a retrievable installation (i.e. not locking-in or cementing the casing strings).

Site 895 (proposed HD-4) was located on the slope south of the intra-rift ridge crest, and the principal objective was to recover a section of shallow mantle. Of the six holes drilled, only Holes 895D and 895E had substantial penetration (93.7 and 87.6 m respectively) and recovery (20.4 and 37.1% respectively). The rocks recovered consisted predominantly of dunite and harzburgite, with less abundant gabbro, olivine gabbro, and troctolite. The relatively small amount (less than 2%) of modal clinopyroxene in the ultramafic rocks indicates that they are depleted abyssal peridotites. The dunites may be either the simple residue of melting formed by more melt extraction than from the harzburgites, or simple cumulate products of melt crystallization. The association of harzburgite-dunite-gabbroic rocks recovered from these holes is similar to the transition zone in ophiolite complexes, and the relative abundance of dunite suggests that the sections are close to the crust/mantle boundary as recognized in these complexes and are likely located just below the petrological Moho. Similar drilling problems were encountered at this hole as those described for Hole 894G.

Other notable events on this cruise included the recovery of the HRB deployed at Hole 894C, recovery of a Scripps OBS, and the loss of five BHAs.

Recommendations from this Leg for future drilling programs in such formations include:

- drilling and coring a bare-rock pilot hole as deep as possible, and then setting an HRB and drilling a separate larger hole, running casing, and cementing as soon as possible without coring
- drilling with stabilized BHAs to wipe out ledges and control deviation
- running multiple casing strings as required for deep penetration in unstable formations
- locking the HRB to the slope as soon as possible and cementing to anchor it and prevent sediment washout.

LITHP recommends that the Co-Chief Scientists of the MARK drilling leg seriously consider the operation recommendations from Leg 147 in planning their cruise.

2.2 Leg 148 - Return to Hole 504B (J. Alt)

Leg 148 was the eighth DSDP/ODP cruise to occupy Hole 504B. Prior to this leg, Hole 504B extended 1726 m into basement, of which about 950 m are through the sheeted dike complex. The primary purpose of Leg 148 was to deepen this Hole and penetrate the dike/gabbro transition and/or the Layer 2/3 transition to clarify the relationship between lithologic and seismic structures.

The first two days on site were spent completing downhole measurements of temperature and fluid sampling. Previously, temperature measurements had indicated that downhole flow had initially been strong, but had then waned before being reactivated. During Leg 148 there appeared to be no downhole flow, but an anomaly in the temperature record similar to that seen on Leg 140 suggested hydrothermal activity at about 300 m. The temperature at the bottom of the hole was 180°C. Attempts to collect fluid samples resulted in the recovery of eight samples, all but one showing contamination by seawater.

The first nine days of drilling operations consisted of coring and milling from 2000.4-2111.0 mbsf. After stopping to retrieve core 253R, the drill string stuck.

The pipe was worked up to 290,000 lbs overpull with 17 turns of torque - the limit for the drillstring. Eventually, a Schlumberger string charge was used to unscrew the drillstring, but a 200 m long BHA was left in the hole that extended above the depth where drilling had been started. Since the drilling jars that were on board came up cracked after the initial drilling run, the decision was made to send to the beach for fishing jars and, in the meantime, offset and drill a new hole.

Nine days later, after delivery of the fishing jars, mill bits, and a fishing expert, the junk was quickly fished using the Bowen Super Jars, leaving only the drill bit, flapper valve, support bearing, and a piece of the explosion rod in the hole. Milling operations began and, after 12 hours, had milled about half the bit. On re-entering with the second mill bit, it was discovered that there was now about 20m of fill on top of the bit. The only option was to pull out to replace the milling bit with a drilling bit to try to drill through the fill; however, on pulling out, it was learned that the drilling jars were broken off, and they, together with the junk sub, the bit sub, the mill bit, and three drill collars (about 32 m) were left in the hole. Fishing operations began and the overshot engaged the junk; however, the junk was stuck in the hole. Through a combination of jarring and torque, the fish and junk were freed, but the jars were damaged in the process. Rather than risk going back in the hole without jars, and with only three days left of scheduled coring operations, it was decided to log the hole and then return to Hole 896A. The end result is that the hole was left with 20m of fill and half a drill bit in the bottom.

In terms of the rocks recovered from Hole 504B, about 111 m of formation was drilled with only about 9.7% recovery. Twenty-four units of fine-grained diabase were identified, which showed some differences in terms of alteration to the rocks recovered higher up in the section on previous legs. The Leg 148 rocks are more recrystallized (indicated by the abundance of actinolite) with about 20-40% of the rock being altered (compared with 10-20% at shallower depths). Some unusual flat, platy pieces of rock with slickensides were recovered suggesting microfaults throughout the section. Near the bottom of the hole, unusually high drilling rates of 7m/hour were encountered through soft material that resembled fault gouge. It is likely that there is a fault zone at the bottom of the hole. This suggests that faulting may be more prevalent in the crust at depth than previously thought.

In terms of logging, the WHOI VSP failed due to a problem with the signal to the instrument to clamp it in the hole interfering with the signal from the instrument itself. Logs run through the entire section were the sonic and resistivity logs, the FMS, and the BGR magnetometer; the digital BHTV failed (this was the fourth consecutive leg that this tool did not work). In the sheeted dikes, the new section showed a slight increase near the bottom to a V_p of 6.8 km/sec, and a decrease in resistivity below 2000 mbsf suggesting more abundant fracturing.

Hole 896A was drilled about 1 km southeast of Hole 504B on a basement high that was located in a high heat flow area, where thermal modeling predicts upwelling of lower temperature hydrothermal fluids beneath the basement high. A reentry cone was set (4 days) in an area with about 180 m of sediment. The hole reached 469 mbsf, and 269 m of pillow basalts and breccias were drilled, with a recovery rate of about 30%. The basalts are more massive in Hole 896A than in Hole 504B, with the more massive units being more altered than the pillow and breccia units. In the upper part of the section, there are many late smectite and carbonate veins, which are superimposed on alteration typical of that seen at Hole 504B. Downhole logging at Hole 896B included temperature, sonic and resistivity logs, the geochemical tool, the BGR magnetometer, the FMS and a

packer experiment. This hole appeared to be slightly more sealed than Hole 504B, and no downhole flow was observed in Hole 896A as at Hole 504B.

The question concerning the future of Hole 504B was discussed, as well as the likelihood of submission of another "Return to Hole 504B" proposal. One approach that may be taken with such a proposal would be a leg to first clean and deepen Hole 504B, and second, to deepen Hole 896B to at least 500m. This would make this pair of holes a candidate for crosshole studies as part of LITHP's efforts to look at scales of heterogeneity in the oceanic crust. An OBS experiment around Hole 504B has recently been funded that will look at heterogeneity in the upper crust and will focus on the Layer 2/3 boundary.

3.0 ENGINEERING DEVELOPMENTS AND CONCERNS

3.1 RFP for *In Situ* Fluid Sampling (S. Humphris)

The RFP for *in situ* fluid sampling has recently been revised by the DMP Sampler Sub-Panel in order to make the package as strong as possible for presentation to PCOM. The main text of this document was circulated to LITHP members prior to the meeting.

The specific requirements of the system as defined in the RFP are that it will:
- be operable at temperatures up to 100°C and will collect four samples at various time intervals with a minimum sample volume of 20 cm^3
- obtain temperature, pressure and permeability information
- be equipped to verify sample integrity
- require a minimum pressure differential so as to minimize gas loss
- minimize contamination from the sampler and loss of the sample
- use a packer spacing (if such technology is required) of 1-5m
- resolve absolute depth of the sample to within 5m.

The tasks that are outlined in the RFP for the contractor are:
- consult with ODP so that development of the tool will be compatible with ODP's operations
- complete a detailed analysis by modeling of the hydrogeological state of formations most likely encountered by ODP to answer the question: "under what conditions is the formation likely to produce an appropriate fluid sample?"
- evaluate sampling technologies appropriate for formations and conditions encountered by ODP
- choose the best candidate technology
- present results to PCOM.

LITHP continues to strongly support the development of *in situ* fluid sampling capabilities, and is concerned that the RFP has not yet been issued. LITHP would like to expedite the process and suggests that, if insufficient funds exist for the RFP to be sent out immediately, then a "letter of intent approach" be adopted to conduct a feasibility study for *in situ fluid* sampling.

LITHP also makes the following recommendations regarding the requirements of the system as delineated in an RFP or request for letters of intent:

- **the operating temperature requirements should be higher (up to 350°C?) given the interest in obtaining formation fluids from basement and from hydrothermal systems**
- **any candidate technology should be reviewed for future potential modifications that will make it usable in slim holes with the DCS.**

3.2 Preparation for Hard Rock Drilling Legs

There have now been a number of legs that have drilled in new basement lithologies and in new situations, and it is clear that hard rock drilling legs face a number of problems unique to each leg. In addition, it also appears that hard rock legs result in a greater loss of equipment, which must be anticipated if we are to avoid losing valuable drilling time. For example, on Leg 148, the option of leaving port a day early was lost because of the need to wait for drilling collars. There were only two mills on board, and fishing jars had to be sent out to the ship. To optimize the use of the ship, it is important that sufficient and appropriate equipment to deal with potentially difficult drilling situations is on hand and the ship is adequately prepared for these legs.

LITHP is concerned about the engineering readiness (in terms of available equipment) and the anticipation of potential problems on hard rock drilling legs. Now that ODP has some experience in drilling in various types of basement formations, it is critical that the ship puts to sea with sufficient, and appropriate, equipment to avoid losing valuable drilling time. In this regard, the following three recommendations are made in an attempt to help foresee possible problems:

- **LITHP will try to identify and communicate the likely challenges that each hard rock drilling leg will face**
- **LITHP requests that ODP assign an engineer *now* to begin to address engineering requirements for the FY'94 hard rock drilling legs**
- **LITHP recommends that, for technologically challenging legs, the Co-Chief Scientists make a presentation to TEDCOM (as the advisory panel on technology and engineering) about the objectives of the leg, and obtain advice from them on how best to prepare for potential difficulties.**

3.3 Borehole Televiewer

The digital borehole televiewer (BHTV) has not worked reliably for at least the past four legs. Apart from giving useful information by imaging the borehole surface, it is critical for stress measurements -- an important goal of LITHP.

The borehole televiewer (BHTV) is required for LITHP to attain its scientific goals. LITHP is concerned that the BHTV has not worked in recent past legs, and would like some assurance that future legs will sail with a reliable and functional BHTV, and that the operators are able to use and maintain it.

4.0 PROPOSAL REVIEWS

The following proposals were determined to not be within the mandate of the LITHP and were therefore not discussed:

347-Rev	Late Cenozoic Paleoceanography, South-Equatorial Atlantic	G. Wefer, W.H. Berger, T. Bickert, U. Bleil, D. Lutter, V. Spiess
367-Add	Sedimentation History of a Cool-Water Carbonate Continental Margin, Southern Australia	N.P. James
372-Add	Cenozoic Evolution of Intermediate Water Circulation and Vertical Chemical Gradients in the North Atlantic	R. Zahn
408-Rev	Miocene Segmentation of the Carbonate Megabank Covering the Northern Nicaragua Rise: Gateway Opening for the Initiation of the Caribbean Current	A.W. Droxler, A.C. Hine, P. Hallock, E. Rosencrantz, R. Buffler, A. Mascle
412-Add	The Bahamas Transect: Neogene/Quaternary Sea-Level Fluctuations and Fluid Flow in a Carbonate Platform	G.P. Eberli, D.F. McNeill, P.K. Swart
422-Rev	A Proposal for Ocean Drilling in the Southern California Borderland Province	L.D. Stott, R.C. Thunell
423-Rev	Gas Hydrate Sampling on the Blake Ridge and Carolina Rise	C.K. Paull, W.P. Dillon, T. Collett, S. Holbrook, K.A. Kvenvolden, D. von Herzen, W. Ussler
427	High-Resolution Sequence Stratigraphy and Sea-Level History, South Florida Margin	S.D. Locker, A. C. Hine, G.P. Eberli, E.A. Shinn
429	The Atlantic-Mediterranean Gateway: Paleoceanographic and Sedimentary Process Implications of the Late Cenozoic Gateway Evolution from Open Ocean Tethys, to Betic-rif Bichannel to Gibraltar Unichannel System	C.H. Nelson, R.H. Benson, J. Baraza, J.C. Faugeres, J.A. Flores, D.V. Kent, R. Kidd, A. Maldonado, K. Rakic-El Bied, F.J. Sierro, Vergnaud-Grazzini

(For the following proposals, proponents were asked to leave the room for discussion of their proposals).

4.1 Proposal 253-Add

Paleoceanographic Controls on the Deposition of Organic Carbon-rich Strata in the Ancestral Pacific (W. V. Sliter, G.R. Brown)

Overall Rating - 3 Is of secondary interest to LITHP if it is of high priority to some other panel.

The principal objectives of this proposal (organic carbon-rich strata/paleoceanography) are not within the mandate of LITHP. A secondary goal, the proposed basement drilling (Jurassic?), is of great interest to LITHP. The proponents should consider expanding lithosphere objectives in a revised proposal which continues to address OHP objectives as the primary goal. The plans for basement drilling should maximize the available drilling time for basement penetration and include specific goals (e.g. geochemical character, potential radiometric age data and paleolatitude information). Results from basement dredging from a site survey cruise would enable the Panel to evaluate

further how basement drilling could meet LITHP goals. Continued support for this project, however, is coupled to advances in DCS.

4.2 Proposal 333-Rev
Tectonic and Magmatic Evolution of a Pull-Apart Basin: A Drilling Transect Across the Cayman Trough, Caribbean Sea (B. Mercier de Lepinay, E. Calais, P. Mann, E. Rosencrantz, M.R. Perfit, T. Juteau)

Overall Rating - 3 Is of secondary interest to LITHP if it is of high priority to some other panel.

This revision is more a letter of intent to write a proposal that will include both Cayman Trough and Nicaraguan Rise drilling linked under the general theme of formation of the Caribbean gateway. Consequently, it is difficult to truly evaluate the revised proposal before it is actually rewritten.

It is clear, however, that LITHP will be less interested in the revised version than it was in the original proposal. Specifically, Site CAY-4 on the Mid-Cayman Spreading Center, which LITHP had originally indicated would address high priority objectives of the Panel, will be removed from the revised version. In addition, the new site at the anomaly marking the proposed Oligocene-Miocene reorganization of plate motion cannot yet be assessed since no information is provided. This is not to say that LITHP is encouraging the proponents to keep CAY-4 in the proposal, but that support from this panel will be limited, so the proponents need to address high priority objectives of other thematic panels.

The Cayman Trough may well be a good location to investigate transform-related basin openings, so recovery of basement would be useful. LITHP retains its interest in the proposed basement sampling at CAY-1 and CAY-2, and at CAY3 (close to the continent/ocean transition).

4.3 Proposal 340-Rev
Neogene/Quaternary Collisional Tectonism and Foreland Basin Development Across the Northern Australian Margin (P.A. Symonds, C.J. Pigram, M.G. Swift, P.J. Davies, D.A. Feary)

Overall Rating - 1 Proposal objectives are not within the mandate of this panel.

4.4 Proposal 419-Rev
Convergence of Oceanic Lithosphere at the Eastern End of the Azores-Gibraltar Plate Boundary (R. Satori, L. Torelli, N. Zitellini, E. Lodolo, D. Peis)

Overall Rating - 2 Does not address high priority thematic objectives.

As stated in our previous review of this proposal, LITHP is potentially interested in drilling in this area. However, this revision does little to address the deficiencies specifically identified previously by this Panel in its review of the previous version. In particular, the rationale and strategy for drilling are still inadequately presented. The proponents may wish should consider involving

additional personnel in order to expand their collective expertise and devise a more rounded, more mature proposal.

4.5 Proposal 424-Rev
Proposal to "Cork" Hole 395A, preceded by Limited Hydrogeological Experiments (K. Becker, E. Davis)

Overall Rating - 5 Addresses high priority objectives of this panel.

LITHP continues to support this program, which addresses objectives that are important to the Panel.

The proponents have suggested three possible legs on which to accomplish their aims. **LITHP feels that the most appropriate leg on which to deploy the CORK is Leg 158, which will have the appropriate staff on board for deployment of the CORK at TAG. LITHP recommends that this project be scheduled as part of that Leg.**

LITHP also concurs with the proponents that this program should be scheduled as a backup for the MARK Leg, in case of drilling difficulties with that program. However, it is essential that one or two scientists sail with that shipboard party who are capable of supervising both the CORK deployment and the pre-CORK logging program.

LITHP feels strongly that the program NOT be scheduled as a backup to the DCS tests on Leg 157, as it is essential to maximize time with the DCS in order to provide an adequate test. Furthermore, there was some concern that DCS and CORK deployment may be incompatible, due to the presence of the DCS hardware above the rig floor.

4.6 Proposal 426
Mantle Reservoirs and Mantle Migration Associated with Australia-Antarctic Rifting (D. Christie, D. Pyle, A. Crawford, R. Lanyon, R. Varne, J-C. Sempéré)

Overall Rating - 4 Addresses high priority objectives, but with deficiencies, as noted below.

The Lithosphere Panel is highly supportive of this proposal in that it addresses a world-class problem related to the origin of the oceanic lithosphere -- namely the longevity and spatial distribution of mantle reservoirs. The AAD represents a unique location on the planet where interaction between major mantle reservoirs (Indian Ocean mantle and/or Kerguelen Plume mantle and Pacific mantle) can be demonstrated. A secondary objective of the proposal is to address the consequences of break-away of Australia from Antarctica. This objective requires either further development of the drilling strategy, or should not be part of this proposal as it may dilute the effort required to address the primary objective of AAD drilling.

Given that several field and laboratory programs are in progress or are planned for this region, LITHP would like to see a more focused drilling strategy based on:

1) analyses of previously dredged samples;

2) analyses of samples that may be dredged in the future along N-S transects in the fracture zones (e.g., Fracture Zone B5);

3) evaluation of samples from DSDP holes in the Pacific Ocean relative to the Indian Ocean (sites 265, 266, 267) which should establish the viability of the proposed trace-element approach (i.e., Zr/Ba vs Zr/Nb).

LITHP feels that a firmer basis for site selection, based on these field and laboratory studies, is needed. It is unlikely that drilling sites can be determined based on shipboard XRF data because of the required site survey and safety panel reviews prior to a drilling program receiving final approval. However, LITHP encourages the proponents to revise the proposal based on additional sample analyses and future field programs in the area.

4.7 Proposal 428

The Quaternary Igneous Seafloor and Hydrothermal Sulfide Deposits in the South Tyrrhenian (Marsili Deep and Palinuro Volcano) (C. Savelli, M. Boni, H.Puchelt, L. Beccaluva, M. Minniti, D. Eckhardt)

Overall Rating - This proposal did not fit into any category; however it *could* address high priority objectives if it were better documented.

LITHP clearly recognizes that a well-planned drilling program in the Southern Tyrrhenian Sea *could* offer an excellent opportunity to evaluate the magmatic and tectonic relationships of the western Mediterranean volcanic arc. Understanding oceanic crustal formation at convergent plate margins, especially one near a continental margin, is a high priority objective of this panel. While LITHP encourages drilling initiatives in the Western Mediterranean, it cannot, unfortunately, endorse this particular drilling proposal.

The proposal lacks almost any justification or rationale for the proposed drilling strategy. In addition, the proponents also fail to provide enough geological or geochemical information to evaluate the necessity or suitability of this region for an ODP drilling leg. The goals and objectives of the project are worthwhile, but most likely will not be addressed with the science plan outlined in this proposal.

A revised version of this proposal needs to not only correct the major deficiencies noted above, but should also address the following LITHP questions or concerns:

1) Why do the massive sulfide deposits on the Palinuro Seamount require drilling? Wouldn't a dredging/submersible investigation combined with camera tows answer all the important questions that pertain to this portion of the project?

2) What is the evidence supporting the claim that there is "active venting" associated with Palinuro?

3) Why are only two drill holes planned for the Marsili Deep region? Why not a series of five to ten holes spaced systematically around the Marsili Basin?

4) There is no discussion of basement penetration depths. What length of core is required to evaluate the tectonic and magmatic problem adequately in this area? Are 50 meter basement sections sufficient?

5) What were the results of previous DSDP and ODP drilling programs in the Western Mediterranean? How have these drilling initiatives influenced the proposed science plan?

4.8 Proposal 430
Subantarctic Southeast Atlantic Transect (Sub-SAT))D.A. Hodell, P.N. Froelich, C.D. Charles, J.P. Kennett, D.A. Warnke)

Overall Rating - 1 Proposal objectives are not within the mandate of this panel.

The proposal addresses paleoceanographic objectives exclusively, and basement penetration is not planned even though the whole sediment section will be sampled at all but one of the proposed sites. LITHP recommends that basement should be sampled according to standing ODP policy.

4.9 Proposal 431
Western Pacific Seismic Network: Interaction of Subducting Plates and Mantle (K. Suyehiro, T. Kanazawa, N. Hirata, Y. Fukao)

Overall Rating - 4 Addresses high priority objectives, but with deficiencies, as noted below.

The establishment of broadband seismic stations in boreholes to augment the global seismic network is a long term priority of LITHP. LITHP recognizes that this proposal is an important element in the effort to develop a network of permanent ocean seismic stations. The two proposed sites are both important: the WP-1 site would provide new constraints on the lithospheric structure of the Philippine plate, and the WP-2 site would fill a crucial gap in the global coverage of broad band seismic stations.

However, the current proposal is deficient in several respects. It is not yet demonstrated that borehole seismometers are sufficiently superior to seafloor seismometers (e.g. buried ocean bottom seismometers) to justify a commitment to drill additional holes solely for the purpose of establishing new seismic stations. The proponents need to provide convincing arguments that the use of borehole seismometers is required to achieve data quality sufficient for the purposes of global seismologists. In particular, a revised proposal should include examples of data collected during the Hole 794B experiments, as well as a more complete technical description of the instrumentation. With regard to the WP-1 site, the proponents need to demonstrate that an island seismic station located on Oki-no-Torishima would not provide adequate data for investigating Philippine plate structure. The proponents should also discuss how the data from these sites would be rapidly made available to the international seismological community. LITHP is also concerned that the proposed holes penetrate only 50 m into basement; this is thought to be the absolute minimum required, and the proponents are encouraged to propose basement penetrations of at least 100 m.

4.10 Proposal SR-Rev
Sedimented Ridges II (J.M. Franklin, R.A. Zierenberg)

Overall Rating - 4 Addresses high priority objectives, but with deficiencies, as noted below.

This proposal addresses a number of high priorities of LITHP -- in particular, aspects of hydrothermal processes at mid-ocean ridges and the formation of massive sulfide deposits in sedimentary environments. This has important implications for the genetic understanding of major ore deposits on land, as well as for geochemical mass balances in the oceans.

The first part of the proposal is based on results obtained during Leg 139 drilling at Middle Valley, and appears to be reasonably mature. The drilling strategy for Escanaba Trough as outlined in the second part of the proposal does not appear to be supported by all relevant data, and it is not evident whether required site survey data exist. Site summary forms along with reasonably detailed maps to evaluate the location of proposed drill sites are missing and need to be provided. As statements about the total penetration were somewhat vague, it was questioned whether all proposed holes can be drilled within one leg. With respect to the issue of constraining the timing and duration of the sulfide-forming process, which is critical to the overall understanding of the hydrothermal system and its interaction with magmatic processes, it is suggested that Th/U and Pb/Pb dating of hydrothermal precipitates be considered in order to resolve the hydrothermal history for both Middle Valley and Escanaba Trough.

5.0 REVISION OF THE LITHP WHITE PAPER

A draft revision of the LITHP White Paper was circulated to all members prior to the meeting. Time was spent at this meeting working in small groups to edit and/or modify the text, and reorganize the document. A second draft will be prepared in the next month, and circulated to all members, as well as to other panels for their comments.

An initial attempt was made at defining the highest priorities for drilling under each of the major topics of LITHP interest. It is clear that an ultimate goal will continue to be a continuous section through the oceanic crust; however, in the near-term, other strategies (such as offset drilling) will be used to obtain partial sections through the major units comprising the crust and upper mantle.

The priorities that were determined for the 1993-1998 time frame for each area of study were (not in any order):

Oceanic Lithosphere
- Crustal Evolution - Drilling Along a Flow Line
- Hydrothermal Processes Coordinated with Experiments and Monitoring Efforts
- Lithosphere Structure and Composition - Offset Drilling
- Deep Drilling
- Initiation of Rifting - Drilling in an area such as the Red Sea

Large Igneous Provinces (LIPS)
- Mantle Plumes and Continental Breakup

- Timing of the Formation of Large Oceanic Plateaus

Convergent Margins
- Arc Initiation and SSZ Ophiolites
- Back Arc Propagation and Source Distribution
- Subduction Zones - Mass Balances and Geochemical Fluxes

It is hoped that further clarification of these themes, and specific goals to be reached by 1998, will be defined after an open meeting to discuss the priorities as seen by the lithosphere community.

Although PCOM did not clearly endorse the proposed schedule of production of the White Paper, the Advisory Structure Committee recommended that the LITHP approach of holding an open meeting be adopted. E. Kappel has indicated that USSAC would be willing to consider a proposal to support participation of U.S. scientists in such a meeting. However, there is serious concern among the international LITHP members that there will be limited funds available (if any) for participation by scientists from the member countries. LITHP views international participation as critical to gaining community-based input. Consequently, the possibility of holding such a meeting in the UK will be investigated. This will reduce travel costs for three of the member countries and the ESF consortium. In addition, attendance at the meting will be apportioned by discipline (to ensure a well-rounded group of participants) and by international partner membership.

LITHP requests a clear statement from PCOM endorsing the approach that it is taking in revising its White Paper in order to facilitate LITHP in accessing funds to support an open meeting as part of its revision schedule.

6.0 GLOBAL RANKING OF PROPOSALS

6.1 Global Ranking

Based on the direction being taken in the White Paper concerning the goals of the Panel for the 1993-1998 time frame, a number of programs (with associated proposals) that address high priority objectives of the Panel were selected. In addition, themes for which there are currently no proposals (or suitable proposals) were also identified and discussed in terms of their completion requiring the drillship to be directed to other regions in the 1997-1998 time frame.

Given that the purpose of the spring ranking procedure is to provide PCOM with priorities for drilling over the next four years (i.e. through 1997), LITHP then went through the list and eliminated those proposals that would be unlikely to rank in the top fifteen, while at the same time, ensuring that those high priority themes that will require drilling in an ocean other than the "Atlantic and adjacent seas" prior to 1998 were well represented. This resulted in 11 programs with proposals and 4 themes for which proposals are required:

- LIP Timing: this program would address the timing of the formation of the large igneous provinces, and would most likely be conducted on either the Kerguelen or Ontong-Java Plateau
- Forearc/Backarc Program: a number of high priority objectives exist at convergent margins, and it is expected that several proposals will

soon be submitted for drilling in these environments in the W. Pacific

- Mass Balances and Geochemical Fluxes at Subduction Zones: LITHP has long been interested in addressing this problem. There is currently a proposal in the system (Proposal 400) that could, with some revision, conduct an appropriate study at the Middle America Trench. However, as presently written, its emphasis is more on fluid flow within the accretionary wedge, than on defining the composition of the downgoing slab. Consequently, this topic is included in the rankings as a generic proposal.
- Caribbean LIP/KT Boundary: the PANCHM recommended that the proponents of the KT boundary proposals and the Caribbean LIP proposals work together to produce a joint program of drilling. A leg of drilling for such a program is included in the rankings.

Once the shortlist of fifteen had been identified, proponents of proposals under consideration were identified and recorded, and they were also not permitted to vote on their own proposals:

M. Cannat	Offset Drilling at 15°20'N, MAR
R. Zierenberg	Sedimented Ridges II
M. Coffin	Generic LIP Timing (Kerguelen or Ontong-Java)
J. Tarduno	Generic LIP Timing (Kerguelen or Ontong-Java)
S. Bloomer	Generic Forearc/Backarc, W. Pacific

Ranking was done by written votes, which were tallied by the SGPP liaison. All voting sheets were signed and have been kept as part of the meeting records. The results of the global rankings are listed below. In addition, an assessment of each program's drillability in FY'95 was made and is included in the table with explanatory notes below.

Rank	No.	Proposal	Members Voting	Score (±1σ)	Drill in 1995
1	420	The Evolution of Oceanic Crust	15	11.5 (3.7)	No
2	300-Rev	Return to Hole 735B	15	10.4 (4.6)	(Yes)
3	NARM	NARM Volcanic Leg 2	15	9.9 (4.1)	Yes
4	SR-Rev	Sedimented Ridges II	14	9.8 (4.2)	Yes
4	86-Rev2	Drilling in the Red Sea	15	9.8 (3.3)	No
6	--	LIP Timing (Kerguelen/Ontong-Java)	13	9.5 (3.9)	No
7	--	Forearc/Backarc (W. Pacific)	14	9.1 (3.3)	No
8	426	Mantle reservoirs, AAD	15	8.9 (4.3)	No
9	407/425	MAR at 15°37'N	14	7.9 (4.6)	Yes
10	--	Mass Balance at Subduction Zone	15	7.7 (3.1)	No
11	376/382	Vema FZ - VE-1 and VE-2	15	7.3 (2.7)	Yes
12	368	Return to 801C	15	6.9 (4.1)	Yes
12	--	Caribbean LIP/KT Boundary	15	6.9 (3.3)	No

14	374	Oceanographer FZ	15	4.0 (3.2)	No
15	380-Rev3	VICAP	15	3.3 (3.0	No

The following caveats on these rankings should be noted:

East Pacific Rise II: although drilling into young crust at a fast-spreading ridge is still a very high priority objective of LITHP, it was not ranked as it requires DCS. If the DCS proves successful during the Engineering Leg in FY'94, LITHP will probably rank EPRII highly for drilling in 1995-1996.

LETHAL Proposal; To CORK Hole 395A: this has been excluded from the ranking because it needs to be incorporated into the already planned drilling schedule, and is not part of planning the future direction of the ship.

Reykjanes Ridge (Proposal 413): this was not included in the rankings as it is presently not drillable because five sites require bare-rock drilling and the DCS.

Return to Hole 504B: no proposal currently exists for a return to Hole 504B; however, it would be a high priority for LITHP. It was excluded from the rankings because the status of the viability of the Hole and the possibility of deepening it needs to be assessed before it can be ranked.

W. Pacific Seismic Network (Proposal 431): this proposal addresses a long-term high priority objective of LITHP. However, it has not been included in the rankings as LITHP needs to be convinced that borehole seismometers can provide high quality data and are superior to seismometers buried in sediment before it invests more time in drilling these special purpose holes.

Return to Hole 735B: this is drillable in terms of reoccupying the same site, which is proposed as the first leg of drilling. The proposed second leg of drilling is not ready for drilling and requires an additional geological survey.

NARM Volcanic Leg 2: LITHP repeats its recommendation that Leg 2 should proceed to the Voring Margin (if EG63-1 and EG63-2 are completed), as suggested in the NARM-DPG. If the two East Greenland sites are not finished, then Leg 2 should return and complete them and, with any remaining drilling time, continue with the EG-63 transect.

The overall result of the rankings is that, based on the standard deviations, there is very little difference in priority among the top ten programs, all of which address very high priority LITHP objectives. All of the still active proposals that were highly ranked last year fall once again into the top 15; however, the scheduling of the highest ranked proposals from last year has allowed programs that address a wider variety of lithospheric problems to be added.

Based on the global rankings, completion of LITHP's high priority programs for the 1993-1998 time frame will require that the drillship leave the Atlantic, adjacent seas and eastern Pacific after its currently planned stay through April 1996. Programs in the Indian Ocean and western Pacific are likely to be highly ranked by LITHP for drilling in 1997-1998.

In terms of procedural issues, the global ranking is at times very difficult, given that many of the proposals date back several years (beyond the tenure of most

Panel members!) and have been kept alive by revisions and addenda. This means that, on occasion, Panel members do not have a detailed knowledge of proposals under consideration for ranking. An extended abstract of each active proposal would be extremely helpful at the spring meeting.

LITHP recommends that the requirement of an extended abstract, complete with short descriptions of proposed sites, be added to drilling proposals. For the spring meetings of the thematic panels, the JOIDES Office should compile the abstracts of all active proposals and circulate them to the Panel Chairs. They, in turn, could circulate those relevant to their Panels for consideration during the global ranking procedures.

6.2 Watchdogs

The following watchdogs have been appointed (or were previously appointed) for the proposals or themes that are of high priority for LITHP:

Evolution of Oceanic Crust	D. Caress
Return to Hole 735B	S. Bloomer
NARM	M. Coffin
Sedimented Ridges II	P. Herzig
Red Sea	J. Ludden
Australia/Antarctic Discordance	D. Wilson
Caribbean/ KT Boundary	M. Coffin
LIPs Drilling	J. Tarduno
Convergent Margins Drilling	S. Bloomer
Offset Drilling - Median Valley Walls	P. Kempton
- Rifted Crust	J. Bender
- Transverse Ridges	S. Bloomer

6.3 North Atlantic Rifted Margins

LITHP received a letter from Hans Christian Larsen expressing his concern about the future of volcanic rifted margin drilling, and his perception that LITHP's "fairly vague message about what a second leg of drilling should comprise" may have influenced the thinking of PCOM. LITHP has been in strong support of the volcanic legs of NARM and, in fact, ranked it higher than any other panel at its fall meeting. Its continued commitment is also clear in that it now ranks third in LITHP's global rankings completed at this meeting.

The recommendations made by LITHP for the composition of the second leg of drilling basically followed that described in Table 3.2 of the NARM-DPG report which was included in the Atlantic/Pacific Prospectus for FY'94; i.e. Leg 2 should work on the Voring Margin, beginning with VM-3. The only other suggestion concerned the possibility that sites EG63-1 and EG63-2 may not be completed in the first leg. If that case arose, then LITHP felt it important to finish those two holes and, rather than spend time in transit to the Voring Margin, begin drilling EG63-3, which is currently listed as part of Leg 3 in the proposed schedule.

7.0 REPORTS FROM OTHER GLOBAL GEOSCIENCE INITIATIVES

7.1 InterRidge (S. Humphris)

Since the meeting last March to discuss the InterRidge Science Plan, several countries have indicated that they will become members of InterRidge. The InterRidge office will move to the UK some time in the summer of 1993, and will be headed by R. Searle.

7.2 National RIDGE Efforts

U.S. RIDGE (S. Humphris)
Following the interest expressed in an effort to conduct monitoring experiments in conjunction with the TAG drilling, the U.S. RIDGE Office, on behalf of InterRidge, organized a meeting in Woods Hole in February to develop a specific plan for measurements to be made before, during, and after drilling to maximize the potential scientific gain from drilling at TAG. The meeting was attended by representatives from the U.S., ODP, the UK, and Japan.

Given the time and submersible availability constraints, the recommendations for a program at TAG, were as follows:

- Borehole Experiments:
  - emplacement of a CORK in one of the drillsites, and sealing of the other holes
  - completion of an extensive downhole logging program.

- Monitoring Experiments:
  - deployment of a closely-spaced array of OBS around the TAG mound, plus a larger OBS network with on-bottom time of 3-4 months
  - monitoring of fluid flow and temperature in specific areas
  - spot sampling of vent fluids and temperatures before and after drilling
  - high resolution side scan/ photomosaic surveys before and after drilling
  - time lapse video in the Kremlin area
  - a repeat heat flow survey after drilling, reoccupying the same sites measured prior to drilling.

French Ridge (M. Cannat)
The French hydrothermal studies group (PNEHNO) is being dissolved and the funds will be allocated for ridge-related proposals rather than being used specifically for hydrothermal studies. A brochure is currently being put together to be used for funding purposes.

Jean Francheteau is now the French representative to InterRidge.

DeRidge (German Ridge) (P. Herzig)
This group was formed in 1992 and consists of about 40 members from different institutions and universities. The group is chaired by H.-U. Schminke. There have so far been three meetings, with the last one occurring jointly with the German ODP meeting.

Three areas of research interest have been defined:
- Red Sea

- North Atlantic (particularly the Reykjanes and Kolbeinsey Ridges)
- Southeastern East Pacific Rise

and workshops on each will be held later this year. Funding for projects in these areas may be done through the German ODP (as site surveys), but for the long-term, special funding through DFG may be possible. DeRidge wishes to join InterRidge if the membership fee can be found, and the next InterRidge meeting will take place in Kiel, Germany in the first half of 1994.

BRIDGE (P. Kempton)
BRIDGE, under the leadership of J. Cann, now has its own funding from NERC, and has recently published a brochure about its program.

Canadian Ridge (J. Ludden)
Although there is as yet no formal group, discussions are underway in Canada, mostly lead by J. Malpas, to make it official. However, there is no funding yet identified to support any infrastructure for this program.

Japanese Ridge (T. Shibata)
The Japanese have formally agreed to membership in InterRidge. This summer, they will be studying the East Pacific Rise at about 19°S.

7.3 Nansen Arctic Drilling Program (Y. Kristoffersen)

There is currently a group working on creating a database of information available for the Arctic to begin to justify drilling in the region.

There will be Norwegian, German and US program in the Arctic this year. A major drift experiment is planned to begin in August 1994. A vessel capable of holding 25 scientists will be frozen into the ice and will drift for 18 months. Seismic data will be collected in a 24 km wide corridor using a linear array of hydrophones (24) deployed out to 12 km on each side of the vessel. Seismic sources at each end of the array and two at the vessel will provide depth soundings and seismic reflection points every 50 m along the drift track.

There are opportunities for other scientists to conduct experiments from this platform.

7.4 IAVCEI (M. Coffin)

IAVCEI has recently initiated a task force on large volume basaltic provinces. Its first meeting will be in September in Canberra, Australia.

7.5 Continental Scientific Drilling Program (J. Mutter)

A meeting will be held in August in Potsdam that will be the equivalent of a continental COSOD. J. Mutter will chair the sessions on continent/ocean transitions. The possibility of drilling to about 600 m in Hilo, Hawaii is still being considered.

7.6 Japanese Ultra-Deep Geological Exploration (JUDGE) Project (D. Moos)

This project is investigating the possibility of drilling south of Tokyo to a depth of 12 km in an attempt to penetrate the top of the subducting slab. These are very preliminary ideas, and it is hoped that there will be international interest in this project that might facilitate funding.

7.7 NSF Workshops (J. Mutter)

There are two NSF workshops scheduled for May:
i) Sedimentary Processes (not of relevance to LITHP)
ii) Magmatism and Mass Fluxes: an attempt will be made to develop a program for NSF on convergent margins. A representative from LITHP should attend the meeting, which will be convened by W. Leeman (Rice University).

8.0 REVIEW OF THE REPORT OF THE JOIDES ADVISORY STRUCTURE REVIEW COMMITTEE

LITHP has reviewed this report, and offers the following comments and recommendations (arranged by subjects, as in the report).

Subject 1: Workshops/ COSODs/ White Papers

- LITHP considers it a good idea to involve more of the community in determining the long range plans for the different thematic panels. However, without any funding, the international panel members expressed concern that it may be difficult getting funds for interested scientists to attend. At best, there would probably be one or two representatives sent, rather than the opportunity for interested others to participate.

  It is also not clear to the Panel why funding such a meeting is an inappropriate use of co-mingled funds. Using funds to open up communication at the international level seems a good use of such monies.

- Publishing the revised version of the White Papers in the JOIDES Journal is a good idea; however, it needs to be recognized that it has a restricted circulation. A summary in EOS with a request for comments would result in wider dissemination.

- LITHP is also concerned about perceptions of ODP that exist in the community. There are several problems that have resulted in negative impressions:
  i) proposal proponents are not always part of the drilling legs for which they wrote the proposal
  ii) there is too much reliance on the JOIDES Journal to disseminate information -- especially as this journal is circulated within the drilling community
  iii) the program has not been effective at getting the word out on the scientific benefits of drilling (this is addressed under Subject 9).

LITHP recommends the following:
i) publish the drilling schedule in EOS and request applications to participate in drilling legs

ii) publish the 4-year drilling schedule in EOS and solicit proposals
iii) publish key synthesis papers in journals other than ODP publications.

Subject 4: SSP, PPSP

International panel members expressed concern over the recommendation that membership of the Site Survey Group be based on know-how and coverage of specialties. Although the principle is correct, there is no clear statement as to how individuals will be appointed to the SSG and how information concerning recommendations made by SSG will be disseminated to the member countries if there is no national representation. In addition, there are sometimes data available in foreign countries that US members may not be aware of, but a national representative may be familiar with. An SSG with national representation, but with the flexibility to bring in extra "know-how" members as needed, is favored.

Subject 5: Panel and Shipboard Party Membership

- LITHP suggests that the recommendation that the non-US members adopt a 5-year rotation policy be removed. Most have already adopted the 3-year US policy, which is considered preferable.

- The non-US panel members felt very strongly that the decision as to who should be nominated for panel membership and for shipboard parties must remain with the countries, and that there are occasions when only one person will be nominated. They believe that participation in ODP could not be justified if they are unable to exercise control on scientific participation by scientists within their countries.

  However, some flexibility could be maintained through informal discussions within the Panels when an international member is to be replaced, to determine the specialties that need representation to keep the Panel balanced. These recommendations could be taken into account when the member country considers replacements. A similar procedure could also be set up so that Co-Chief Scientists could make their needs for discipline representation known before scientists are nominated for cruises from the member countries.

- LITHP is also concerned with the recommendation that the Panels should return their past "best" member to aid in corporate memory. The Panels already have the option to bring back previous panel members (in fact, names of previous members have been brought up on the last two occasions when LITHP has discussed Panel membership). Flexibility needs to be maintained by the Panel to bring on the appropriate people -- whether or not they are past "best" members.

- LITHP also recommends that the current practice of TAMU choosing the Co-Chief Scientists be changed. It is likely that members of both PCOM and the thematic panels will be better able to judge the candidates' scientific expertise and will have direct knowledge of the individual and their suitability to take on the responsibilities of the Co-Chief Scientists' role. LITHP recommends that PCOM make the decisions concerning Co-Chief Scientists for each leg, with recommendations and advice from the panels through the Panel Chairs.

- An additional problem is that, particularly on hard rock legs when less core is recovered, the shipboard party is too large and there is insufficient work for participants, plus conflicts over sampling. The option of taking a smaller shipboard party on such legs would be very helpful. However, LITHP realizes

that taking away berths could result in loss of support for ODP, particularly when there is high demand for participation.

Subject 6: Selection of the new JOIDES Office
LITHP endorses the internationalization of the rotation of the JOIDES Office. In terms of US chairpersons, LITHP supports the possibility of the JOIDES Office going to a non-JOI institution.

Subject 7: PCOM
LITHP feels that their interests will be better represented by the attendance of the LITHP Chair at all PCOM meetings. However, **LITHP *strongly* urges that serious consideration be given to providing some support to Panel Chairs, particularly as attendance at PCOM meetings would involve an added level of activity and effort.**

LITHP also strongly recommends that the practice of a PCOM liaison attending Panel meetings be continued. The liaison plays a very important role at Panel meetings by not only providing information on PCOM activities, but often interpreting PCOM actions and recommendations, and giving advice to the Panel on how to handle specific situations or procedures.

Subject 8: Handling of Drilling Proposals
- LITHP has a number of concerns over the suggestion that a DPG create the drilling program options for PCOM approval each year:

  i) it is not clearly defined who selects the DPG and what criteria are used in the selection process. Is national representation taken into account?
  ii) the proposed plan also takes input on the drilling schedule from the Panel Chairs (that occurs now at the PCOM Annual Meeting) out of the process. It is unreasonable to expect the Panel Chairs to be part of the DPG, so the opportunity to speak for inclusion of programs of high panel interest is now lost
  iii) LITHP believes that PCOM should still be directly involved in the program scheduling as it is their ultimate responsibility. Putting it in the hands of an *ad hoc* DPG will create problems within the community concerning the way proposals are handled and make in on to the drilling schedule.

- LITHP also recommends that the guidelines for submission of proposals be revised and updated and then published frequently in journals other than the JOIDES Journal.

- LITHP suggests that, in order to provide more communication with the community, each proposal review include the name of a Panel member who can be contacted in case of questions. The Panels need to endeavor to give proponents a realistic assessment of the viability of their proposals, so that the proponents will not spend time and effort revising a proposal that is unlikely to ever be drilled.

Subject 9: Syntheses
Apart from the recommendations in the report, LITHP also suggests that Special Sessions at AGU are an effective way of disseminating the scientific results to the community.

9.0 FALL JOINT MEETING WITH DMP

The fall LITHP meeting will be held in Santa Fe, New Mexico on 12-14 October 1993. One day will be spent in joint session with DMP.

Topics for the joint agenda that have been discussed already with DMP are:
- Lithosphere Characterization
- LITHP White Paper
- A LITHP Wish List of Downhole Measurements (this needs to be prepared prior to the meeting).

LITHP would like to add the following:
- Downhole Measurements and Status of Logging Tools for Upcoming LITHP Legs
- Review of the Scientific Objectives of Upcoming Legs

10.0 MEMBERSHIP ISSUES

Nominations for Tom Brocher's replacement were not accepted by PCOM because of institutional representation reasons.

For Tom Brocher, LITHP nominates the following:
- Anne Sheehan (University of Nevada, Reno)
- Doug Wiens (Washington University, St. Louis)

Dan Moos is due to rotate off at this meeting. LITHP requests that Dan attend the next joint meeting with DMP (Dan has agreed) since he has provided much of the Panel's knowledge of downhole measurements over the past three years. However, it is also important to bring in a replacement prior to the next meeting, so there is some overlap.

For Dan Moos, LITHP nominates the following:
- Andy Fisher (now at ODP; soon to be at Dept. of Geophysics, Texas A&M University)
- Rich Jarrard (Utah University)

For Susan Humphris, LITHP nominates the following:
- Kathy Gillis (WHOI)
- Craig Manning (UCLA)

LITHP also wishes to record its thanks to Jamie Allan for his considerable lively input over the time that he was the ODP liaison - both on scientific issues and on operational concerns.

LITHP also thanks Doug Wilson for all his work hosting the meeting. In addition, thanks are due to Cliff Hopson who lead us on a field trip to the Point Sal ophiolite complex -- a real treat for us all!

With the business part of the meeting concluded, LITHP adjourned to celebrate the retirement of its current Panel Chair and to welcome Sherm Bloomer as the new LITHP Chair!

APPENDIX

LITHOSPHERE PANEL ANNUAL REPORT
December 1992
Bermuda

The Lithosphere Panel met twice in the last year: once in March in Davis, CA, and then most recently, in October in Paris, France. The most important result of our deliberations on the scientific and engineering issues that have arisen in the last year has been the decision to revise the LITHP White Paper that was written in May 1987. In this report, I will focus on the recommendations and action items pertaining first to a number of short-term issues and then move on to discuss the longer-term concerns of the Panel, including the plans for the White Paper. Finally, I will indicate a number of personnel decisions that need to be made by PCOM.

1) SHORT-TERM PLANNING ISSUES

There are four items that either require action within the next year or have been implemented or discussed in response to PCOM recommendations:

a) Leg 148 - Return to Hole 504B

In response to a request from PCOM, LITHP has discussed the proposed testing of the high temperature borehole instrumentation (HTBI) of R. von Herzen in Hole 504B. From the limited amount of information about the tool in the letter, LITHP is interested in its potential capabilities but could not evaluate the benefits of running this tool in this hole. However, the Panel recommends that, if the HTBI meets the guidelines established by DMP for third-party tools by successfully passing a land test, the tool should be taken on Leg 148 for use at the discretion of the Chief Scientists.

LITHP is also concerned that testing of instruments not jeopardize the integrity of a hole as valuable as 504B, but acknowledges that testing of high temperature tools is indeed necessary. However, LITHP also recommends that testing in Hole 504B be limited to those tools that have met all the DMP guidelines for third-party tools, and that may provide scientifically useful information for that Site.

LITHP has also discussed contingencies for Leg 148 if the hole has to be abandoned for any reason. If Hess Deep drilling is successful, then continuation of drilling at this location is an important option if there is sufficient time available. The shipboard party would be completely appropriate for such a change in site. However, if insufficient time is available, then a hole close to Hole 504B may be of interest; this option has been discussed previously by LITHP as a way to begin to investigate scales of heterogeneity of the oceanic crust.

d) Proposal Watchdogs

In the spring of this year, LITHP followed the lead of some of the other thematic panels, and set up watchdogs for the proposals that are of potential interest to the Panel. At our last meeting, in response to the request of PCOM for careful oversight of multi-leg programs, LITHP made the following additions and changes:

North Atlantic Rifted Margins - M. Coffin
Offset Drilling - S. Bloomer (transverse ridges)
P. Kempton (median valley walls)
J. Bender (rifted crust)

2) LONG-TERM PLANNING ISSUES

The decision to revise the LITHP White Paper comes at a time when there have been a number of developments over the past year that have allowed us to clarify our options and focus our efforts on defining scientific goals that are achievable within a reasonable time frame. These developments have occurred in both the engineering and scientific aspects of the program.

a) Engineering Developments

Of all the thematic panels, the Lithosphere Panel is most heavily dependent on technological and engineering developments to meet its high priority scientific objectives. Consequently, we request an ODP Engineer at every meeting to update us on the status of equipment critical to the Panel's drilling programs. This has been of considerable value to us, and we hope that we can continue this level of communication in the future.

- DCS - Since the start of 1992, there has been only one Leg that has been completed that is of high priority to LITHP, and that was the Engineering Test of the DCS on the East Pacific Rise. The failure of this leg to provide a real test of the system has caused the Panel to take another look at its priorities in a more realistic time frame as it begins to consider lithospheric drilling over the next five years. In spite of all the difficulties, LITHP strongly supports continuation of the development of the DCS as the most likely method for drilling formations that are currently beyond our capabilities.

  LITHP is also very much aware that in order for the community to continue to support DCS development, it is critical that the next sea-test is viewed as a success. Consequently, although recovery of zero-age crust is still a very high priority of LITHP, alternative sites were discussed at the spring and fall meetings that might provide a less hostile environment, while still meeting some of the engineering requirements for a good test site. In the discussions of proposal rankings tomorrow, LITHP will recommend VE-3 on the Vema Transverse Ridge in 600m of water as an alternative site for the next test.

- Deep Drilling - LITHP believes that it is critical to drill deep holes at a number of sites to understand lithospheric processes at fast- and slow- spreading ridges and to study the aging and evolution of the oceanic lithosphere. LITHP is encouraged that a deep drilling RFP will be ready for release in December, and strongly supports the efforts of TAMU and TEDCOM in their efforts to complete this study, which will be very helpful as LITHP revises its White Paper.

- Fluid Sampling - At the request of PCOM, LITHP reviewed a Science Plan submitted by J. Edmond for a high temperature fluid sampler. LITHP supports the possibility of a system for collection of borehole fluids at high temperatures, but agrees with SGPP that this is not a replacement for formation fluid sampling, which should remain a long-term goal. LITHP therefore continues to support the development of an *in situ* fluid sampler as outlined in the RFP submitted to PCOM by the *In situ* Fluid Sampling Working Group.

b) Scientific Issues

There are three areas of interest that were discussed at the fall meeting that will be reflected in our revision of the LITHP White Paper .

- Offset Drilling - LITHP views the final report of the Offset Drilling Working Group as an important contribution to the future directions of ODP lithospheric drilling, and recommends that the document be accepted and the current Working Group disbanded. The Panel is also faced with the reality that several of the drilling proposals that wish to use this strategy are mature, and that the Panel does not wish to see drilling of prime Atlantic sites delayed while a detailed planning group deliberates. Consequently, LITHP will assume the role of actively seeking and nurturing proposals, and then prioritizing them, so that the objectives outlined in the Report can be met. This will be done through a sub-group of three LITHP members.

- Global Geoscience Initiatives - At the request of PCOM, LITHP reviewed the issue of liaisons with other Global Geosciences Initiatives. Through its current members, LITHP has liaisons with the U.S., British, German and French RIDGE programs, the Nansen Arctic Drilling Program, the International Lithosphere Project, the FDSN, and the International Association of Volcanology and Chemistry of the Earth's Interior; consequently, LITHP has good representation of other programs. However, in recognition of the need to consider these programs during drilling and planning considerations, LITHP will include reports from other initiatives as an agenda item at its spring meeting.

- Post-Drilling Borehole Science - Over the next few years, it is likely that drillholes will become important scientific assets that will be in demand for post-drilling science. It appears that there are currently about 20 holes that might be appropriate for such use, and their use falls under a set of guidelines published by EXCOM. Given the importance of maintaining the integrity of holes that are potentially of scientific importance for deepening, LITHP recommends that the review process for use of open holes be expanded to include the appropriate thematic panels. In addition, the opportunities for post-drilling science need to be made known, so LITHP also recommends to the JOIDES Office that a short article on this topic be included in an upcoming issue of the JOIDES Journal.

3) REVISION OF THE LITHP WHITE PAPER

On the basis of all the topics discussed above, LITHP will update its White Paper to better reflect its short-term and long-term objectives. Although the overall goals have not changed substantially, there has been a shift in the emphasis and time scales of activities over the next few years. LITHP is also concerned that, in the process of rewriting this document, input from the scientific community is acquired to avoid the perception that the plans are being made by a small group of individuals. Consequently, the overall timetable includes an open meeting for discussion, with a final version being presented to PCOM at the next Annual Meeting.

LITHP requests endorsement of this plan from PCOM, and advice and help from the JOIDES Office in identifying potential funding sources for the Open Meeting proposed in the timetable. It is important that international representation will be possible at this meeting.

4) PANEL MEMBERSHIP ISSUES

LITHP has had six individuals complete their terms this year, including three of the international member countries' representatives. New Panel members from the ESF and Germany began serving this fall; we have not yet been officially informed of the new member from Canada/Australia.

After consideration of the expertise represented on the Panel, an additional member was added to cover interests in Large Igneous Provinces, bringing the total number of panel members to seventeen.

Two items require PCOM attention at this meeting. First, Jim McClain and Tom Brocher rotated off at the fall meeting, thereby eliminating the seismic expertise from the panel. LITHP nominates Dave Caress to replace Jim; Dave has been contacted and is willing to consider serving on the Panel if elected. LITHP also nominates Jill McCarthy to replace Tom; Jill is in the field and could not be reached, so we have been unable to establish her interest in serving.

The second item concerns a replacement for the Panel Chair, who will be rotating off after the spring meeting. We request PCOM action at this meeting on the new Panel Chair, but not on the panel replacement which can be decided at the spring meeting. The Panel Chair decision is necessary so that there can be a meeting of overlap to allow a smooth transition. Four nominations were considered - two who are currently LITHP members, and two who are not, but who have had considerable input at the PCOM level into the JOIDES Advisory Structure. The unanimous nomination of the Panel is Sherm Bloomer - a current Panel member who has been highly effective and has made a valuable contribution. He is willing to serve and has made all the necessary arrangements with his Department to reduce his workload to devote an appropriate amount of time to the task. LITHP is interested in bringing in a new, well-respected and fair individual to promote LITHP's interests in the Advisory Structure. The Panel looks forward to his strong leadership and hopes that PCOM will endorse his nomination.